



Meeting Book - Open Session Board of Governors Meeting: April 24, 2025

Open Session

1. Call to Order/Land Acknowledgement

As we begin this meeting, I would like to acknowledge that we are in the territory of the Robinson-Huron Territory of 1850 and that the land on which we gather is Nipissing First Nation Traditional Territory and the traditional territory of the Anishinabek. We respect and are grateful to be on these lands with all our relations.

Dave Smits

2. Declaration of Conflict of Interest

Dave Smits

3. Use of Recording and/or Broadcasting Devices

Only pre-approved methods of recording and/or broadcasting may be used. Disseminating any information during the meeting is prohibited.

Dave Smits

4. Consent Agenda

That the items included "for adoption" on the April 24, 2025, consent agenda for the Open Session of the Board of Governors meeting be approved as circulated, while the items on the consent agenda "for information only" be received.

Resolution

Dave Smits

i. i) For Adoption

a. a) Minutes of Previous Board of Governors Meeting(s) - Open Session

2025-02-13 - Open Session Minutes.pdf

ii. ii) For Information

a. a) Minutes from Meetings of the Board's Standing Committees

2025-03-10 Audit & Finance Minutes

2025-04-14 - Audit & Finance Minutes (final).docx

2025-04-14 Fundraising Minutes.docx

2025-01-27 - Plant & Property Minutes.pdf

b. b) Reports from Other Committees/Bodies

Senate Report to the Board of Governors April 15, 2025.docx

5. Adoption of Regular Agenda

That the Board of Governors adopt the April 24, 2025, Open Session regular agenda as circulated.

Resolution

Dave Smits

6. Chair's Remarks

Dave Smits

7. Chancellor's Remarks

Dr. Scott
Russell (d.Litt)

8. President's Remarks

Dr. Kevin
Wamsley

9. Academic Plan/Operational Plan (APOP)

10. Vice-President's Remarks

i. Provost and Vice-President, Academic

Dr. Ann-
Barbara Graff

11. Board Committee Reports

i. University Governance Committee

Resolution

John
D'Agostino

Resolution: That the Board of Governors accept the recommendation of the University Governance Committee to appoint David Smits to the position of Board Chair for a one-year period effective July 1, 2025.

Resolution: That the Board of Governors accept the recommendation of the University Governance Committee to appoint John D'Agostino to the position of Board Vice Chair for a one-year period effective July 1, 2025.

Resolution: That the Board of Governors accept the recommendation of the University Governance Committee to appoint Ravil Veli to the position of Board Vice Chair Pro Tem for a one-year period effective July 1, 2025.

ii. Audit & Finance Committee

Resolution

Marianne
Berube

Resolution: That the Board of Governors accept the recommendation of the Audit & Finance Committee to approve the 2025/26 Nipissing University Ancillary Fees as presented.

Resolution: That the Board of Governors accept the recommendation of the Audit & Finance Committee to approve the 2025/26 Nipissing University Student Union Ancillary Fees as presented.

Resolution: That the Board of Governors accept the recommendation of the Audit & Finance Committee to approve the 2025/26 Domestic tuition rates as presented.

Resolution: That the Board of Governors accept the recommendation of the Audit & Finance Committee to approve the 2025/26 Out-of-Province tuition rates as presented.

Resolution: That the Board of Governors accept the recommendation of the Audit & Finance Committee to approve the 2025/26 International tuition rates as presented.

Resolution: That the Board of Governors accept the recommendation of the Audit & Finance Committee to approve the 2025/26 Budget as presented.

- a. NU Fees 2025 2026 Signed.pdf
- b. NUSU Fees 2025 2026 Signed.pdf
- c. 2024-2025 Tuition increase memo.docx
- d. Budget Package Board.pdf

iii. Fundraising Committee

Resolution

Ravil Veli

Resolution: That the Board of Governors accept the recommendation of the Fundraising Committee to approve the Naming of Campus Assets Policy as presented.

Resolution: That the Board of Governors accept the recommendation of the Fundraising Committee to approve the Gift Acceptance Policy as presented.

- a. Naming of Campus Assets Policy - 2025 (1).docx
- b. Gift Acceptance Policy - 2025 (1) (1).docx

iv. Executive Committee

Resolution

Ann-Barbara
Graff

Resolution: That the Board of Governors accept the recommendation of the Executive Committee to approve the creation of the Data Science Program.

Resolution: That the Board of Governors accept the recommendation of the Executive Committee to approve the creation of the Environmental Science Program, subject to final approval of the Ministry. .

- a. Data Science Update & Proposal rev 21Feb25 (1) (1).pdf
- b. NU_ENVSC.Proposal.31Jan25_NC (1) (1).pdf

12. Board Representatives on Other Committees/Bodies

i. Nipissing University Student Union (NUSU)

13. Question Period

14. Other Business

15. Next Meeting Dates/Adjournment

That the Open Session of the Board of Governors' regular meeting now adjourn.

Resolution

NIPISSING UNIVERSITY
BOARD OF GOVERNORS MEETING

OPEN SESSION

February 13, 2025

The Open Session of the regular Board of Governors meeting was held on Thursday, February 13, 2025, at 5:30 p.m. in the President's Boardroom and via Zoom Remote Conferencing.

Members Present: John D'Agostino, Board Vice-Chair
Anahit Armenakyan
Marianne Berube
Patti Carr
Fran Couchie
Judy Koziol
Jamie Lowery
Jessica McMillan
Laurel Muldoon
Doris Olmstead
Joe Sinicrope
Judy Smith
Katrina Srigley
Janet Stockton
Maurice Switzer
Scott Russell
Ravil Veli
Kevin Wamsley
Kathy Wilcox
Sarah Winters

Regrets: Dave Smits, Board Chair
Matt DeVuono
Stacie Fiddler
Alisher Mansurov
Harikesh Panchal

Invited Guests: Ann-Barbara Graff (PVPA)
Renee Hacquard (VPFA)
Abby Blaszczyk (University Secretary)
Christine Benoit
Cheryl Zimba
Graydon Raymer
Nathan Colborne

Official Observers: n/a

of Observers: 3

Recording Secretary: Maggie Horsfield, Office of the President

1. Call to Order/Land Acknowledgment

The meeting was called to order at 5:31 p.m. The Board Vice Chair offered a traditional land acknowledgement.

2. Declaration of Conflict of Interest

The Board Vice Chair called for conflicts of interest concerning any of the agenda items; no such declarations were made.

3. Use of Recording and/or Broadcasting Devices

The Board Chair reminded everyone that only pre-approved methods of recording and/or broadcasting devices may be used during the meeting. Disseminating any information during the meeting is prohibited.

4. Consent Agenda

The following items were included on the consent agenda:

- i. For Adoption
 - (a) Minutes of the November 28, 2024, Board of Governors Meeting (Open Session); and
 - (b) Minutes of the January 24, 2025, Board of Governors Special Meeting (Open Discussion).
- ii. For Information Only
 - a) Minutes from Meetings of the Board's Standing Committee:
 - 1. University Governance Committee – Minutes from January 27, 2025;
 - 2. Audit & Finance Committee - Minutes from January 27, 2025;
 - 3. Community Relations Committee – Minutes from January 27, 2025; and
 - 4. Fundraising Committee – Minutes from January 27, 2025.
 - b) Reports from Other Committees/Bodies:
 - 1. Nipissing University Alumni Advisory Board;
 - 2. Nipissing University Student Union; and
 - 3. Academic Senate

Resolution 2025-02-01: ***That the items included “for adoption” on the February 13, 2025, consent agenda for the Open Session of the Board of Governors meeting be approved as circulated, while the items included on the consent agenda “for information only” be received.***

*Moved by Ravil Veli; seconded by Judy Koziol.
Carried.*

5. Adoption of the Regular Agenda

Resolution 2025-02-02: ***That the Board of Governors adopt the February 13, 2025, Open Session regular agenda as circulated.***

*Moved by Judy Koziol; seconded by Kathy Wilcox.
Carried.*

6. Vice-Chair's Remarks

The Vice-Chair welcomed members to the meeting and provided notice that the Board meeting originally scheduled for June 5, 2025, would be shifted to June 25, 2025, due to a scheduling conflict with Convocation and the Annual Gala.

He noted that this meeting is the last for members Kathy Wilcox and Joe Sinicrope. Mr. Sinicrope is eligible for a second term, and the Board awaits additional information on reappointment through the Lieutenant Governor in Council, with an expected delay due to the ongoing provincial election. Kathy Wilcox will complete her second term on February 27, 2025, and the Vice-Chair spoke to her dedicated leadership on the Board Executive, as Chair of Fundraising and Board Vice-Chair Pro Tem. The Board expressed their gratitude to the members.

- Per the Search/Appointment/Reappointment of Senior Academic Administrative Officers Policy, no less than fifteen (15) months before the completion of the term of the President, a reappointment committee shall be struck, and the process reviewed in detail. The Committee requires two (2) non-constituent members of the Board of Governors, and the following resolution was made:

Resolution 2025-02-03: ***That the Board of Governors appoint Judy Koziol and Ravil Veli to the President's Reappointment Committee.***

*Moved by Fran Couchie; seconded by Anahit Armenakyan.
Carried.*

7. Chancellor's Remarks

The Chancellor applauded the efforts of the Lakers Hockey teams on the successful Military Appreciation Games, and the Basketball teams on the Fourth annual Shoot for Change doubleheader. This platform to advocate for marginalized communities while raising funds for the Warren Lindsay Bursary in aid of BIPOC students with financial need is credit to Nipissing University and the humanitarian nature of the student body. Dr. Russell recently spoke with Taijon Eccleston-Graham, the founder of Shoot for Change, following his documentary series, 'The Road to Convocation,' and discussed the possibility of wider distribution of the series.

The Chancellor also highlighted his recent participation in a fundraising gala for the Canadian Foundation for Physically Disabled Persons, where he became aware of newly instituted endowment funds in each of Canada's 13 provinces and territories to assist University students living with a disability. Dr. Russell is having an informal meeting in the coming weeks to understand

how the endowment works and what opportunities might be available for students living with a disability at Nipissing University.

8. President's Remarks

The President provided a report on recent and upcoming activities on campus and in the community. The report, which is appended to these minutes, included an update on a projected surplus this year, as reported to the Audit & Finance Committee. This is as a result of a strong recruitment year in 2023-24, though he noted the challenges presented to enrolment through international recruitment and, as expected, this has had a direct impact on revenues. The major factor of the surplus is driven by the successful advocacy to the Province. Following up with the recommendations of the Treasury Board report, the AGO Report, and the principles of the strategic plan have resulted in a strong case for support of which the Province responded well in 2024-25, providing assistance to the operating funds, top-up grants, and a one-time significant top-up to the Northern Grant. This advocacy has enabled us to strengthen our financial position significantly and in short order.

President Wamsley also provided an update on the development of our ancillary services through expansion of food sales, residence use-for-profit, and developing additional extended learning opportunities. A new Director of Ancillary Revenues and Business Development has been hired and will be responsible for the generation of these revenues.

He also spoke to the launch of the Equity Audit, to be conducted by the successful bidder, ParriagGroup. The ParriagGroup will be meeting with several groups on campus and will be available for questions at the next Community Forum on Wednesday, February 19. The President reminded Board members that the purpose of the audit is to survey and interview faculty, staff, and students to hear about their experiences studying, living, and working at Nipissing University and they will assess and evaluate the equity in our university processes to ensure a more inclusive environment for everyone. He thanked the Task Force members for their tireless work.

President Wamsley concluded his remarks in recognizing Black History month, highlighting on campus activities including the Black Excellence Dinner, the 4th Annual Shoot for Change basketball games, and a Black History Month film event.

Several questions were raised, including how offerings for extended learning courses are decided. The Provost noted that it is dependent on the type of credential, as Additional Qualification/Additional Basic Qualification courses are selected by the Dean of Education as the credits correspond to offerings within the Schulich School of Education. Work is underway with ECampus to grow our micro-credential offerings. The Director of Teaching and Learning will be attending and presenting at a Micro-Credential Forum at the end of February and will disseminate the information learned back to the campus community.

9. Strategic Mandate Agreement (SMA) 4

Stephen Tedesco, Director of Institutional Analysis and Planning discussed the Strategic Mandate Agreement 4 (SMA4), which is structured very similarly to SMA3 and will span five years, beginning in 2025/26. The agreement involves negotiations between the ministry and the University and

outlines priorities, strengths, opportunities for growth, and includes a performance measurement framework. He explained that our ability to continually meet or exceed annual performance targets will determine the amount of funding we retain and emphasized the importance of being strategic with how we determine metric weighting to ensure funding stability through SMA4.

In response to a question regarding mechanisms in place to identify the reasons for attrition, the Director noted that there are systemic and non-systemic reasons, including environmental factors outside of our control which impact us compared to performance. Nipissing has staff focused on retention support, and there is a growing opportunity to reach out to students and campus members to talk about barriers, including potential exit surveys.

A suggestion was made to include the Strategic Mandate Overview as part of the orientation for new members, and this will be taken into consideration.

10. Vice-Presidents' Remarks

The Provost and Vice-President, Academic (PVPA) highlighted a number of items from the submitted report, including updates on Project Integrate, recruitment targets, and hiring for Associate Dean and Dean positions.

An update was requested on the provostial working group for indigenous reconciliation, and the PVPA spoke to a delay as a search is ongoing to appoint a new Director within the Office of Indigenous Initiatives. The group will be convened as the first endeavour in the Director role. In response to a question regarding indigenous involvement in the selection process for the Director, the PVPA noted there would be representation.

The Vice-President, Finance & Administration (VPFA) reported that budget work is ongoing and the 2025/26 budget package will be brought to the Board according to the approved timelines.

11. Board Committee Reports

Fundraising Committee

The Gift Acceptance Policy and Naming of Campus Assets Policy were presented to the Board for approval following a recommendation from the Fundraising Committee. Concerns around fiduciary language were raised and the policies will be sent back to the Committee for further edits.

12. Board Representatives on Other Committees/Bodies

Nipissing University Student Union

No further remarks.

Academic Senate

The Academic Senate has provided an affirmative recommendation to close the Scholarly Practitioner Program. The program, which was originally suspended in 2022/23, required a significant investment from the University, including leased facilities offsite, renovations to leased facilities, and close collaboration with teaching hospitals, with insufficient financial resources to support. Over the last two years, the underlying conditions for the program did not change, and as such, the School of Nursing brought forward a recommendation to close the program, which has been confirmed by Senate and now a resolution is being sought to formally close the program. The Provost confirmed there is no faculty, students, or funds attached to the program at this time.

Discussion was welcomed, with concerns being raised around the current need for nursing graduates in Ontario healthcare. The Dean, Education and Professional Studies noted that the program failed to meet enrolment targets and reiterated that the School of Nursing put forward the recommendation for closure as they were able to surpass enrolment on campus with the vacated SPP and with bridging programs.

Following discussion, a call for a recorded vote was made:

Resolution 2025-02-04:

That the Board of Governors accept the recommendation of the Executive Committee to formally close the Scholar Practitioner Program (SPP) effective April 30, 2025.

Moved by Ravil Veli; seconded by Fran Couchie.

S. Winters – Opposed.

K. Srigley, A. Armenakyan – Abstain.

Carried.

Joint Committee of the Board and Senate on Governance

The Joint Committee met numerous times to discuss a set of motions to create a clear policy pertaining to the suspension of admissions and enrolments. The main discussion revolved around the authority and process for suspending academic programs. The University Act refers to the jurisdiction of Senate as primarily focused on academic decisions, such as program closures, while administrative decisions, particularly those that are fiduciary in nature, fall under the Board's authority.

A proposal was tabled which focused on the roles of the Dean, Provost, and Senate within the current Guidelines for Program Suspension. The Joint Committee voted to endorse the Final Program Suspension Procedures, however the procedures are coming forward for Board approval to ensure the process cannot be changed at the will of a future Provost or administrator.

Clarification was sought on the roles of the Dean, Provost and AQAPC in the process, and the Provost spoke to plans for data sharing and program health checks. She noted that the Dean works with faculty councils on a proposal, and those conversations should be robust and meaningful around enrolment suspension.

Following discussion, a recorded vote was called and the resolution is as follows:

Resolution 2025-02-05:

That the Board of Governors accept the recommendation of the Joint Committee to approve the Suspension of Enrolment Procedures as presented.

*Moved by Judy Koziol; seconded by Marianne Berube.
K. Srigley, A. Armenakyan, S. Winters – opposed.
Carried.*

13. Question Period

There were no questions.

14. Other Business

There was no other business.

15. Next Meeting/Adjournment

The next Committee Day is March 10, 2025, and will include the University Governance, Audit & Finance and Executive Committees.

The next Board meeting is April 24, 2025.

Resolution 2025-02-06:

That the Open Session of the Board of Governors' regular meeting now adjourn.

*Moved by Judy Koziol; seconded by Fran Couchie.
Carried.*

Open session adjourned at 7:15 p.m.

President & Vice-Chancellor/Secretary of the Board

Board Chair



President's Report to the Board of Governors February 13, 2025

President's Report

Welcome to our first Board meeting of 2025. We find ourselves almost halfway through our Winter Term with only a few months left to fiscal year end for 2024-25. On committee day, January 27, we provided updates to all our Board subcommittees on various items as we move through our year and our operational planning processes. As always, our small but effective team is working on many projects simultaneously to keep the university on course and to make important changes as we chart a course towards a sustainable future. As you will see from our Audit and Finance report, we are still projecting a balanced budget, in fact we are projecting a significant surplus, which we will invest in our Reserves. A few comments about why we find ourselves in this position. As reported to the Board last year, we had a very good recruiting year in 2023-24 and the returning students make up a strong enrolment class for this year. Board members are aware of the challenges presented to our enrolment of international students and this, as expected, has had a direct impact on our revenues and on some of our class sizes, necessarily. These revenue decreases, however, have been offset by a strong cohort of January students, primarily domestic and primarily in our Nursing program.

The major factor in our surplus has been driven by our successful advocacy to the Province. Following up from the Treasury Board Report and the Auditor-General's Report and from the principles of our strategic plan – and you will find all of these strategic directions consistent with the NOUS recommendations – we have presented a very strong case for support to the Province. And the Province responded very well in 2024-25, providing assistance in operating funds, providing a top up because we had been categorized as a high-risk institution, and a one-time significant top up to our Northern Grant. In short, this advocacy and support have enabled us to strengthen our financial position significantly and in short order. Our advocacy is complete for 2024-25 and our work for fiscal 2025-26 is on hold with the provincial election. Board members may be aware that the provincial leaders' debate will be held next door tomorrow. As part of this visit, the leader of the Liberal Party, Bonnie Crombie requested a meeting with me, and we have just given her a tour of our facilities in the past 90 minutes.



President's Report to the Board of Governors February 13, 2025

We are currently in our budget season and just this week, we are participating in unit budget meetings and will do so for the next couple of weeks as we move towards the creation of a draft budget. All units are preparing their submissions for 2025-26, with the understanding that revenues are limited, and expenditures must be strategic and align with principles underscored in our strategic plan and academic/operational plans. We don't anticipate receiving the government support that we did this year, and, because of the pending election, the communication of this information will be delayed. We continue to budget carefully, to spend carefully, to recruit both domestically and internationally in earnest, and we continue to develop new programs that we believe will be attractive to students.

We also are continuing to work on developing our ancillary services, expanding our food sales, and residence use for profit, and developing extended learning opportunities. We have recently appointed a new Director of Ancillary Revenues and Business development and he, Mike Dupelle, will be responsible for generating these revenues. We have had some success in fundraising which will be announced in the coming months. As you know, one of our priorities this year is to support research and to build our national reputation by supporting student research in the field and by developing our work integrated learning experiences in our city. These are some preliminary statements on my part. There will be much more to come. Thanks to all of you who supported our Day of Giving and year end giving. We raised more than \$14,000 and this amount was matched by a generous donor. These funds will go directly to paying students to perform hands on research under the direct supervision of their professors who have funded research in progress.

Please consider attending our research month events – the NU360 evening, the undergraduate research conference, and the three minute thesis. This year's annual dinner will be raising money for the Student Research Opportunities Fund and the date is Friday June 13. We will be looking to Board members to sell tables and to assist us in obtaining silent auction items.

With respect to the NOUS Report, please know that the Province has not been very clear with the processes to date. We were required to demonstrate that the Board had been engaged somehow to date and the purpose of our special Board meeting in late January was to update you on



President's Report to the Board of Governors February 13, 2025

the NOUS work. Of course we were challenged by these deadlines. As I stated in my remarks at that special meeting, we look forward to seeing the full NOUS Report and responding to it. Our plan is to present a response to the plan to the Board outlining which recommendations we will follow, timelines, and how these changes will be carried out. The Board will have the NOUS Report, combined with Cheryl Foy's Report on governance and our response to consider.

Also, our Vice Presidents and their teams push forward actions related to our operational planning and academic planning. These actions of course are targeted towards sustainability and to enhancing the learning and working environments of our campus. At the same time, the equity audit has been launched, conducted by the successful bidder, the ParriagGroup. Our Task Force met with them on January 30, and they will be meeting shortly with several groups on campus, and will be available for questions at our next community forum on Wednesday February 19 and we will be working to provide them with all available and appropriate data. To restate the purpose of the audit for the Board, the firm is surveying and interviewing faculty, staff, and students to hear about their experiences studying, living, and working at Nipissing University and they are assessing and evaluating the equity in our university processes, whether it be recruitment, transition services, residence life, academic programs and services, classroom environments, work environments, hiring practices, promotion and tenure, and our responses to the Truth and Reconciliation Calls to Action. All of this to create a more inclusive environment for everyone across all our campus services, activities, and our classroom and research experiences. I have thanked all of our Task Force members many times for their tireless work, but I want to extend a special thank you to Traci Malikowski who has led our organization, provided all of the materials for meetings, arranged for the recording and note taking for all meetings and has kept us on track to get to this point.

Nipissing University has been celebrating Black History month, including the Black Excellence Dinner, where City and Town Mayors, and our MPP honored the story of Canada's first Black Mayor – Dr. Saint-Firmin Monestime who became the Mayor of Mattawa in 1963. Last weekend we hosted the 4th annual Shoot for Change basketball games which raise awareness about racism on university campuses and raise money for the Warren Lindsay bursaries. Last evening we hosted a Black History Month Film Event with



President's Report to the Board of Governors February 13, 2025

commentary and Q&A with the film's director and moderated by our own Dr. Charles Anyinam entitled: What We Deserve – Restorative Justice and Reparation.

A reminder that February 24-28 is Indigenous Week, and the Office of Indigenous Initiatives is organizing a number of celebratory and educational activities.



NIPISSING UNIVERSITY BOARD OF GOVERNORS

AUDIT & FINANCE COMMITTEE MEETING

OPEN SESSION

March 10, 2025

The Audit and Finance Committee met on Monday, March 10, 2025, at 10:30 a.m. in the President's Boardroom (F303) and Zoom remote conferencing.

Members Present: Janet Stockton (Committee Vice-Chair)
Patti Carr
John D'Agostino
Sarah Winters
Jessica McMillan
Kevin Wamsley
Dave Smits
Harikesh Panchal (student observer, non-voting)
Renee Hacquard (VP, Finance & Administration – non-voting)
Ann-Barbara Graff (Provost – non-voting)
Abby Blaszczyk (University Secretary – non-voting)

Regrets: Marianne Berube, Committee Chair
Scott Russell

Guests: Chris Bevan, Kennedy Insurance
Tiffany Cecchetto, KPMG

Recording Secretary: Christine Benoit (Office of the President)

1. Welcoming Remarks/Land Acknowledgement

The meeting was called to order at 10:31 a.m. and a traditional land acknowledgement was made.

2. Conflict of Interest

The Committee Vice-Chair called for any conflicts of interest; no such declarations were made.

3. Audit Planning

Tiffany Cecchetto, KPMG, provided a high-level summary on the audit planning process, speaking to the audit quality, risks, and areas of focus. The audit process is expected to begin in July 2025, and KPMG will report back to the Audit & Finance Committee in September. Following the review, comments and questions were welcomed and the Vice Chair highlighted the required inquiries of the Audit Committee regarding risk assessment, the University's processes, and related practices

and significant unusual transactions. The VPFA and KPMG will connect to discuss how to best address these questions and bring those back to the Audit and Finance Committee for further discussion.

4. Insurance Update

Chris Bevan, Kennedy Insurance, presented a summary of the Nipissing University Insurance Portfolio. He provided program and insurance coverage highlights, and a summary document is appended to these minutes for information.

Questions were welcomed, with a suggestion brought forward to consider internal risk assessment tools to ensure the Board does not overlook any major areas of risk. Mr. Bevan indicated that there are existing seminars and educational sessions tailored to risk exposure. He also indicated that Kennedy Insurance works closely with the VPFA through a variety of situations and risk assessments. It was requested that an educational session be made available at the September Board Orientation for both new and returning Board members.

5. Year to Date Financial Update (Renée Hacquard)

The Vice-President, Finance and Administration reviewed the actual year-to-date results as of January 31, 2025, with no significant changes to year-end projections since the last meeting of the Committee. The University has a consolidated surplus of approximately \$15.8 million, with an overall projected surplus of \$5.8 million by year-end, as expenses will outweigh revenues for the remaining months of the fiscal year.

6. Enrolment Update

The Provost and Vice-President, Academic provided an update on enrolment, noting only provisional information is available at the time of the meeting. Applications are currently 5% higher when compared to last year, however, increases are mainly in programs that are capped, including Education and Nursing. Recruitment is utilizing more high-contact strategies with established enrolment targets.

International applications are down when compared to last year despite an increased focus. Federal government restrictions continue to impact these numbers across the sector. In response to a question about whether the perception of housing availability in the community has been a factor in international recruitment, the President indicated that it has not been a discussion point for approximately the past 18 months.

A Committee member inquired if faculty members in programs with drops in enrolment will be held accountable for the decline. The Provost noted that Deans will have conversations with program representatives, the recruitment teams, marketing, and the Registrar's Office staff to analyze if current program offerings match student interest. Application and enrollment declines are markers of concern for long-term program health. An additional question regarding US students and if there has been an influx in applications given the current political climate. The Registrar is closely monitoring to watch for an influx, particularly with LGBTQ2S+ staff and faculty seeking a safe work and learning environment.

7. 2025-26 Budget Update (Renée Hacquard)

Meetings have been held with most budget holders to review submissions and discuss any requests for the 2025/26 budget. Analysis is underway for accuracy and completeness and new initiatives and position requests will be assessed in context of the Strategic Plan, the Academic and Operational Plan, and financial sustainability.

The VPFA anticipates the 2025-26 Fully Consolidated Budget will be balanced, while also highlighting the difficulties of maintaining a budget with one-time funding due to the temporary nature of the funding.

8. Other Business

There was no further business.

The meeting adjourned at 11:59 a.m.

Recording Secretary

Committee Chair

NIPISSING UNIVERSITY BOARD OF GOVERNORS

AUDIT & FINANCE COMMITTEE MEETING

OPEN SESSION

April 14, 2025

The Audit and Finance Committee met on Monday, April 14, 2025, at 10:00 a.m. in the RJ Surtees Athletics Centre and via Zoom remote conferencing.

Members Present: Marianne Berube (Committee Chair)

Dave Smits

Patti Carr

John D'Agostino

Janet Stockton

Sarah Winters

Harikesh Panchal

Jessica McMillan

Kevin Wamsley

Ann Barbara Graff (PVPA – non-voting)

Renee Hacquard (VP, Finance & Administration – non-voting)

Abby Blaszczyk (University Secretary – non-voting)

Guests:

Linds Sullivan

Fran Couchie

Doris Olmstead

Anahit Armenakyan

Ravil Veli

Recording Secretary: Christine Benoit (Executive Assistant, Office of the President)

1. Call to Order/Land Acknowledgement

The meeting was called to order at 10:00 a.m. A traditional land acknowledgement was offered.

2. Call for Conflicts of Interest

The Committee Chair called for any conflicts of interest; no such declarations were made.

3. 2025/26 Draft Budget

The President provided preliminary remarks, noting the 2025-26 Nipissing University Budget aims to advance sustainability and reflects early results from the implementation of the Academic and Operational Plan (APOP) linked to the Pathways Strategic Plan. Despite ongoing external audits and

reviews due to previous financial instability, the university is adapting to new government frameworks and efficiency mandates. He also highlighted the negative impact of Federal policies on international student enrolment, which continues to have an impact on the financial health of the institution.

The President spoke to efforts underway to implement the recommendations from the various reviews and audits, to enhance academic programs, and increase alternative revenue streams. He was pleased to highlight the university's commitment to improving our financial standing, with reserves projected to exceed \$15 million.

He concluded his opening remarks by recognizing the exceptional work completed by the VPFA, the Finance Team, The Office of the Provost, the Deans, and faculty and staff during the budget process.

The VPFA provided updated projections for 2024-25, highlighting a \$5.8 million positive variance in the Operating Fund as a result of additional grant revenue. The Ancillary fund is projecting a \$382k negative budget variance due to additional in-year spending on repairs and maintenance, due to the positive overall financial position. The projected consolidated result for 2024-25 is approximately \$6 million.

The VPFA then spoke to the Fiscal Full-time Equivalent (FFTE) enrolment numbers over the past two years, as well as the projected budgets for 2026-27 and 2027-28. Ms. Hacquard noted the numbers are lower than the Strategic Enrolment Management (SEM) enrolment targets presented in a previous Closed Board session, and work is ongoing to develop a band of tolerance to reduce the difference between the SEM targets and budget targets, with a goal of increasing overall enrolment and tuition revenues.

Overall revenues are budgeted at \$1.5 million less than the projections for 2024-25, and this variance is due to a decrease in international tuition revenues, as the shortfall from the 2024-25 recruitment season has a significant impact on the 2025-26 enrolment budget. Grants are budgeted close to 2024-25 amounts; however, there is no assumption of a top-up for the Northern Grant. Domestic tuition includes an additional 188 FTE, tuition rate increases for targeted programs, and increases for out-of-province tuition, will result in an additional \$1.5 million in domestic tuition. International Tuition includes an increase in tuition, as well as the assumption of 123 returning FTE and 43 new FTE.

The VPFA spoke to expenses, highlighting that expenses are budgeted at \$4.8 million more than the projections for 2025-26, with the majority being in salaries and benefits.

Miss Hacquard reviewed both instructional and non-instructional staff, highlighting 2 new Tenure-Track positions, and 8 new positions for non-instructional staff. Several other positions are being considered to assist with the implementation of the Governance review and Efficiency and Accountability Implementation Plan, however these positions are not included in the budget. It is anticipated that some in-year positions may be created as we work through the Implementation Plan.

Non-staff expenses include an increase of 2%, which is in line with estimated inflation. Increases in utilities and travel costs have been offset by a decrease in budget for international agent commissions.

When reviewing the Ancillary budget for 2025/26, the VPFA spoke about an increase in revenues through Extended Learning offerings in Youth Programming, including summer camps and PD day camps. The VPFA highlighted the reallocation of the AQ/ABQ revenues and expenses from the Operating Budget to the Ancillary budget under Extended Learning. The department also continues to provide extensive support to athletic camps. Work continues toward the development of micro-credential offerings and community courses.

Included in the budget is a residence rate increase of approximately \$230.00 per student.

The Director, Ancillary Services and Business Development will be working closely with their team to develop a plan to improve the profitability of each ancillary division, and this work has started earlier this year.

The Capital Budget, which represents planned capital investments for the 25/26 fiscal year, was reviewed, with just under \$4.7 million of capital projects planned this fiscal year. These projects are covered through a number of funding sources, including the operating budget, the Facilities Renewal funding, external donations, and the Training, Equipment & Renewal fund.

Vice-President Hacquard presented the total consolidated budget and was pleased to note a consolidated surplus of \$272.

The Multi-year budget projections were reviewed, highlighting that the budgets for the following two years are currently projected as deficits should no additional government grants be received.

The impact of the 24/25 projections and the 25/26 budget, as well as the next two projected budgets show improvements on most ratios within the Ministry's Financial Accountability Framework. The University received confirmation that our 2023-24 financial results have moved us from a Medium Action Plan to a Low Action Plan. 'Low Action' means the Ministry will require the University to continue to provide annual status reports until all categories are in the 'no action' zone.

The VPFA reviewed spendable net assets and cash flow, highlighting a projected \$15 million in spendable net assets for 24-25, and if we achieve the budgeted results for 2025/26, spendable reserves will remain steady.

Throughout the presentation, questions were welcomed from both Committee and non-Committee members, and many clarifying questions were addressed. Following a robust discussion, a motion was put forward:

Motion: *That the Audit & Finance Committee recommend to the Board of Governors that the 2025/26 Budget be approved as presented.*

Moved by Janet Stockton; seconded by John D’Agostino.

Carried.

Unanimous.

4. Tuition Rates

The following motions were put forward, and in response to a request for a rationale for the increase to international tuition, it was noted that Nipissing University remains among the lowest in international tuition rates.

Motion: *That the Audit & Finance Committee recommend to the Board of Governors that the 2025/26 Domestic tuition rates be approved as presented.*

Moved by Dave Smits; seconded by John D’Agostino.

1 opposed. 1 abstention.

Carried.

Motion: *That the Audit & Finance Committee recommend to the Board of Governors that the 2025/26 Out-of-province tuition rates be approved as presented.*

Moved by Dave Smits; seconded by Janet Stockton.

1 opposed. 1 abstention.

Carried.

Motion: *That the Audit & Finance Committee recommend to the Board of Governors that the 2025/26 International tuition rates be approved as presented.*

Moved by Dave Smits; seconded by Janet Stockton.

1 Opposed. 1 abstention.

Carried.

5. Ancillary Fees Report

The Compulsory Ancillary Fees Committee held several meetings to review ancillary fees for the 25/26 fiscal year. The committee membership is comprised of 50% University Administration and 50% student representation. The committee is responsible for recommending to the Board of Governors through the Audit & Finance Committee any proposed changes to the ancillary fees.

The AVP Students presented a comprehensive list of the Ancillary Fees was included in the Board Package, with Nipissing University proposing minor changes, including an increase in Student Transit Passes of \$9.25 for the year, in accordance with the contract with the City of North Bay. The AVP Students highlighted the fact that the description for the fee associated with equity-based initiatives

for students was carefully reviewed to ensure it is alignment with supporting student access and inclusion activities on campus.

NUSU is proposing an overall increase of \$48.44, with the majority of the increase coming from the Student Centre Fee and NUSU Central Administrative Support. The NUSU Student Health & Wellness Plan has a decrease of \$10.76.

Following questions, two motions were brought forward:

Motion: ***That the Audit & Finance Committee recommend to the Board of Governors that the 2025/26 Nipissing University Ancillary Fees be approved as presented.***

*Moved by Dave Smits; seconded by Patti Carr.
Carried.*

Motion: ***That the Audit & Finance Committee recommend to the Board of Governors that the 2025/26 Nipissing University Student Union Ancillary Fees be approved as presented.***

*Moved by Sarah Winters; seconded by Janet Stockton.
Carried.*

6. Other Business

A committee member provided a commentary on the challenges faced of annual budgeting for universities, due to a reliance on one-time funding and grants. They questioned whether the Ontario government understands the need for stable, long-term funding for universities. The President acknowledges a significant criticism of post-secondary education and numerous audits over the past 4-5 years. Despite the Blue-Ribbon Panel report, the provincial government has not established a long-term funding framework, relying instead on one-time investments. There is increasing government involvement in university operations, but no signs of readiness for stable funding over a minimum five-year period.

The Executive Team is optimistic about the future, encouraged by external reviews that align with the university's advocacy.

7. Motion to Move In-Camera

Motion: ***That the Audit & Finance Committee move in-camera.***

*John D'Agostino.
Carried.*

The Committee moved out of camera at 11:56 a.m. and the meeting adjourned at 11:57 a.m.

Recording Secretary

Committee Chair

NIPISSING UNIVERSITY BOARD OF GOVERNORS

FUNDRAISING COMMITTEE MEETING

OPEN SESSION

April 14, 2025

The Fundraising Committee met on April 14, 2025, at 1:30 p.m. in the RJ Surtees Athletics Centre and via Zoom remote conferencing.

Members present: Ravil Veli, Committee Chair
Dave Smits
Marianne Berube
Jessica McMillan
Judy Koziol
Kevin Wamsley
Scott Russell
Renee Hacquard (VPFA – non-voting)
Ann-Barbara Graff (Provost & VPA– non-voting)
Abby Blaszczyk (University Secretary – non-voting)

Regrets: Alisher Mansurov
Laurel Muldoon

Guests: Steven Smits, Advancement & Alumni

Recording Secretary: Christine Benoit, Office of the President

1. Opening Remarks/Land Acknowledgement

The meeting was called to order at 1:57 p.m., and the Committee Chair offered a traditional land acknowledgement.

2. Conflict of Interest

The Chair called for any conflicts of interests; no such conflicts were declared.

3. Gift Acceptance Policy

Minor updates to language within the policy were made and brought to the Committee for review.

No questions or comments were raised, and the following motion was made:

Motion: ***That the Fundraising Committee recommend the Board of Governors approve the revisions to the Gift Acceptance Policy as presented.***

*Moved by Judy Koziol; seconded by Dave Smits.
Carried.*

4. Naming of Campus Assets Policy

Updates to language within the policy were made and brought to the Committee for review.

No questions or comments were raised, and the following motion was made:

Motion: ***That the Fundraising Committee recommend the Board of Governors approve the revisions to the Naming of Campus Assets Policy as amended.***

*Moved by Judy Koziol; seconded by Marianne Berube.
Carried.*

5. Other Business

There was no other business.

The meeting was adjourned at 2:01 p.m.

Recording Secretary

Chair of Executive Committee

NIPISSING UNIVERSITY BOARD OF GOVERNORS

PLANT & PROPERTY COMMITTEE MEETING

OPEN SESSION

January 27, 2025

The Plant & Property Committee met on Monday, January 27, 2025, at 3:30 p.m. in the President's Boardroom (F303) and via Zoom Remote Conferencing.

Members present: Judy Smith
Judy Koziol
Fran Couchie
Matt DeVuono
Doris Olmstead
Maurice Switzer
Dave Smits
Kevin Wamsley
Renee Hacquard (VPFA - non-voting)
Ann-Barbara Graff (PVPA – non-voting)
Abby Blaszczyk, University Secretary (non-voting)

Regrets: Scott Russell
Kathy Wilcox
Preston English (student observer, non-voting)

Guests: David Drenth, Director, Facilities
Maggie Horsfield, Office of the President

Recording Secretary: Abby Blaszczyk, University Secretary

1. Call to Order/Land Acknowledgement

The Committee Chair called the meeting to order at 3:30 p.m. and a traditional land acknowledgment was made.

2. Conflict of Interest

The Chair called for conflicts of interest regarding any of the agenda items; no such declarations were made.

3. Capital & Construction Update

David Drenth, Director of Facilities provided a Capital & Construction update. The Presentation, which is appended to these minutes, highlighted projects through the Facilities Renewal Program (FRP), Ancillary, Donations/Grants, and Canadore projects.

Several questions were raised, including how the RFP process for the Outdoor Classroom would be conducted. The Director indicated that the RFP is not just the lowest price but includes additional scoring metrics. Additional questions included how much in parking revenues do we earn yearly and what does it costs to monitor and maintain the parking lots on campus. The VPFA noted that, while parking is administered by Canadore College as a shared service, parking revenue and rates have been low and the budget to maintain the parking and roadways have outweighed revenues in most years. Conversations have been ongoing to raise the rates to assume break-even on parking in the budget.

In response to a question on how foot traffic will be impacted due to the Canadore long-term care home project, the Director spoke to ongoing discussions with the developer and Canadore College about site plan control as well as a traffic control study. This has not been completed to date, but Nipissing is hopeful for additional sidewalks for students.

4. Facilities Condition Index Review

The Director reviewed the Facilities Condition Index which is the cross-industry standard measure of condition that represents the percent ratio of deferred maintenance backlog cost to the current replacement value. Nipissing holds a low rating due to the relatively young age of the buildings, which is considered a healthy rating when comparing to other institutions.

5. Other Business

There was no other business.

The meeting adjourned at 4:13 p.m.

Recording Secretary

Committee Chair

NIPISSING

U N I V E R S I T Y

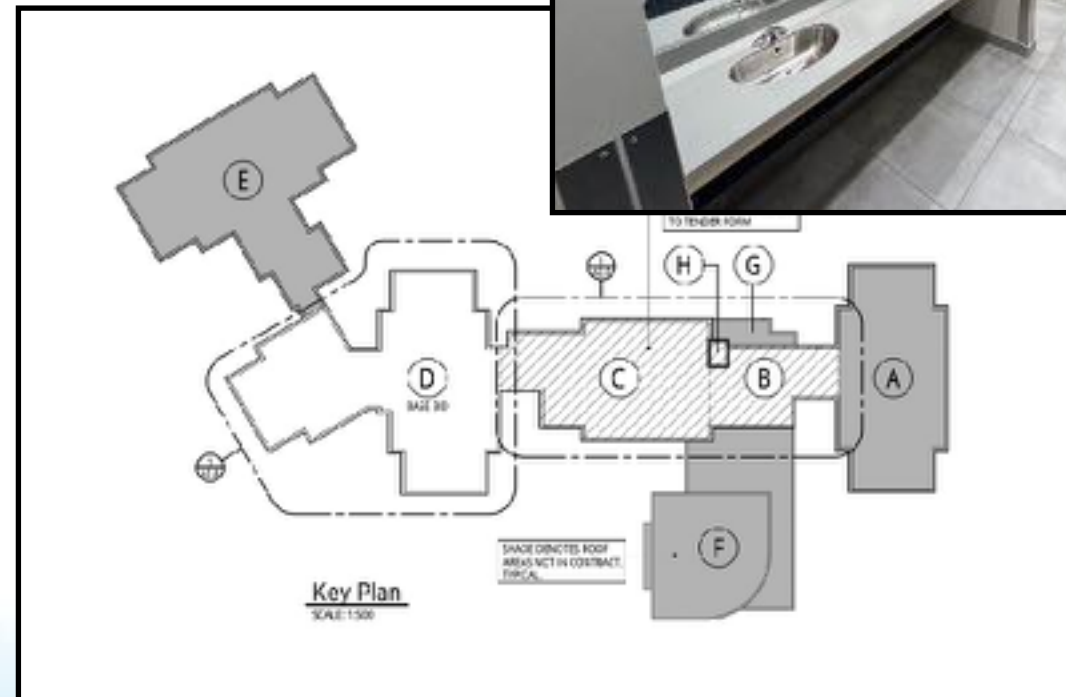


Plant and Property - January 2025

Plant and Property Committee Meeting

Capital and Construction

1. Capital and Construction Update
2. Facilities Condition Index Review



Capital and Construction Project Update

2024-25 Facilities Renewal Program

- Total Funding : \$2,637,900
- Classroom Renovations : \$763,220
- Building Renovations : \$1,153,534
- Electrical Replacements/Upgrades : \$57,500
- HVAC Replacements/Upgrades : \$756,935
- Grounds Infrastructure Repairs : 122,387
- Project total: \$2,853,575



Capital and Construction Project Update

Ancillary

- Total Funding : \$350,000
- Residence Roofing : \$230,000
- Residence HVAC: \$30,000
- TRC Windows & Doors: \$90,000



Donations/Grants - Outdoor Classroom

Outdoor Classroom

Project Description:

- Build an outdoor classroom facility to provide a venue for academic learning, student gatherings, cultural exchanges, and public events

Project Status Update

- Architect: Mitchell Jensen Architects
- Contractor: TBD
- Project Cost: \$1,000,000
- Funding Sources: Donation/Grant



Donations/Grants - Outdoor Classroom



Outdoor Classroom Update

- 'Class C' Cost Estimate completed
- Tender documents near completion
- RFP posting in early February
- Anticipating aggressive bids!



Capital and Construction Project Update

Canadore Projects

- Village Phase 2 - Long Term Care Centre
- Parking Lot Replacement
- Site Preparation



Canadore Projects - Village Phase 2



LTC Update

- Parking lot construction to replace spots that will be displaced in Lot #9 is complete
- New Lot #3 is active with parking passes available for purchase.

Capital and Construction Project Update

LTC Update

- Site preparation began in the Fall
- Clearing of brush and trees in the immediate construction area completed
- New trees will be planted in spring





Deferred Maintenance & Facility Condition Index (FCI)

Deferred Maintenance: Key Definitions

Term	Definition/Calculation
FCAP	Facilities Condition Assessment Program
Deferred Maintenance (DM)	The postponement of building and equipment <u>capital repairs and infrastructure renewal</u> from an organization's normal operating budget cycle due to a lack of funds. DM is a time-based element and specific to a given span of time. According to the Ministry of Infrastructure definition, DM = backlog plus 3 years (Current Year Renewal Needs + Planning Year 1 Renewal Needs + Planning Year 2 Renewal Needs).
Current Replacement Value (CRV)	The cost of replacing an existing asset with another asset having <u>equivalent utility using current costs</u> , standards and specifications for material, labour, engineering, installation and overhead.
Facilities Condition Index (FCI)	The FCI is a cross-industry standard measure of condition that represents the percent <u>ratio of deferred maintenance backlog cost to the current replacement value</u> .

Deferred Maintenance & Facility Condition Index (FCI)

Deferred Maintenance How Do Assessments Work?

FCAP

- The program begins with a facility condition assessment that audits and analyzes the physical state of facilities and building equipment.
- All assets should be assessed at least once every 5 years – some universities audit 20% of their assets per year, while others may audit all assets in one year, depending on the size and scale of the institution.
- Building condition audits are conducted by 3rd party assessors. Universities now use one assessor (FCAPx), in order to standardize assessments.
- The assessments consider many factors including age, design, physical state, and remaining life left in the system to identify deficiencies, cost to repair, risk of failure and urgency of repair.
- Assessment data is entered into a capital asset management software that is used by all Ontario universities for reporting and data analysis.



Deferred Maintenance & Facility Condition Index (FCI)



Nipissing University - FCI Reporting Summary

- Assessments planned for 2025 - updates due to renovations
- Current facility assessment data with RothIAMS is more accurate with further rating evaluation underway.
- NU Facilities more involved in data management

Funding Scenarios	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
\$ 2,637,900	0.06	0.18	0.18	0.18	0.19	0.24	0.25	0.25	0.24	0.25
No Funding	0.06	0.20	0.21	0.22	0.25	0.30	0.33	0.34	0.34	0.36

The background is an abstract watercolor painting. It features soft, blended washes of light blue, teal, and pale green. There are some darker, more saturated patches of blue and green, particularly on the right side, which add depth to the composition. The overall effect is ethereal and artistic, with the colors bleeding into each other and the white background.

End

Nipissing University
Report of the Academic Senate

April 15, 2025

February 14, 2025 Senate Meeting

- The 2025-2026 Strategic Enrolment Management Targets were presented in camera.
- Dr. Jamie Murton, Dr. Katrina Srigley and Dr. Alison Schinkel-Ivy were acclaimed as the faculty Senate representatives to serve on the Committee for the Search/Appointment/ Reappointment of the President and Vice-Chancellor.
- Senate's redundancy procedure was approved by the Board of Governors. The Program Admission Suspension Procedure will be a formally documented process followed by Senate. In September 2024, the AQAPC convened a subcommittee to draft a policy on amalgamation, consolidation and renaming. Once approved, the new policy will guide future program redundancy decisions.
- A Senator and member of the Nipissing University Indigenous Council on Education (NUICE) discussed the Accord on Indigenous Education, highlighting its guidance on Indigenous education, decolonization, and Indigeneity.
- The Report of Graduation Applicants was approved by Senate. The Vice-President Research, Innovation, and Graduate Studies, along with the Deans, announced the February 2025 graduands by faculty and degree, and congratulated the students and faculty on their achievements.

March 14, 2025 Senate Meeting

- Dr. Natalya Brown was elected to fill the vacancy on the Search Committee for the Dean of Education and Professional Studies.
- The Registrar reported an increase in applications and acceptances over last year, with strong demand in Education and Nursing. Project Integrate, successfully piloted with STEM and BComm programs, improved student engagement and offer acceptances. Expansion to more programs is planned.
- The Registrar provided an update on the March 19 Lunch & Learn encouraging all to attend for an overview of key functions of the Registrar's Office. Project Integrate, aimed at boosting enrollment and student-centered services, is underway.
- The Associate Registrar, Recruitment, reported a 1.4% increase in undergraduate applications and higher acceptance rates for Masters and BEd programs. The Faculty Call Campaign will launch soon—those interested were encouraged to reach out.
- The 2024-25 By-laws and Elections Committee Work Plan was received by Senate for information.
- The updated Environmental Science Honours Specialization; Specialization: Major; Minor Program, and the Data Science Program proposals were provided to Senate for information.
- Several By-law amendments were included in the Senate agenda as Notices of Motion.
- The NUSU VP Advocacy & Awareness announced the incoming NUSU Executives, whose terms will commence on May 1, 2025.

**Compulsory Ancillary Fees Committee
Nipissing University Ancillary Fees**

At the March 26th, 2025 meeting of Nipissing University's Compulsory Ancillary Fees Committee, the following Nipissing University Ancillary Fees for 2025/26 were approved for formal recommendation to the Board of Governors of Nipissing University.

Undergraduate and Part-Time Graduate Students per 3 credit course

Non - Essential Fees

Equity and Inclusion Fee	\$0.20
Student Development Fund	\$0.20
eSports Fee	\$0.50

Essential Fees

Student buildings

Athletic Centre Maintenance	\$5.51

Athletics and Recreation

Athletic Fee	\$22.05

Health and Counselling

Health Services	\$2.88
Student Intervention Support	\$2.58
Mental Health & Wellbeing Support	\$9.24

Student ID cards

Student ID Card	\$0.90

Academic Support

Student Learning and Transition Support	\$5.60

Career Services

Career Resources and Services	\$1.80

Student Achievement and Records

Record of Student Development	\$1.92

Campus Safety

Sexual Violence Support & Education	\$2.58

Campus Programming and Initiatives

Student Initiatives Fund	\$0.58
World University Service of Canada	\$0.35

Student Transit Passes * NORTH BAY ONLY

Bus Pass	\$241.25

Full-Time Graduate Students per term

Non - Essential Fees

Equity and Inclusion Fee	\$0.67
Student Development Fund	\$0.67
eSports Fee	\$1.67

Essential Fees

Student buildings

Athletics Centre Maintenance \$18.36

Athletics and Recreation

Athletic Fee \$73.50

Health and Counselling

Health Services \$9.59

Student Intervention Support \$8.59

Mental Health & Wellbeing Support \$30.77

Student ID cards

Student ID Card \$3.00

Academic Support

Student Learning and Transition Support \$18.65

Career Services

Career Resources and Services \$6.00

Student Achievement and Records

Record of Student Development \$6.39

Campus Safety

Sexual Violence Support & Education \$8.59

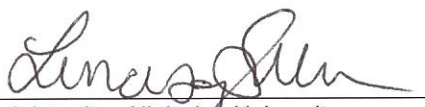
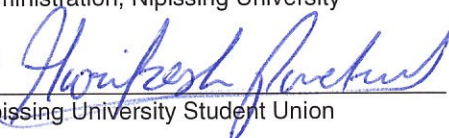
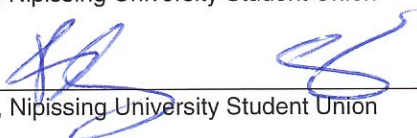
Campus Programming and Initiatives

Student Initiatives Fund \$1.93

World University Service of Canada \$1.17

We, the Committee Members of Nipissing University's Compulsory Ancillary Fees Committee as named in the University's Compulsory Ancillary Fees Protocol Agreement, have participated in the review process and support the formal recommendation of the Compulsory Ancillary Fees Committee for the Nipissing University Ancillary Fees for 2025/26 as described above.

Representative

Name	Signature	Supported (Y/N)	Date
Lindsay Sullivan		Y	2025 / March 26
Representative, Administration, Nipissing University			
Theresa Graham		Y	2025 Mar 27
Representative, Administration, Nipissing University			
Leslie Aitchison		Y	2025 March 26
Representative, Administration, Nipissing University			
Harikesh Panchal		Y	2025 March 25
Representative, Nipissing University Student Union			
Preston English		Y	2025 Mar 27
Representative, Nipissing University Student Union			
Brigitte Foisy		Y	2025 Mar 27
Representative, Nipissing University Student Union			

**Compulsory Ancillary Fees Committee
Nipissing University Student Union Ancillary Fees**

At the March 26th, 2025 meeting of Nipissing University's Compulsory Ancillary Fees Committee, the following Nipissing University Student Union Ancillary Fees for 2025/2026 were approved for formal recommendation to the Board of Governors of Nipissing University.

Undergraduate and Part-Time Graduate Students per 3 credit course

Non-Essential Fees

NUSU Student Groups Support Fee	\$1.94
NUSU Recreational Activities Fee	\$0.55
NUSU Emergency Food Bank Fee	\$0.80
NUSU Academic Support Fee	\$0.99

Essential Fees

Student buildings

NUSU Student Centre Fee	\$37.80

Campus Programming and Initiatives

NUSU Membership Fee	\$1.36
NUSU Orientation Fee	\$0.97
NUSU Society Support Fee	\$0.57
NUSU Canadian Federation of Students	\$2.06
NUSU Operations Support Fee	\$6.17
NUSU World University Service of Canada	\$0.35
NUSU Government Advocacy Fee	\$0.63
NUSU Awareness Campaigns & Initiatives Fee	\$1.95
NUSU Programming and Services Fee	\$6.77

Health and Dental Plan (charged one-time in Fall / Winter term)

NUSU Student Health & Wellness Plan	\$360.00

Full-Time Graduate Students per term

Non - Essential Fees

NUSU Student Groups Support Fee	\$6.46
NUSU Recreational Activities Fee	\$1.83
NUSU Emergency Food Bank Fee	\$2.66
NUSU Academic Support Fee	\$3.30

Essential Fees

Student buildings

NUSU Student Centre Fee	\$125.87

Campus Programming and Initiatives

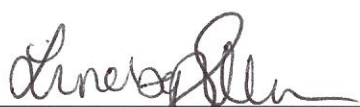
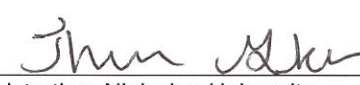
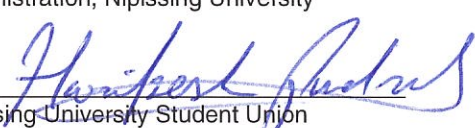
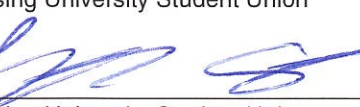
NUSU Membership Fee	\$4.53
NUSU Orientation Fee	\$3.23
NUSU Society Support Fee	\$1.90
NUSU Canadian Federation of Students	\$6.86
NUSU Operations Support Fee	\$20.55
NUSU World University Service of Canada	\$1.17
NUSU Government Advocacy Fee	\$2.10
NUSU Awareness Campaigns & Initiatives Fee	\$6.49
NUSU Programming and Services Fee	\$22.54

Health and Dental Plan (charged one-time in Fall / Winter term)

NUSU Student Health & Wellness Plan	\$360.00

We, the Committee Members of Nipissing University's Compulsory Ancillary Fees Committee as named in the University's Compulsory Ancillary Fees Protocol Agreement, have participated in the review process and support the formal recommendation of the Compulsory Ancillary Fees Committee for the Nipissing University Student Union Ancillary Fees for 2025/26 as described above.

Representative

Name	Signature	Supported (Y/N)	Date
Lindsay Sullivan Representative, Administration, Nipissing University		<u>Y</u>	<u>2025 / March 26</u>
Theresa Graham Representative, Administration, Nipissing University		<u>Y</u>	<u>2025 March 27</u>
Leslie Aitchison Representative, Administration, Nipissing University		<u>Y</u>	<u>2025 March 26</u>
Harikesh Panchal Representative, Nipissing University Student Union		<u>Y</u>	<u>2025 March 27</u>
Preston English Representative, Nipissing University Student Union		<u>Y</u>	<u>2025 March 27</u>
Brigitte Foisy Representative, Nipissing University Student Union		<u>Y</u>	<u>2025 March 27</u>

2024/25 Domestic, Out-of-Province, & International Tuition Rates

In 2019/20 the Ministry cut tuition by 10% and then froze these tuition rates through to 2026/27. The cut and freeze reduced tuition rates across the province but didn't close any of the gaps that existed within the sector regarding anomalies between similar programs offered across the province.

For the 2023/24 academic year, MCU allowed tuition fee increases over a multi-year timeframe in the circumstance that tuition fees are lower than the sector average for comparable programs. ***These rates apply to students admitted for studies in the 2023/24 academic year and beyond.***

The Ontario domestic rate increases below follow the approved increases from the tuition anomalies framework. All other Ontario domestic tuition remains frozen at the 2019/20 rates.

Proposed Tuition Rates for 2024/25

	Ontario Residents		Canadian Citizens/PR not residing in Ontario		International Students	
	23/24 Rates (30cr)	Proposed 24/25 Rates (30cr)	23/24 Out of Province Rate (30cr/Full Time)	Proposed 2024/25 Out of Province Rate (30cr/Full Time)	23/24 International Rate (30cr/Program Fee)	Approved 24/25 International Rate (30cr/Program Fee)
Undergraduate Studies						
Business and Computer Science (<i>students admitted prior to 2023/24</i>)	\$7,275.70	\$7,275.70	\$8,021.48	\$8,422.55	\$23,000.00	\$25,500.00
Nursing - Standalone (<i>students admitted prior to 2023/24</i>)	\$6,118.00	\$6,118.00	\$6,745.10	\$7,082.35	\$23,000.00	\$25,500.00
All other programs (<i>students admitted prior to 2023/24</i>)	\$5,781.00	\$5,781.00	\$6,373.61	\$6,692.29	\$23,000.00	\$25,500.00
Business and Computer Science (<i>students admitted in or after 2023/24</i>)	\$7,821.38	\$8,407.98	\$8,021.48	\$8,422.55	\$23,000.00	\$25,500.00
Nursing - Standalone (<i>students admitted in or after 2023/24</i>)	\$6,118.00	\$6,118.00	\$6,745.10	\$7,082.35	\$23,000.00	\$25,500.00
Nursing - RPN - BScN (<i>students admitted in or after 2023/24</i>)	\$5,781.00	\$5,781.00	\$6,373.61	\$6,692.29	\$23,000.00	\$25,500.00
All other programs (<i>students admitted in or after 2023/24</i>)	\$6,018.00	\$6,018.00	\$6,373.61	\$6,692.29	\$23,000.00	\$25,500.00
Graduate Studies						
Masters (All Programs)	\$8,506.08	\$8,506.08	\$9,377.95	\$9,846.85	\$23,000.00	\$25,500.00
PhD in Education	\$7,896.15	\$7,896.15	\$8,705.51	\$9,140.78	\$23,000.00	\$25,500.00
Bachelor of Education						
Year 1/2 Consecutive & Year 5/6 Concurrent	\$6,620.94	\$6,620.94	\$7,299.59	\$7,664.57	\$23,000.00	\$25,500.00

To summarize:

1. Ontario Residents – admitted before 2023/24 – no rate changes
Ontario Residents – admitted after 2023/24 – increase to the amount as approved by MCU
2. Out of province students (but still Canadian Citizens or Permanent Residents) – 5% increase
3. International Students – increase by \$2,500 to \$25,500

NIPISSING U N I V E R S I T Y

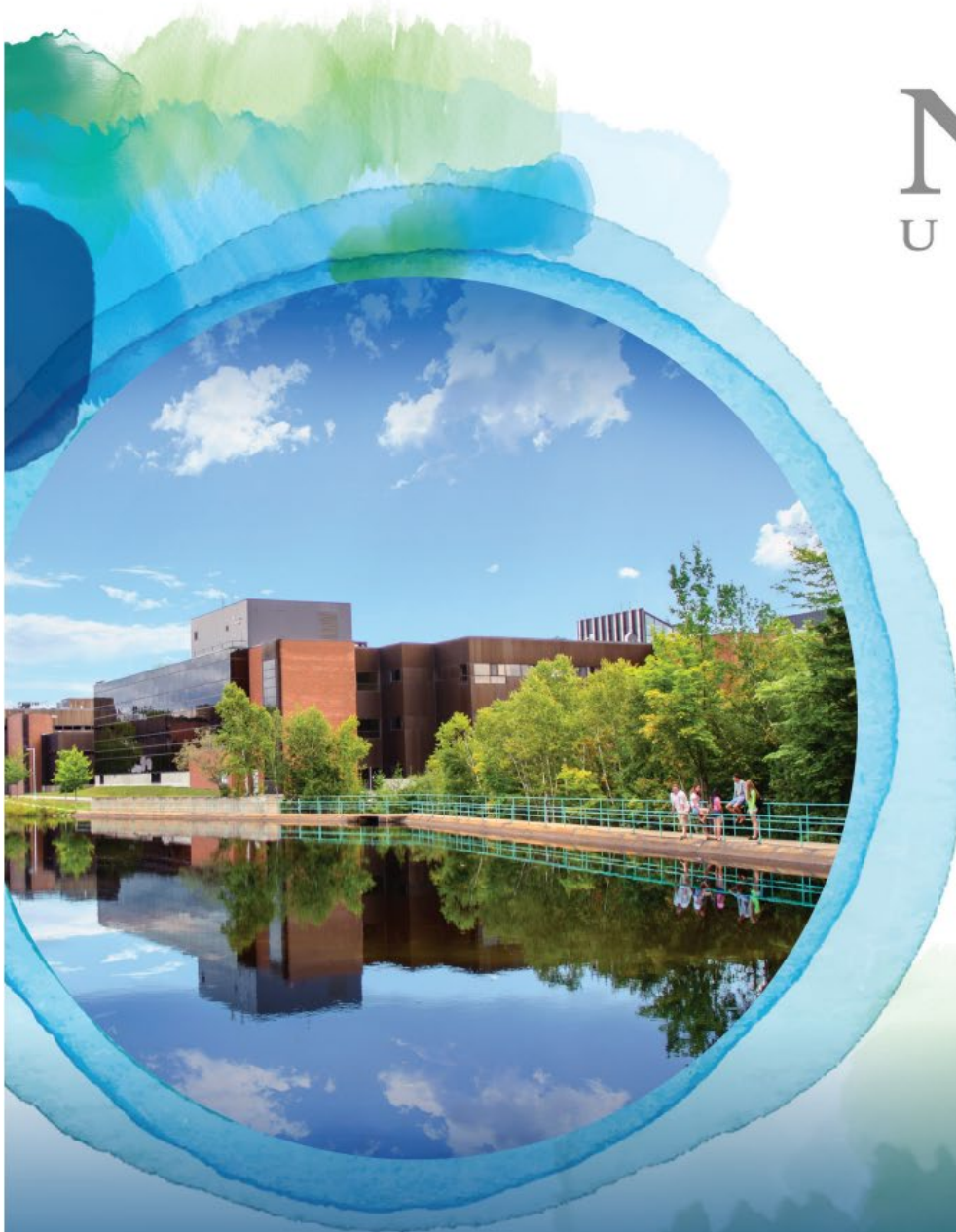
Budget Report

2025 - 2026

DRAFT

Confidential - Not For Circulation

Presented to the Board of
Governors
April 24, 2025



Executive Summary

The 2025-26 Nipissing University budget in general represents another stage towards sustainability and, arguably, the early material results of implementing the Academic and Operational Plan (APOP) emanating from the Pathways Strategic Plan, and the mobilization of its strategic elements, including enrolment through Project Integrate. In past years, due specifically to its precarious financial position, the university has operated and budgeted within the context of extensive external audit and review processes. This year is no different. As we prepare for the shifting accountabilities and structuring influences of Strategic Mandate Agreement 4 (SMA4), the new government grant framework, and continued emergence from required organizational changes in response to the Office of the Auditor General, we also became subject in the past year to new operating efficiencies and governance reviews mandated by the province. In many respects, such audits reflect the diminishing autonomy of public universities; but we also recognize that embracing the most appropriate recommendations of such audits and reviews will eventually bring positive outcomes.

Without question, the greatest impact upon the 2024-25 and the 2025-26 financial position of the university is, and will be, the unforeseen consequences of federal government policies in the past year, which have collapsed the market for international students attending Canadian universities. These actions have directly impacted our 2024-25 financial results and, also, severely limit our progress towards financial health in 2025-26, notably at a time when we were making significant gains towards improving the university's fiscal standing.

Thankfully, budget processes are always, in part, beholden to the strengths of internal, comprehensive strategic decision making but, in the past decade, we have experienced shrinking autonomy in determining how resources are distributed and employed. We have been more susceptible to the external pressures of funding freezes and one-time investments that reinforce the particular economic priorities of our provincial government. Without a provincially established, stable funding framework, and a commitment to a permanent, equitable reallocation of the Northern Grant, we remain unable to chart with assurance a longer-term financial path for the university. However, we have responded to ensure that we are maximizing the impacts of all government support. We have invested the government support that we received into our Reserve Funds; as such, our investments have been very targeted and financially prudent. We have necessarily accepted responsibility for increased alternative revenue streams, and we are taking steps towards enhancing our academic programs and strategically modifying our structures and administrative processes to better respond to an academic landscape that has shifted considerably over the past 20 years, one that continues to change markedly in real time. Indeed, from pandemics, to freezes and cuts during periods of significant cost inflation, to an ever-increasing involvement by government in university operations, the annual budgeting for Canadian universities has never been more challenging.

The 2025-26 budget reflects a continued tuition freeze, a distinct government focus on STEM enrolment, and some support, characterized as investment in sustainability and, as stated above, a marked decrease in international student enrolment. During this next fiscal year, we will be working diligently to consider and implement the appropriate recommendations of NOUS Group's Efficiency and Accountability Review Report and the governance review of Cheryl Foy of Strategic Governance Consulting Services. We will continue to implement our Pathways plan through the Academic and Operational Plan (APOP); we will begin to implement the recommendations forthcoming from an Equity Audit which will steer us towards a more inclusive campus for everyone and assist us to take steps toward Reconciliation; and, through our annual assessments of program health, we will determine what actions are required to build sustainable programs. We will continue to generate revenues through residence occupancy, meal plans, event hosting, the sale of merchandise, and through fundraising. And we will attempt to rebuild our international recruitment capacity, within the challenging environment which confronts us. We remain optimistic in, and committed towards, confronting these challenges, buoyed by our newly appraised status of "low action plan" institution, though still at high risk, in part due to careful budgeting and long-term planning and the investment of government grant funding into our Reserves which now are projected to exceed \$15M, a marked improvement over the past several years.

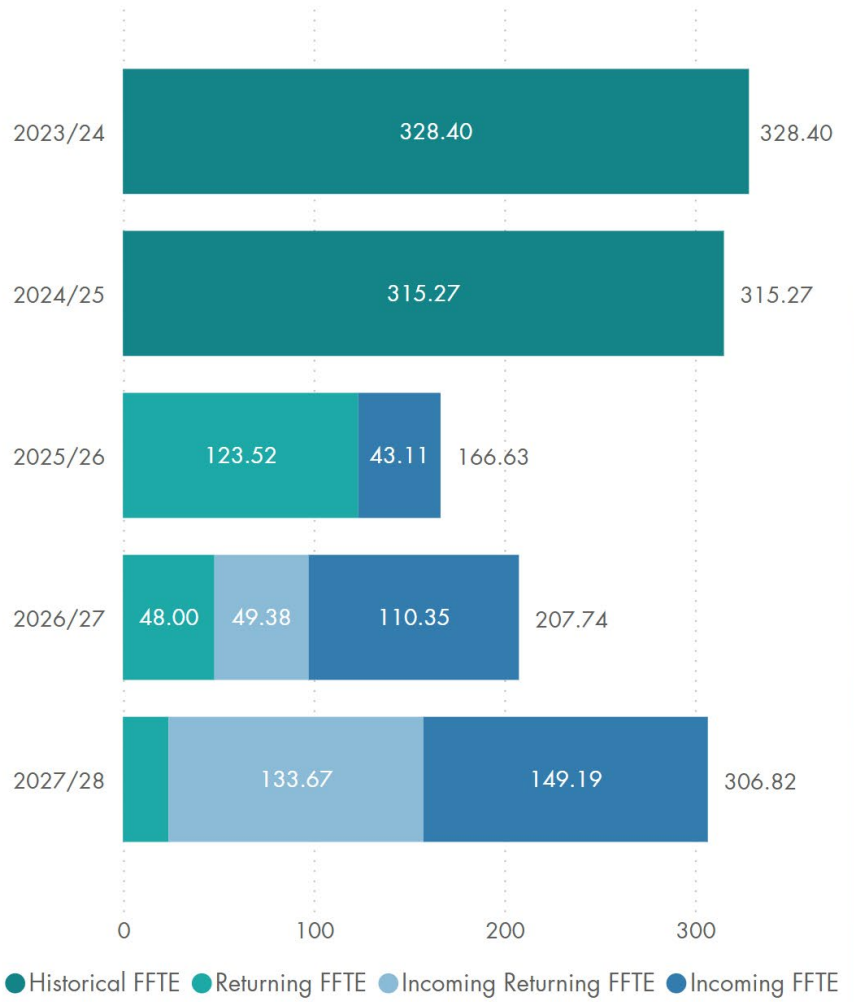
This budget represents some of the important work being completed, in phased approaches, to engineer the significant processual transformations necessary to unlock the great potential of Nipissing University in the long term. Indeed, the changes are a testament to the high quality of work which reflects the profound commitments of our staff and faculty to build a sustainable institution.

Overall Domestic & International FFTE Forecast

Domestic FFTE Forecast



International FFTE Forecast



NIPISSING UNIVERSITY
2025-2026 Draft Budget - Operating

	2025-2026 Draft Annual Budget	2024-2025 Annual Budget	Projection to 2024-2025 year end	Budget variance to projections	% Variance
Revenue					
Government Grants	\$ 42,654,956	\$ 36,422,619	\$ 42,745,372	\$ (90,416)	0%
Domestic Tuition	\$ 30,263,148	\$ 27,573,130	\$ 28,715,136	\$ 1,548,012	5%
International Tuition	\$ 5,012,805	\$ 10,306,486	\$ 8,355,309	\$ (3,342,504)	-40%
Student Fees - Ancillary & Other	\$ 4,270,269	\$ 3,788,684	\$ 3,975,257	\$ 295,012	7%
Other	\$ 2,456,237	\$ 2,427,196	\$ 2,427,196	\$ 29,041	1%
Revenue Total	\$ 84,657,415	\$ 80,518,115	\$ 86,218,270	\$ (1,560,855)	-2%
Expenses					
Instructional Staff	\$ 31,571,798	\$ 30,308,595	\$ 29,849,931	\$ 1,721,867	6%
Non-Instructional Staff	\$ 20,569,919	\$ 19,951,774	\$ 19,370,000	\$ 1,199,919	6%
Benefits	\$ 10,692,398	\$ 10,051,829	\$ 9,929,769	\$ 762,629	8%
Salary recoveries	\$ (728,350)	\$ (1,170,187)	\$ (1,118,111)	\$ 389,761	-35%
Total salaries & benefits	\$ 62,105,765	\$ 59,142,011	\$ 58,031,589	\$ 4,074,176	7%
Non-staff expense	\$ 18,437,450	\$ 17,034,026	\$ 18,034,026	\$ 403,424	2%
Scholarships and Bursaries	\$ 3,649,400	\$ 3,320,775	\$ 3,320,775	\$ 328,625	10%
Expenses Total	\$ 84,192,615	\$ 79,496,812	\$ 79,386,390	\$ 4,806,225	6%
Surplus (Deficit) Before Undernoted	\$ 464,800	\$ 1,021,303	\$ 6,831,880	\$ (6,367,080)	-93%
Transfers					
Transfers (to) from other funds	\$ (367,588)	\$ (331,555)	\$ (331,555)	\$ (36,033)	11%
Transfers Total	\$ (367,588)	\$ (331,555)	\$ (331,555)	\$ (36,033)	11%
Total Operating Surplus/(Deficit)	\$ 97,212	\$ 689,748	\$ 6,500,325	\$ (6,403,113)	-99%

Nipissing University
2025-2026 Draft Budget - Ancillary

	Extended Learning	Campus Sales & Services - 3rd party and internal	Residences	Conference Services (Corporate Events & Summer Accommodations)	2025-2026 Draft Annual Budget	Projections to 2024-2025 year end	Budget variance to projections
Revenue							
Sales and Service, and other revenues	\$ 521,641	\$ 157,250	\$ 7,387,936	\$ 456,900	\$ 8,523,727	\$ 7,888,040	\$ 635,687
Revenue Total	\$ 521,641	\$ 157,250	\$ 7,387,936	\$ 456,900	\$ 8,523,727	\$ 7,888,040	\$ 635,687
Expenses							
Salaries and Benefits	\$ 591,390	\$ 117,593	\$ 2,026,274	\$ 385,687	\$ 3,120,944	\$ 2,498,000	\$ 622,944
Operating & Occupancy	\$ 24,610	\$ 139,300	\$ 2,410,850	\$ 55,640	\$ 2,630,400	\$ 2,858,969	\$ (228,569)
Long term debt	\$ -	\$ -	\$ 1,175,121	\$ -	\$ 1,175,121	\$ 1,175,107	\$ 14
Expenses Total	\$ 616,000	\$ 256,893	\$ 5,612,245	\$ 441,327	\$ 6,926,465	\$ 6,532,076	\$ 394,389
Total Surplus / (Deficit)	\$ (94,359)	\$ (99,643)	\$ 1,775,691	\$ 15,573	\$ 1,597,262	\$ 1,355,964	\$ 241,298
Transfers							
Transfers to (from) Other funds	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Transfers Total	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total	\$ (94,359)	\$ (99,643)	\$ 1,775,691	\$ 15,573	\$ 1,597,262	\$ 1,355,964	\$ 241,298

Nipissing University

Draft 2025-2026 Capital Budget

	Total Draft Budget
FUNDING SOURCES:	
Facilities Renewal Program	\$ 2,637,900
Campus Safety Grant	\$ 12,500
Investment in Capital Assets - Ancillary	\$ 445,000
Donations and/or government grants	\$ 1,000,000
Donations and/or Schulich Funds	\$ 293,651
Training, Equipment & Renewal Fund	\$ 293,651
	<u>\$ 4,682,702</u>

PLANNED EXPENDITURES:

Campus Infrastructure	
Outdoor Classroom	\$ 1,000,000
Electrical Upgrades	\$ 25,000
Residence Building Repairs	\$ 300,000
HVAC Replacements	\$ 665,000
Grounds Infrastructure	\$ 700,000
Asphalt Repairs	\$ 75,000
Renovation	
Classroom Renovations	\$ 360,000
Building Renovations	\$ 900,400
Equipment & Furnishings	
Furniture	\$ 30,000
Equipment	\$ 627,302
	<u>\$ 4,682,702</u>

Nipissing University
2025-2026 Draft Consolidated Budget

	Operating Fund 10	Internally Restricted 11	Ancillary Fund 15	Capital Fund 40	Trust Fund (Non-Endowed) 50	Research Fund 60	Specifically Funded 70	Endowed Funds 51,80	Employee related	Total Consolidated Budget
REVENUE										
Government Grants	42,654,956					1,123,455	3,495,785			47,274,196
Student Fees - Tuition	35,275,953									35,275,953
Student Fees - Ancillary fees and other income	4,270,269									4,270,269
Sales (Accommodations, Corporate events, etc)			8,523,727							8,523,727
Other	1,891,237						259,676			2,150,913
Amortization of Deferred Capital Contributions	-			1,550,000						1,550,000
Investment	520,000				798,704			245,500		1,564,204
Donations	45,000				272,000					317,000
TOTAL REVENUE	84,657,415	-	8,523,727	1,550,000	1,070,704	1,123,455	3,755,461	245,500	-	100,926,262
EXPENSES										
Salaries and Benefits	62,105,765	35,000	3,120,944			766,422	652,460		650,000	67,330,591
Operating and Research	13,030,305	613,257	2,630,400		177,535	569,533	270,465	5,500		17,296,995
Scholarships and Bursaries	3,649,400				400,000			240,000		4,289,400
Occupancy Costs	4,401,164						2,832,536			7,233,700
Amortization of Capital Assets	-			3,950,000						3,950,000
Principal and Interest on Long Term Debt	1,005,981		1,175,121	(1,355,798)						825,304
TOTAL EXPENSES	84,192,615	648,257	6,926,465	2,594,202	577,535	1,335,955	3,755,461	245,500	650,000	100,925,990
EXCESS OF REVENUES OVER EXPENSES (EXPENSES OVER REVENUE) BEFORE THE UNDERNOTED	464,800	(648,257)	1,597,262	(1,044,202)	493,169	(212,500)	-	-	(650,000)	272
TRANSFERS										
Transfers from donations and fundraising	493,169				(493,169)	-				-
Transfer to Fund 11 for negotiated allowances	(648,257)	648,257								-
Transfer to Research initiatives	(212,500)					212,500				-
TOTAL IN YEAR TRANSFERS	(367,588)	648,257	-	-	(493,169)	212,500	-	-	-	-
TOTAL EXCESS (DEFICIENCY) OF REVENUE OVER EXPENSES	97,212	-	1,597,262	(1,044,202)	-	-	-	-	(650,000)	272

NIPISSING UNIVERSITY
Draft Budget Projections

	Projection to 2024-2025 year end	2025-2026 Draft Annual Budget	2026-2027 Projected Budget	2027-2028 Projected Budget
Revenue				
Government Grants	\$ 42,745,372	\$ 42,654,956	\$ 43,715,099	\$ 39,758,684
Domestic Tuition	\$ 28,715,136	\$ 30,263,148	\$ 31,582,273	\$ 34,080,163
International Tuition	\$ 8,355,309	\$ 5,012,805	\$ 6,417,163	\$ 10,454,516
Student Fees - Ancillary & Other	\$ 3,975,257	\$ 4,270,269	\$ 4,270,269	\$ 4,270,269
Other	\$ 2,427,196	\$ 2,456,237	\$ 2,456,237	\$ 2,456,237
Total Operating Revenues	\$ 86,218,270	\$ 84,657,415	\$ 88,441,041	\$ 91,019,869
Expenses				
Instructional Staff	\$ 29,849,931	\$ 31,571,798	\$ 33,571,458	\$ 35,750,031
Non-Instructional Staff	\$ 19,370,000	\$ 20,569,919	\$ 21,694,141	\$ 23,028,848
Benefits	\$ 9,929,769	\$ 10,692,398	\$ 11,495,245	\$ 12,226,007
Salary recoveries	\$ (1,118,111)	\$ (728,350)	\$ (728,350)	\$ (728,350)
Total salaries & benefits	\$ 58,031,589	\$ 62,105,765	\$ 66,032,494	\$ 70,276,536
Non-staff expense	\$ 18,034,026	\$ 18,437,450	\$ 18,888,425	\$ 19,227,162
Scholarships and Bursaries	\$ 3,320,775	\$ 3,649,400	\$ 3,649,400	\$ 3,649,400
Total Operating Expenses	\$ 79,386,390	\$ 84,192,615	\$ 88,570,318	\$ 93,153,098
Surplus (Deficit) Before Undernoted	\$ 6,831,880	\$ 464,800	\$ (129,278)	\$ (2,133,229)
Transfers				
Transfers (to) from other funds	\$ (331,555)	\$ (367,588)	\$ (367,588)	\$ (367,588)
Total Operating Transfers	\$ (331,555)	\$ (367,588)	\$ (367,588)	\$ (367,588)
Total Operating Surplus	\$ 6,500,325	\$ 97,212	\$ (496,866)	\$ (2,500,817)
	Projections to 2024-2025 year end	2025-2026 draft Updated Budget	2026-2027 Projected Budget	2027-2028 Projected Budget
Revenue				
Residence	\$ 7,300,000	\$ 7,344,936	\$ 7,565,284	\$ 7,792,243
Campus Sales & Services - 3rd party & Internal	\$ 78,144	\$ 150,400	\$ 154,912	\$ 159,559
Conference Services (Corporate events and Summer Accommodations)	\$ 425,000	\$ 506,750	\$ 521,953	\$ 537,611
Extended Learning	\$ 84,896	\$ 521,641	\$ 537,290	\$ 553,409
Total Ancillary Revenues	\$ 7,888,040	\$ 8,523,727	\$ 8,779,439	\$ 9,042,822
Expenses				
Salaries and Benefits	\$ 2,498,000	\$ 3,120,944	\$ 3,269,189	\$ 3,416,302
Operating	\$ 2,858,969	\$ 2,630,400	\$ 2,761,920	\$ 2,900,016
Long term debt	\$ 1,175,107	\$ 1,175,121	\$ 1,174,959	\$ 1,762,439
Total Ancillary Expenses	\$ 6,532,076	\$ 6,926,465	\$ 7,206,068	\$ 8,078,757
Net Ancillary Surplus	\$ 1,355,964	\$ 1,597,262	\$ 1,573,371	\$ 964,065
Capital adjustments	\$ (1,175,000)	\$ (1,044,202)	\$ (1,044,202)	\$ (1,044,202)
Employee Future benefits adjustment	\$ (650,000)	\$ (650,000)	\$ (650,000)	\$ (650,000)
Consolidated Surplus	\$ 6,031,289	\$ 272	\$ (617,697)	\$ (3,230,954)

Ministry Financial Accountability Framework ratios

		Thresholds		
		Medium-risk	High-risk	Weight
Liquidity Ratios:				
	Primary reserve (days):	< 90	< 30	50%
	Working Capital	< 1.25	< 1	50%
Sustainability Ratios				
	Viability ratio	< 60%	< 30%	25%
	Debt ratio	> 35%	> 55%	25%
	Debt to revenue ratio	> 35%	> 50%	25%
	Interest burden ratio	> 2%	> 4%	25%
Performance				
	Surplus (deficit) ratio	< 1.5%	< 0%	50%
	Net operating revenue ratios	< 7%	< 2%	50%
Credit rating				
	Third party credit rating			

2023-2024 Confirmed		
Ratio calculation	Rating	Overall Category rating
49.54	1	0.5
1.50	-	
42%	1	0.8
56%	2	
31%	-	
1%	-	
3.7%	-	0.5
6.1%	1	
BBB Stable	1	1

2024-2025 Projected		
Ratio calculation	Rating	Overall Category rating
69.45	1	0.5
1.50	-	
58%	1	0.5
54%	1	
28%	-	
1%	-	
6.0%	-	-
8.2%	-	
BBB Stable	1	1

2025-2026 Projected		
Ratio calculation	Rating	Overall Category rating
65.01	1	0.5
1.50	-	
61%	-	0.3
54%	1	
29%	-	
1%	-	
0.1%	1	1.0
2.5%	1	
BBB Stable	1	1

2026-2027 Projected		
Ratio calculation	Rating	Overall Category rating
61.69	1	0.5
1.50	-	
64%	-	0.5
54%	2	
26%	-	
1%	-	
-0.6%	2	1.5
1.8%	1	
BBB Stable	1	1

2027-2028 Projected		
Ratio calculation	Rating	Overall Category rating
47.19	1	0.5
1.50	-	
55%	1	0.8
55%	2	
24%	-	
1%	-	
-3.2%	2	2.0
-0.9%	2	
BBB Stable	1	1

Overall Risk Score Action Plan

Low Action

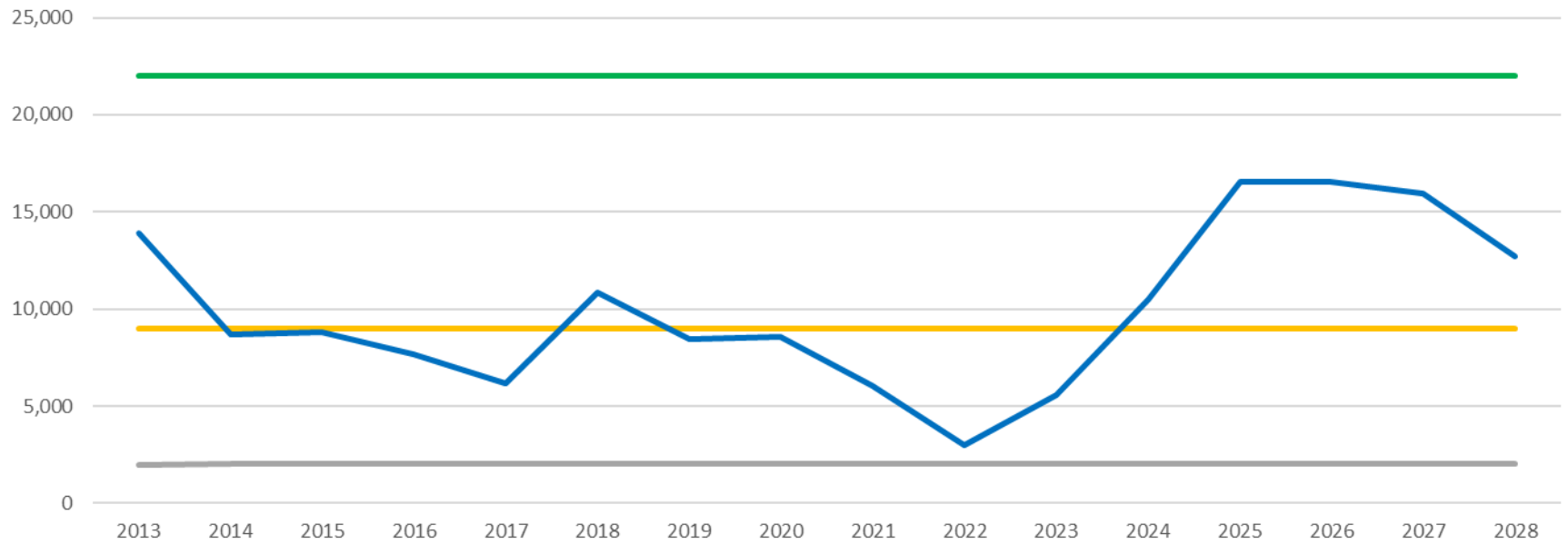
Low Action

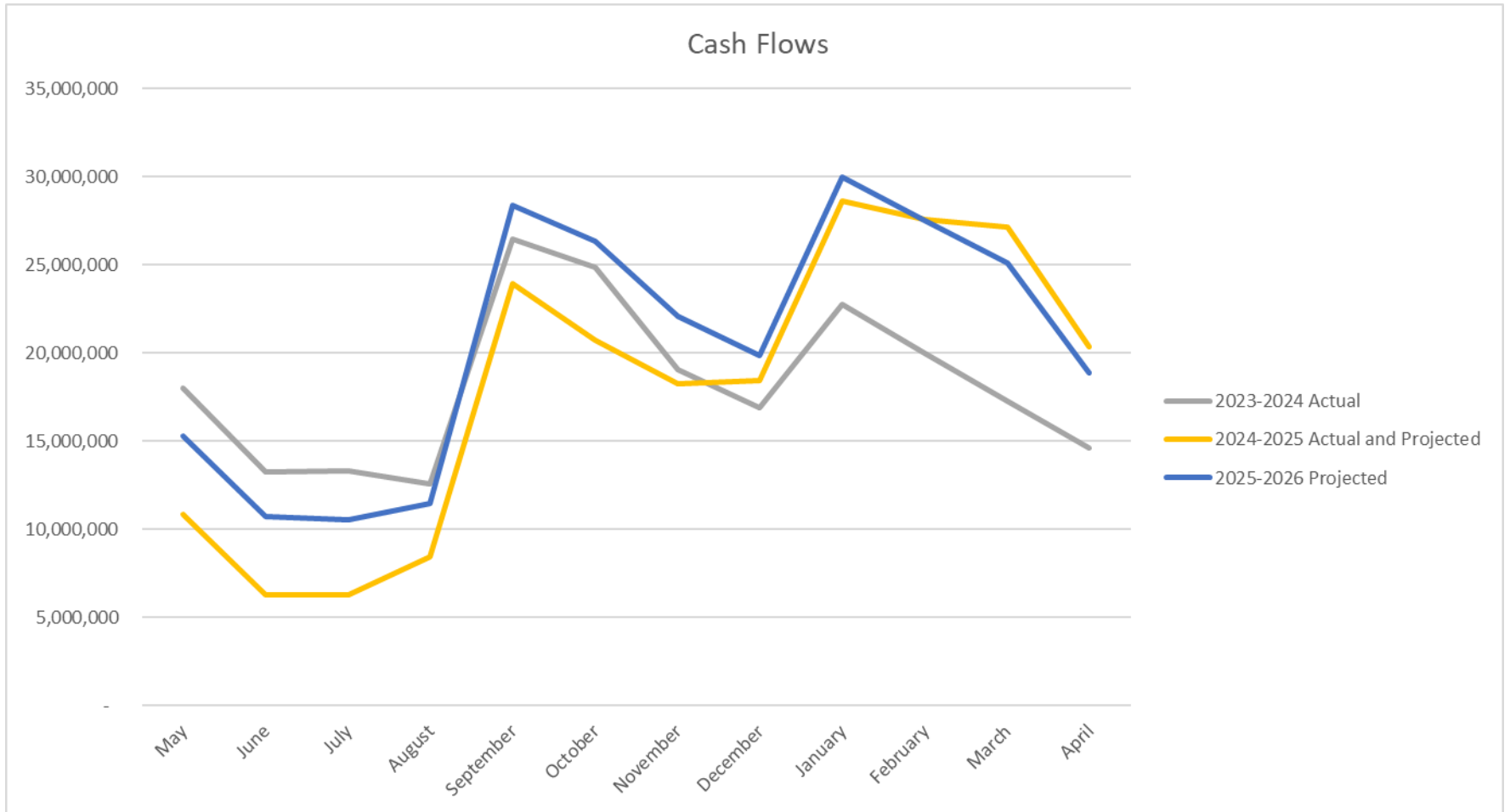
Low Action

Medium Action

High Action

Spendable net assets





Appendix 1: Expenses by department

NIPISSING UNIVERSITY

Arts & Science

	2025-2026 Draft Budget	2024-2025 Budget	Variance	% Variance
Expenses				
Salaries & Benefits	\$ 15,711,288	\$ 16,114,348	\$ (403,060)	-2.50%
Operating costs	\$ 132,970	\$ 142,304	\$ (9,334)	-6.56%
Expenses Total	\$ 15,844,258	\$ 16,256,652	\$ (412,394)	-2.54%
Transfers				
Transfers to (from) other funds	\$ 229,667	\$ 246,654	\$ (16,987)	-6.89%
Transfers Total	\$ 229,667	\$ 246,654	\$ (16,987)	-6.89%
Net expenses	\$ 16,073,925	\$ 16,503,306	\$ (429,381)	-2.60%

NIPISSING UNIVERSITY
Education and Professional Studies

	2025-2026 Draft Budget	2024-2025 Budget	Variance	% Variance
Expenses				
Salaries & benefits	\$ 24,365,856	\$ 21,864,474	\$ 2,501,382	11.44%
Operating costs	\$ 1,257,491	\$ 1,152,849	\$ 104,642	9.08%
Expenses Total	25,623,347	23,017,323	\$ 2,606,024	11.32%
Transfers				
Transfers to (from) other funds	\$ 254,840	\$ 226,773	\$ 28,067	12.38%
Transfers Total	\$ 254,840	\$ 226,773	\$ 28,067	12.38%
Net expenses	\$ 25,878,187	\$ 23,244,096	\$ 2,634,091	11.33%

NIPISSING UNIVERSITY
Academic Support & Library

	2025-2026 Draft Budget	2024-2025 Budget	Variance	% Variance
Expenses				
Salaries & benefits	\$ 7,621,917	\$ 6,772,915	\$ 849,002	12.54%
Operating costs	\$ 3,684,421	\$ 4,146,217	\$ (461,796)	-11.14%
Expenses Total	11,306,338	10,919,132	387,206	3.55%
Transfers				
Transfers to (from) other funds	\$ 374,250	\$ 563,050	\$ (188,800)	-33.53%
Transfers Total	\$ 374,250	\$ 563,050	\$ (188,800)	-33.53%
Net expenses	\$ 11,680,588	\$ 11,482,182	\$ 198,406	1.73%

NIPISSING UNIVERSITY
Office of Indigenous Initiatives

	2025-2026 Draft Budget	2024-2025 Budget	Variance	% Variance
Expenses				
Salaries & benefits	\$ 700,407	\$ 758,140	\$ (57,733)	-7.62%
Operating costs	\$ 104,090	\$ 104,090	\$ -	0.00%
Expenses Total	804,497	862,230	\$ (57,733)	-6.70%
Transfers				
Transfers to (from) other funds	\$ -	\$ -	\$ -	0.00%
Transfers Total	\$ -	\$ -	\$ -	0.00%
Net expenses	\$ 804,497	\$ 862,230	\$ (57,733)	-6.70%

NIPISSING UNIVERSITY
Student Services

	2025-2026 Draft Budget	2024-2025 Budget	Variance	% Variance
Expenses				
Salaries & benefits	\$ 3,789,438	\$ 3,614,412	\$ 175,026	4.84%
Operating costs	\$ 2,975,004	\$ 2,831,946	\$ 143,058	5.05%
Expenses Total	6,764,442	6,446,358	318,084	4.93%
Transfers				
Transfers to (from) other funds	\$ (182,000)	\$ (182,000)	\$ -	0.00%
Transfers Total	\$ (182,000)	\$ (182,000)	\$ -	0.00%
Net expenses	\$ 6,582,442	\$ 6,264,358	\$ 318,084	5.08%

NIPISSING UNIVERSITY
Athletics

	2025-2026 Draft Budget	2024-2025 Budget	Variance	% Variance
Expenses				
Salaries & benefits	\$ 1,788,331	\$ 1,669,594	\$ 118,737	7.11%
Operating costs	\$ 1,827,732	\$ 1,399,249	\$ 428,483	30.62%
Expenses Total	\$ 3,616,063	\$ 3,068,843	\$ 547,220	17.83%
Transfers				
Transfers to (from) other funds	\$ (233,169)	\$ (39,922)	\$ (193,247)	484.06%
Transfers Total	\$ (233,169)	\$ (39,922)	\$ (193,247)	484.06%
Net expenses	\$ 3,382,894	\$ 3,028,921	\$ 353,973	501.89%

NIPISSING UNIVERSITY
Administration

	2025-2026 Draft Budget	2024-2025 Draft Budget	Variance	% Variance
Expenses				
Salaries & benefits	\$ 8,001,548	\$ 8,348,129	\$ (346,581)	-4.15%
Operating costs	\$ 12,105,142	\$ 10,578,146	\$ 1,526,996	14.44%
Expenses Total	20,106,690	18,926,275	\$ 1,180,415	6.24%
Transfers				
Transfers to (from) other funds	\$ (76,000)	\$ (483,000)	\$ 407,000	-84.27%
Transfers Total	\$ (76,000)	\$ (483,000)	\$ 407,000	-84.27%
Net expenses	\$ 20,030,690	\$ 18,443,275	\$ 1,587,415	8.61%

Appendix 2: Fund descriptions

Separate funds are setup for activities, with each fund comprised of its own revenue and expenses. The following funds are used:

Operating Fund (Fund 10): Revenues and expenses that are directly related to the mission of the University, education and activities supporting research.

Internally restricted (Fund 11): This fund accounts for expenses that are funded from various allowances negotiated through the collective agreement and Appointment letters such as Personal Expense Reimbursement, Research Allowance, Professional Development allowance, etc.. Transfers from the Operating fund increase the funds available in internally restricted net assets. Expenses are accounted for when expenses are incurred (i.e. conference fees, travel, etc..). Amounts in this fund are carried forward annually until fully spent or no longer available for spending.

Ancillary Fund (Fund 15): Sales of goods and services by departments that are defined as being supplementary to the University's primary operating activities of education and research. Such sales may be made to the University community and/or to external clients.

Capital Fund (Fund 40): Funding and expenditures for capital projects.

Trust (Non-Endowed) Fund (Fund 50): Donations and fundraising revenues with internal or external restrictions are recorded in this fund. Income generated from investments is also recorded as revenue in this fund. Donation revenue is recorded when expenses are incurred.

Research Fund (Fund 60): Research-related funds externally restricted by an agreement or contract for specific research purposes. The use of these funds is restricted by the donor or granting agency.

Specifically Funded (Fund 70): Funding provided by an external entity, or internally restricted by an agreement outlining expenditure of the funds and a requirement to return unspent funds at the end of the term.

Endowments (Fund 51): Donations or bequests received by the University that have a non-expendable requirement as well as other legal requirements for use as agreed upon by the donor and the University. This fund also includes internal endowments which are unrestricted donations that have been endowed by action of the Board of Governors.

Policy Name:	Naming of Campus Assets		
Policy No:	1.7.2018.B	Approval Authority:	Board of Governors
Review Date:	2027	Responsible Executive:	Vice-President, Finance & Administration
Last Updated:	January 2025	Responsible Office:	Advancement Office
Originally issued:	February 2011	Policy Category:	General

Policy Statement

A policy for the philanthropic, honorific or functional naming or renaming of Nipissing University physical assets, academic entities and awards.

Reason for Policy

Nipissing University welcomes the opportunity to honour individuals, companies or organizations whose philanthropic contributions enhance the University's facilities, academic programs and/or reputation. This policy addresses the principles and procedures for the approval, establishment and maintenance of naming opportunities.

Policy Applies to

This policy applies equally to all Nipissing University campuses, departments, faculties and initiatives.

Who Should Read this Policy

All members of the university community.

Contacts

vpfa@nipissingu.ca

Definitions

The following definitions shall apply in this policy:

- **Philanthropic naming:** Naming in recognition of an act of philanthropy, generally defined as a charitable gift to the University.
- **Sponsorship Naming:** Naming in recognition of a business agreement where a company, organization, or individual provides financial or in-kind support to the University in exchange for naming rights. This form of naming involves a contractual agreement that outlines the terms, duration, and nature of the sponsorship. Sponsorship naming is intended to advance the University's goals, enhance its programs or facilities, and provide mutual benefit to both parties while maintaining alignment with the University's values, reputation, and mission.
- **Honorific naming:** Naming to confer or imply honour or respect, generally involving recognition of outstanding individuals distinguished in character or attainments. Gifts associated with honorific naming may be contributed by individuals or groups or may be supported by designated funds. It may include a major contribution to the development of Nipissing University, which enhances its status as an academic institution. It also may be in honour of a person who has given extraordinary, distinguished service to the University.
- **Functional naming:** Naming to signify a relationship between the University asset, the academic entity or award and particular activities, functions or uses.
- **Assets include:**
 - Buildings (new and existing) or substantial parts of buildings (wings, floors, theatres, lounges, segments etc.)
 - Streets, walkways, gardens and other common and green spaces
 - Rooms and spaces within existing and new buildings
 - Faculties, Departments, Schools
 - Programs of service or recreation

- Lectureships, special lecture series, fellowships
- Collections of books, artifacts, manuscripts, maps, works of art and any other collection
- Research programs
- Endowed academic positions
- Scholarships, bursaries and other student awards.
- Any relevant digital asset where naming may be appropriate.
- Other naming opportunities as may be reasonably considered suitable

The Policy

1. Principles

The following principles shall govern judgments about the naming or re-naming of University campus assets. They reflect and reinforce principles expressed in the University's Gift Acceptance Policy.

- Regardless of any other provisions set forth in this policy, no naming will be approved, or once approved, be continued if it is found that such action may harm the reputation of the University or interfere with the achievement of its goals and priorities.
- Each naming or renaming shall advance the reputation, mission and priorities of the University in accordance with its values and preserving its commitment to academic freedom, autonomy and integrity.
- Consistency will be sought in making naming choices such that similar service or support of the University will result in comparable levels of naming recognition. Given Nipissing's shared campus, care should be taken with ensuring relative consistency with campus co-tenants.
- Market value principles should be applied in assessing the worth of naming rights to University campus assets.
- Preference will be given to naming that avoids the necessity of change in recognition in light of the possibility that activities associated with the University asset may change over time.
- Naming or renaming may be established in perpetuity or for a defined and limited period of time.
- Should Indigenous names be involved in any potential naming, The University

~~will thoroughly early and full consultation~~consult with the Office of Indigenous Initiatives and the Nipissing University Indigenous Council on Education (NUICE).

- Individuals or organizations after which University Assets are proposed to be named must be of such a reputation and standing that an association with that individual or organization would not reasonably compromise the University's reputation, mission, priorities, values, guiding principles, autonomy, integrity or legal compliance.
- Corporate namings may be made but should be reviewed with additional care. To avoid the appearance of commercial influence or conflict of interest, the University will conduct additional due diligence. An assessment of the corporate history, business practices, reputation, long-term trajectory and any other factor appropriate to considering a long-term naming will be done. Namings that involve corporations shall be limited to 10 years and shall not normally involve the naming of a Faculty ~~or~~, Department, ~~or building naming~~. The size, design, and wording of plaques or other signs acknowledging corporate generosity should avoid creating any appearance of advertising and be appropriately tailored to the nature of the facilities or properties being considered. Namings to honour an individual associated with a corporate gift should be consistent with the principles for honouring an individual.

2. Authority to Approve

The following procedures have been developed in order to implement the above-noted principles and to provide opportunity for careful and systematic reflection prior to the naming of campus assets by the University:

- The authority for the approval of the naming or re-naming of campus assets is vested in the Board of Governors.
- The Board is the final approval authority for naming associated with gifts ~~up to~~ and in excess of \$5 million.
- For naming associated with gifts in excess of \$500,000 and less than \$5 million, the Board of Governors delegates authority jointly to:
 - the President, and
 - at least one of:
 - the Vice-President, Finance & Administration, or
 - the Provost & Vice-President, Academic ~~and Research~~
- For gifts up to and including \$500,000, the Board of Governors delegates authority for naming jointly to:
 - the President, and

- at least one of:
 - the Vice-President, Finance & Administration, or
 - the Provost & Vice-President, Academic and Research, or
 - the Head of Advancement
- Additionally, prior approval by specific resolution or motion of the Board is required for naming associated with:
 - any gift which, in the opinion of the President, Vice-Presidents, or Head of Advancement, exposes the University to uncertain and potentially significant liability;
 - any gift which, in the opinion of the President, Vice-Presidents, or Head of Advancement, is precedent setting and involves sensitive issues;
 - any gift which, in the opinion of the President, Vice-Presidents, or Head of Advancement, is of unusual complexity, including potentially gifts involving real property, residual interests, charitable remainder trusts, assets with limited liquidity, or cultural property.
- Notwithstanding any authority delegated via this policy, the Board of Governors may specify that the naming associated with gifts from certain donors or donor constituencies be reserved for its direct approval.
- The President, Vice-Presidents, and Head of Advancement may also seek input from the Fundraising Committee of the Board of Governors pertaining to naming associated with a proposed gift.
- All naming must be in accordance with this policy and with accountability to the Board.

If the President wishes to bring a particular naming or re-naming proposal to the Board of Governors for its direct approval, nothing in this policy shall be interpreted as preventing them from doing so.

3. Authority for Change or Discontinuation of Naming of Campus Assets

- Where no time commitments or limitations are specified in connection with a naming, consistent with the principles of this policy and that of the Gift Acceptance Policy, the University reserves the right to rename an asset at any time, in keeping with the authority specified in Section 3.2 of this policy. In the event of the death of a benefactor or liquidation of a corporation or organization, a period of one year shall lapse prior to a change of name, unless the donor agreement specifies otherwise.

- In the unusual circumstance that the University Executive team determines, in their sole discretion, that the naming of a University asset may directly or indirectly have a negative impact on the University's mission, priorities, commitment to academic freedom, autonomy, and integrity, (e.g., conviction of a serious offense by the donor), the President will bring forward to the Board of Governors to decide whether the naming of the University asset may be changed or discontinued irrespective of time commitments in related gift agreements, decision support documents or announcements in keeping with the authority specified in Section 3.2 of this policy.
- Notwithstanding any other provision of this policy, no naming shall be approved or continued that calls into question or constitutes a significant challenge to the public respect or reputation of the University.
- Should key elements of a donor agreement associated with a naming commitment not be fulfilled, discontinuance of the naming and/or renaming may be required in keeping with the authority specified in Section 3.2 of the policy.
- When a University asset is proposed for renaming or discontinuance, reasonable efforts will be made to inform any related benefactor or honoree in advance. If the benefactor or honoree is deceased, reasonable efforts will be made to inform the closest family members in advance of the change.

4. Procedures for Naming Campus Assets

4.1 Procedures for Naming

The following procedures have been developed to support this policy:

Honorific Naming or Renaming:

Proposals may originate from any member of the University community. Members shall forward their recommendation in writing to the appropriate executive leader (President, Vice-President, Dean, Associate Vice-President, Head of Advancement) in accordance with the terms of the policy.

- The executive leader, receiving such a proposal, shall evaluate it, and consider concerns that stakeholders may have. If deemed worthy of further consideration in accordance with proposed or existing gift acceptance policies, the proposal shall be forwarded to the Fundraising Committee for deliberation.
- Upon review by the Fundraising Committee, the proposal will either be:
 - ▶  Declined
 - ▶  Returned to the executive leader who originated the

proposal for further consideration

- ▶ ~~2~~ Forwarded to the Advancement Office for additional input
- ▶ ~~2~~ Forwarded to Senate with respect to endowed chairs, professorships, fellowships and lectureships in accordance with Senate requirements
- ▶ ~~2~~ Recommended for approval as defined in keeping with Section 3.2 of this policy

Philanthropic Naming:

- In the context of major campaigns and annual fundraising, from time to time the Advancement Office shall propose a schedule of naming opportunities to the Fundraising Committee.
- In all instances, the President shall advise all members of the University Board of Governors, in confidence, of naming decisions prior to being announced publicly.
- The President shall ensure that appropriate agreements with external parties are in place prior to any public naming announcements. The terms of such agreements concerning naming shall be consistent with this policy, and open to review by the Board.

Sponsorship Naming:

- Proposals for sponsorship naming will originate from the University's Office, Athletics Office, or through formal sponsorship opportunities identified by the University. The following steps shall apply:
- The Advancement Office, Executive Team, and relevant departments (Finance, Facilities, Athletics) will conduct due diligence to assess the sponsor's reputation, business practices, and aligned with the University's values. The financial terms, obligations, duration, valuation, scope and appropriateness of the sponsorship naming will be assessed as well.
- Upon review by the Fundraising Committee, the proposal will either be:
 - ▶ Declined
 - ▶ Returned to executive leader or Advancement Office for further consideration
 - ▶ Recommended for approval as defined in keeping with Section 3.2 of this policy

5. Maintenance, Reporting and Review

5.1 Maintenance & Reporting

- The Advancement Office shall oversee the maintenance of all named asset records, agreements and supporting documents. The Office will also oversee and maintain all records pertaining to valuation.
- The Finance Department shall be responsible for maintaining and updating a complete inventory of named University assets.
- At any time, the Fundraising Committee and/or the Board of Governors may request that the President provide a report on a specific named asset or a report of a general nature.

5.2 Review Process

In order to ensure that this Policy continues to be effective, it shall be reviewed bi-annually by the Fundraising Committee of the Board of Governors. The Head of Advancement is responsible for initiating this review.

Resolution 2011-02-03: Moved by P. Goulet, seconded by C. Dennis that the Board of Governors accept the recommendation of the Advancement Committee that the Board approve the revised *Naming of Campus Assets Policy* dated January 2011. **CARRIED.**

Revised and approved by the Board of Governors: May 3, 2018 – Resolution 2018-05-08

Revised and approved by the Board of Governors: June 9, 2022 – Resolution 2022-06-07

Policy Name:	Gift Acceptance Policy		
Policy No:	1.8.2018.B	Approval Authority:	Board of Governors
Review Date:	2027	Responsible Executive:	Vice-President, Finance & Administration
Last Updated:	February 2025	Responsible Office:	Advancement Office
Originally issued:	February 2011	Policy Category:	General

Policy Statement

A policy for the acceptance of gifts by Nipissing University.

Reason for Policy

This policy addresses the principles, terms and framework for the solicitation, review, acceptance, administration and stewardship of gifts to be followed by the University. In addition, the policy provides guidelines that ensure gifts are receipted in accordance with the requirements of the Income Tax Act.

Policy Applies to

This Policy governs all fundraising activities and gift acceptance conducted by the University, including units and departments within the University community, or by any person authorized by the University. It governs University employees and the University management team on matters of fundraising and gift acceptance.

The Advancement department is not the unit of the University that oversees research grants. Questions concerning grant applications shall be referred to the Provost and Vice-President, Academic ~~and Research~~ or their designate. The following forms of research funding generally do not constitute philanthropic gifts:

- A. Funding for the purpose of research where there is an advantage to the funder or sponsor (e.g. an advantage in the form of rights to the results of the research; and

B. Grants from funding agencies.

Who Should Read this Policy

All members of the university community.

Contacts

vpfa@nipissingu.ca

Definitions

Gift(s)

Registered charities rely on the Income Tax Act, CRA (Canada Revenue Agency) Interpretation Bulletins, Information Circulars and jurisprudence (court rulings on CRA challenges of taxpayers' deductions of charitable donations) to guide them in defining a charitable gift with respect to the issuance of charitable donation receipts.

The Income Tax Act does not specifically define a gift, but *Interpretation Bulletin IT-110R3* defines a gift as:

- *a voluntary transfer of property with valuable consideration. Generally a gift is made if all three of the conditions listed below are satisfied:*
 - *some property -- usually cash -- is transferred by a donor to a registered charity; and*
 - *the transfer is voluntary; and*
 - *the transfer is made without expectation of return. No benefit of any kind may be provided to the donor or to anyone designated by the donor, except where the benefit is of nominal value.*

Accordingly, to guide its operations, the following definition of gift(s) shall apply in this policy: A gift is a voluntary transfer of cash or other property, from individuals, corporations, associations, foundations or other sources to the University for either designated or undesignated purposes. Gifts are made without expectation of return or benefit to the donor or any individual or company designated by the donor as a result of acceptance of the gift.

Designated and Undesignated

The following definitions shall apply in the policy:

“Designated” gifts: contributions given to the University, where the donor has specified the purposes or use of the gift; for example, gifts may be “designated” to a particular faculty, program, project or initiative.

“Undesignated” gifts: contributions given to the University, where the donor has not specified the purposes or use.

The Policy

Nipissing University holds itself to the highest standard of ethical conduct, both within its own community of faculty, students and employees and in all of its external relationships and interactions with alumni, friends, volunteers, donors, businesses and commercial enterprises and with other external organizations. All employees, volunteers and members of the university community will conduct themselves in accordance with accepted professional standards of accuracy, truth and integrity. They will inform, serve, guide and otherwise assist donors who wish to support the University’s activities but will not pressure or unduly persuade.

All donation appeals must be communicated to University Advancement prior to initiating contact with individuals, foundations, and corporations. This reporting is necessary to ensure that all approaches to donors are strategic, coordinated and consistent with the approved goals and academic policies of the University. This approach also ensures that: the donors’ and the University’s interests are safeguarded; optimal results are achieved; and donors are provided with protection from simultaneous approaches by several members of the Nipissing University community.

The Advancement Department, under the direction of the Head of Advancement or designate, oversees stewardship of gifts for the University through the provision of guidelines and procedures to units or departments of the University, including appropriate acknowledgement and recognition of gifts. Where reports are provided to donors, these reports will adhere to University policies and legal requirements, including relevant policy legislation, and will be managed and shared with donors by Advancement on behalf of the appropriate unit relevant to the donation.

1. Gift Sources

The University recognizes the benefit of receiving philanthropic gifts to help support its academic mission through teaching and research programs. It values public and private-sector partnerships, and relationships with donors and supporters. Gifts that support the University’s ~~academic~~ mission are a vital source of supplementary funding.

Gifts from the following sources are deemed eligible for charitable income tax receipts:

- Cash, cheques, or securities
- Gifts-in-kind
- Life insurance
- Annuity contracts
- Real estate
- Gifts of residual interest
- Trust agreements
- Bequests
- Gifts of Retirement Plans
- Charitable Remainder Trust
- Charitable Gift Annuities
- Canadian Cultural Property
- Others that comply with CRA regulations and guidelines

2. Principles for Gift Acceptance

- The University's solicitation of gifts is informed by and consistent with priorities established by the University.
- Anonymity will be granted to any donor who makes this request in keeping with legal stipulations.
- All solicitation of gifts is informed by and consistent with academic and university-wide priorities established by appropriate University processes. Designated gifts must be used for the purpose for which they are given. Undesignated gifts will be used for such purposes as the University determines most appropriate, based on the priorities and mission of the institution.
- Gifts for chairs, professorships, and other academic appointments and programs must be in full accord with all relevant University policies, practices and procedures.
- Where donor agreements contain provisions for advisory boards and/or selection committees, the University will create such advisory bodies with the agreement of the relevant academic unit or units. Other forms of advice from donors will respect the policies and procedures of the University.
- The University will not accept gifts if such acceptance results in an abridgement of its academic freedom, autonomy and integrity.
- The University will not accept gifts it determines may violate federal, provincial or municipal laws.

- The University will not accept gifts that could reasonably compromise its public image, reputation or commitment to its objects, strategic plan, values, mission and priorities.
- The University also reserves the right to decline a gift in any circumstances, including but not limited to, when:
 - the gift terms propose unacceptable restrictions or conditions;
 - the gift will be unduly difficult or expensive to administer;
 - the gift poses financial or reputational risk;
 - the gift is reasonably suspected to have originated from illegal activities;
 - the gift could improperly benefit any individual;
 - the gift is negatively precedent setting or involves sensitive issues;
 - the gift would allow the donor to influence University appointments, research programs or curriculum;
 - the gift could jeopardize the University's charitable status;
 - the gift violates the Ontario Human Rights Code;
 - the gift does not comply with the Canada Income Tax Act and Canada Revenue Agency requirements.
- Occasionally, funds sought and contributed for a University purpose are insufficient to make the project viable. If the University is unable to proceed, benefactors will be invited to redirect their contributions to an alternative purpose, and/or to fulfill future pledge payments.
- The University may return a donation in rare and unique circumstances, where the integrity of a gift has been compromised such that the University's reputation is negatively affected. Returning such a gift must be in compliance with CRA provisions, as well as provincial and federal legislation.
- The acceptance of all gifts must comply with all relevant University policies and guidelines including, but not limited to the *Naming of Campus Assets Policy* and the *Endowment Fund Statement of Investment, Objectives, Policies and Governance*.

3. Guidelines for Gift Receipting

~~University~~ Advancement is responsible for generating all official charitable receipts for income tax purposes. In order to achieve accurate reporting of all charitable gift contributions to Nipissing University and its entities, and to ensure that donors are recognized for the total of all their charitable gifts, it is essential that ~~University~~ Advancement act as the sole conduit for all charitable gifts to Nipissing University. The following guidelines will govern gifts accepted and received:

- Ownership of each gift vests legally in the University, regardless of the specific unit or activity to which such gift is directed.
- It is the University's expectation that commitments between the donor and

the University in relation to gift acceptance will be clearly documented as part of a gift agreement. These donor agreements will be subject to the University's statement on *Protection of Privacy and Access to Information* and applicable law.

- All gifts will be handled in accordance with the commitments made to the donor by the University, which are consistent with University policies, applicable law, including but not limited to: the *Income Tax Act* and Canada Revenue Agency guidelines on charitable donations.

A. • The University will adhere to policies outlined by the Canada Revenue Agency (CRA) when determining fair market value of non-cash gifts

All charitable donations accepted by the University will be receipted in accordance with the Canada Revenue Agency (CRA)'s policies and guidelines regarding charitable tax receipts, ~~with Nipissing's Charitable Tax Receipt Issuance Procedure.~~

4. Gift Acceptance Authority and Responsibility

4.1 Delegation of Authority

The following procedures have been developed in order to implement the above-noted principles and guidelines and to provide opportunity for careful and systematic reflection prior to the acceptance of gifts by the University:

- The authority to accept or decline a gift is vested with the Board of Governors.
- The Board is the final approval authority for gifts up to and in excess of \$5 million.
- For gifts in excess of \$500,000 and less than \$5 million, the Board of Governors delegates authority to accept gifts jointly to:
 - the President, and
 - at least one of:
 - the Vice-President, Finance & Administration, or
 - the Provost & Vice-President, Academic ~~and Research~~
- For gifts up to and including \$500,000, the Board of Governors delegates authority to accept gifts jointly to:
 - the President, and
 - at least one of:
 - the Vice-President, Finance & Administration, or
 - the Provost & Vice-President, Academic ~~and Research~~, or
 - the Head of Advancement

Commented [RH1]: Should be removed

- Additionally, prior approval by specific resolution or motion of the Board is required for the acceptance of:
 - any gift which, in the opinion of the President, Vice-Presidents, or Head of Advancement, exposes the University to uncertain and potentially significant liability;
 - any gift which, in the opinion of the President, Vice-Presidents, or Head of Advancement, is precedent setting and involves sensitive issues;
 - any gift which, in the opinion of the President, Vice-Presidents, or Head of Advancement, is of unusual complexity, including potentially gifts involving real property, residual interests, charitable remainder trusts, assets with limited liquidity, or cultural property.
- Notwithstanding any authority delegated via this policy, the Board of Governors may specify that the acceptance of gifts from certain donors or donor constituencies be reserved for its direct approval.
- The President, Vice-Presidents, and Head of Advancement may also seek input from the Fundraising Committee of the Board of Governors pertaining to acceptability of a proposed gift.
- All decisions to accept gifts must be in accordance with this policy and with accountability to the Board.

4.2 Responsibilities

- The President and/or delegates are responsible for ensuring that all resource implications arising from acceptance of gifts are appropriately incorporated in University planning and budgeting activities.
- Nipissing University has an ethical responsibility to every donor and as such all staff, volunteers and professional representatives acting on behalf of the University will conduct themselves in accordance with accepted professional standards of accuracy, truth and integrity. The University subscribes to the [Donor Bill of Rights](#), [Association of Fundraising Professionals \(AFP\) Code of Ethical Standards](#), and professional standards and code of behaviours as set out by the *Association of Fundraising Professionals*, *Council for the Advancement and Support of Education*, and the *Canadian Association of Gift Planners* to serve as the ethical guidelines when raising and receiving funds for the University.

5. REVIEW PROCESS

In order to ensure that this Policy continues to be effective, it shall be reviewed bi-annually by the Fundraising Committee of the Board of Governors. The Head of Advancement is responsible for initiating this review.

Resolution 2011-02-04: Moved by J.G. Lebel, seconded by B. Hatt that the Board of Governors accept the recommendation of the Advancement Committee that the Board approve the revised *Gift Acceptance Policy* dated January 2011. **CARRIED.**

Revised and approved by the Board of Governors: May 3, 2018 – Resolution 2018-05-07

Revised and approved by the Board of Governors: June 9, 2022 – Resolution 2022-06-06

Program Update: Data Science (BSc)

The BSc Honours Specialization and Specialization in Data Science is a relatively new program (see Appendix A: Program Proposal for Data Science). The program, with support from the Provost's Office and the Centre for Teaching and Learning is working towards the approval and launch of an updated program that will address the expectations of a Data Science Program while offering initial concentrations in sociology and geology. Additional concentrations will be added over time to leverage the programs here at Nipissing University.

The following document provides an overview of:

- 1) Current Program
- 2) Updated Program

The changes identified are in alignment with a minor program modification.

Program Update: Data Science (BSc)

EXISTING PROGRAM

Course Requirements for Program Completion

Program: Bachelor of Science in Data Science Required DATA Science courses (blue), Required OTHER courses, Selection of Courses (green)		Honours Specialization Required DATA Science courses (blue)+ Honours Courses (orange), Required OTHER courses, Selection of Courses (green)	
Year 1 (CORE)	Year 2 (CORE)	Year 3 (CORE)	Year 4 (CORE)
COSC 1557 (3 cr, 4 hr/wk) Introduction to Computer Science	COSC 2667 (3 cr, 3 hr/wk) Operating Systems I	COSC 3007 (3 cr, 3 hr/wk) Artificial Intelligence	DATA 4006 (3 cr, 3 hr/wk) Data Analytics
COSC 1567 (3 cr, 4 hr/wk) Programming in C++	COSC 2767 (3 cr, 3 hr/wk) Object-Oriented Programming	COSC 3606 (3 cr, 3 hr/wk) Databases & Data Management	
DATA 1006 (3 cr, 3 hr/wk) Introduction to Data Science	COSC 2006 (3 cr, 3 hr/wk) Data Structures I	DATA 3006 (3 cr, 3 hr/wk) Machine Learning	
MATH 1056 (3 cr, 4 hr/wk) Discrete Mathematics I	COSC 2007 (3 cr, 3 hr/wk) Data Structures II	DATA 3016 (3 cr, 3 hr/wk) Tools and Technologies in Data Science	
MATH 1036 (3 cr, 5 hr/wk) Calculus I	COSC 2116 (3 cr, 3 hr/wk) Artificial Neural Network Computing	6 credits of: DATA 3997 (3 cr, 3 hr/wk) Data Science Practicum II OR DATA 4496 (3 cr, 3 hr/wk) Research I OR DATA 4497 (3 cr, 3 hr/wk) Research II	
MATH 1037 (3 cr, 5 hr/wk) Calculus II	MATH 2036 (3 cr, 3 hr/wk) Advanced Calculus I		
MATH 1046 (3 cr, 4 hr/wk) Introductory Linear Algebra	MATH 2037 (3 cr, 3 hr/wk) Advanced Calculus II		
ACAD 1601 (3 cr, 3 hr/wk) Academic Writing	MATH 2076 (3 cr, 4 hr/wk) Probability & Statistics I		
Six credits in the following:			
BIOL 1006 (3 cr, 6 hr/wk) Introduction to Molecular and Cell Biology			
BIOL 1007 (3 cr, 6 hr/wk) Introduction to Organismal and Evolutionary Biology			
CHEM 1006 (3 cr, 6 hr/wk) General Chemistry I			
CHEM 1007 (3 cr, 6 hr/wk) General Chemistry II			
PHYS 1006 (3 cr, 6 hr/wk) General Physics I: Mechanics			
PHYS 1007 (3 cr, 6 hr/wk) General Physics II: Mechanical Wave, Fluid Mechanics, and Thermodynamics			
27 credits	24 credits	12 credits	3 credits

Data Science Specialization has 66 credits required. (Should be 54 credits)

Data Science Honours Specialization has 72 credits required. (Should be 60 credits).

The additional 6 credits of Science, outside the discipline, is not required, as it is already being met by the required courses.

Program Update: Data Science (BSc)

Data Science Minor

Students must take 18 credits of the following:

DATA 1006 Introduction to Data Science

MATH 1036 Calculus I

COSC 1557 Introduction to Computer Science

COSC 1567 Programming in C++

DATA 2997 Data Science Practicum I

DATA 3997 Data Science Practicum II

Program Update: Data Science (BSc)

Course Requirement for Program Completion

Program: Bachelor of Science in Data Science Required DATA Science courses (blue), Required OTHER courses, Selection of Courses (green)		Honours Specialization Required DATA Science courses (blue)+ Honours Courses (orange), Required OTHER courses, Selection of Courses (green)	
DATA 1006 (3 CR) Introduction to Data Science	General Data Science: COSC 2006 (3 CR) Data Structures I *Pre-requisites need to be adjusted to include DATA 1XXX as equivalent to COSC 1567 OR Sociology Concentration: SOCI 2016 (3 CR) Exploring Social Conflict and Solidarity OR Geography Concentration: GEOG 2017 (3 CR) GIS and the Earth from Space	COSC 3606 (3 CR) Databases & Data Management *Pre-requisites need to be adjusted to include DATA 1XXX and DATA 2XXX	
DATA 1XXX (3 CR) Programming for Data Science I NEW	COSC 2116 (3 CR) Artificial Neural Network Computing *Pre-requisites need to be adjusted to include DATA 1XXX, as equivalent to COSC 1567	PHIL 2816 (3 CR) Digital Ethics	DATA 4496 (3 CR) Research I [Will be modified to include CAPSTONE projects for all students)
MATH 1056 (3 CR) Discrete Mathematics I	DATA 2XXX (3 CR) Programming for Data Science II NEW	DATA 3006 (3 CR) Machine Learning *Pre-requisites need to be adjusted to include DATA 1XXX and DATA 2XXX, as equivalent to MATH 2036, COSC 2006, COSC 1567	DATA 4006 (3 CR) Data Analytics
MATH 1036 (3 CR) Calculus I	MATH 2037 (3 CR) Multivariate Calculus	DATA 3016 (3 CR) Tools and Technologies in Data Science	
MATH 1037 (3 CR) Calculus II	MATH 2076 (3 CR) Probability & Statistics I	MATH 3276 (3 CR) Probability and Statistics II	
MATH 1046 (3CR) Introductory Linear Algebra		General Data Science: DATA 4497 (3 CR) Research II [Will be added to enable the full completion of a CAPSTONE projects for all students) OR	

Program Update: Data Science (BSc)

		Sociology Concentration: SOCI 4127 (3 CR) Advanced Social Data Analysis *Need to waive pre-requisites for Sociology concentration OR Geography Concentration: GEOG 3056 (3 CR) Spatial Analysis using GIS	
ACAD 1601 (3 cr, 3 hr/wk) Academic Writing			
General Data Science: ACAD 2801 (3 CR) Scientific Communication OR Sociology Concentration: SOCI 1016 (3 CR) Introduction to Sociology OR Geography Concentration: GEOG 1016 (3 CR) People, Place and Environment OR GEOG 1017 (3 CR) Introduction to Physical Geography			
18 CREDITS	18 CREDITS	15 CREDITS	9 CREDITS

Those students who would be interested in work-integrated learning, may take **DATA 2997** Data Science Practicum I and **DATA 3997** Data Science Practicum II.

Honours Specialization:

Students may apply to enter the Honours Specialization after the completion of year 2 until the end of their first semester of 3rd year (75 credits) if they have an average of $\geq 70\%$.

Concurrent Education with Data Science

Students who have been accepted into the Concurrent Education program must comply with the requirements for their Data Science degree program and include the following :

- EDUC 0106 Introduction to Teaching (to be taken in year 2 of the program)

Additional Degree Requirements:

A minimum of 6 credits in Social Sciences and/or Professional Studies (those taking the Sociology Concentration will have met this requirement as a part of the Data Science program).

Science Degree Requirements:

[View Catalog \(nipissingu.ca\)](http://nipissingu.ca)

- Must complete 60 credits in the specialization for an Honours Specialization and must complete 54 credits in the specialization for a Specialization.
- Must achieve a minimum specialization average of 70% for the Honours Specialization and 60% for the Specialization (based on the best 54 credits which meet all of the specialization requirements).
- Not exceed a maximum of 48 credits at the 1000 level.
- Not exceed a maximum of 84 credits in one discipline (may not have the same four-letter code).

Program Update: Data Science (BSc)

Data Science Minor:

Students may select a minor in Data Science by completing 18 CR in the courses below:

- **DATA 1006** (3 CR) Introduction to Data Science
- **DATA 1XXX** (3 CR) Programming for Data Science I
- **DATA 2XXX** (3 CR) Programming for Data Science II
- **COSC 2116** (3 CR) Artificial Neural Network Computing
- **DATA 3016** (3 CR) Tools and Technologies in Data Science
- **COSC 3606** (3 CR) Databases & Data Management

Program Update: Data Science (BSc)

MODIFICATIONS TO THE PROGRAM

Course Requirements for Program Completion

Program: Bachelor of Science in Data Science Required DATA Science courses (blue), Required OTHER courses, Selection of Courses (green)		Honours Specialization Required DATA Science courses (blue)+ Honours Courses (orange), Required OTHER courses, Selection of Courses (green)	
Year 1 (CORE)	Year 2 (CORE)	Year 3 (CORE)	Year 4 (CORE)
~~COSC 1557~~ (3 cr, 4 hr/wk) Introduction to Computer Science	~~COSC 2667~~ (3 cr, 3 hr/wk) Operating Systems I	~~COSC 3007~~ (3 cr, 3 hr/wk) Artificial Intelligence	DATA 4006 (3 cr, 3 hr/wk) Data Analytics
~~COSC 1567~~ (3 cr, 4 hr/wk) Programming in C++ Replaced By: DATA 1XXX (3 CR) Programming for Data Science I	~~COSC 2767~~ (3 cr, 3 hr/wk) Object-Oriented Programming Replaced By: DATA 2XXX (3 CR) Programming for Data Science II	COSC 3606 (3 cr, 3 hr/wk) Databases & Data Management	MOVED DATA 4496 (3 cr, 3 hr/wk) Research I
DATA 1006 (3 cr, 3 hr/wk) Introduction to Data Science	COSC 2006 (3 cr, 3 hr/wk) Data Structures I OR Sociology Concentration: SOCI 2016 (3 CR) Exploring Social Conflict and Solidarity OR Geography Concentration: GEOG 2017 (3 CR) GIS and the Earth from Space	DATA 3006 (3 cr, 3 hr/wk) Machine Learning	
MATH 1056 (3 cr, 4 hr/wk) Discrete Mathematics I	~~COSC 2007~~ (3 cr, 3 hr/wk) Data Structures II	DATA 3016 (3 cr, 3 hr/wk) Tools and Technologies in Data Science	
MATH 1036 (3 cr, 5 hr/wk) Calculus I	COSC 2116 (3 cr, 3 hr/wk) Artificial Neural Network Computing	6 credits of: ~~DATA 3997~~ (3 cr, 3 hr/wk) Data Science Practicum II OR ~~DATA 4496~~ (3 cr, 3 hr/wk) Research I OR ~~DATA 4497~~ (3 cr, 3 hr/wk) Research II REPLACED BY General Data Science: DATA 4497 (3 CR) Research II [Will be added to enable the full completion of a CAPSTONE projects for all students) OR Sociology Concentration: SOCI 4127 (3 CR) Advanced Social Data Analysis *Need to waive pre-requisites for Sociology concentration	

Program Update: Data Science (BSc)

		OR Geography Concentration: GEOG 3056 (3 CR) Spatial Analysis using GIS	
MATH 1037 (3 cr, 5 hr/wk) Calculus II	~~MATH 2036~~ (3 cr, 3 hr/wk) ~~Advanced Calculus I~~	ADDED PHIL 2816 (3 CR) Digital Ethics	
MATH 1046 (3 cr, 4 hr/wk) Introductory Linear Algebra	~~MATH 2037~~ (3 cr, 3 hr/wk) ~~Advanced Calculus II~~	ADDED MATH 3276 (3 CR) Probability and Statistics II	
ACAD 1601 (3 cr, 3 hr/wk) Academic Writing	MATH 2076 (3 cr, 4 hr/wk) Probability & Statistics I		
~~Six credits in the following:-~~	ADDED		
~~BIOL 1006 (3 cr, 6 hr/wk) Introduction to Molecular and Cell Biology~~	General Data Science: ACAD 2801 (3 CR) Scientific Communication OR Sociology Concentration: SOCI 1016 (3 CR) Introduction to Sociology OR Geography Concentration: GEOG 1016 (3 CR) People, Place and Environment OR GEOG 1017 (3 CR) Introduction to Physical Geography		
~~BIOL 1007 (3 cr, 6 hr/wk) Introduction to Organismal and Evolutionary Biology~~			
~~CHEM 1006 (3 cr, 6 hr/wk) General Chemistry I~~			
~~CHEM 1007 (3 cr, 6 hr/wk) General Chemistry II~~			
~~PHYS 1006 (3 cr, 6 hr/wk) General Physics I: Mechanics~~			
~~PHYS 1007 (3 cr, 6 hr/wk) General Physics II: Mechanical Wave, Fluid Mechanics, and Thermodynamics~~			

Program Update: Data Science (BSc)

PROGRAM PROPOSAL

BA Honours Specialization and Specialization in Data Science And BSc Honours Specialization and Specialization in Data Science

Date:

FEBRUARY 2019

NEW PROGRAM PROPOSAL

For Submission to:

- Academic Quality Assurance and Planning Committee (AQAPC)
- Senate
- Ontario Universities Council on Quality Assurance

NAME OF PROPOSED PROGRAM <i>(e.g., Water Science; Child and Youth Studies)</i>	DATA SCIENCE
DEGREE TO BE CONFERRED <i>e.g., Bachelor of Arts Honours, Masters, Professional Masters</i>	Bachelor of Arts Honours Specialization, Bachelor of Arts Specialization, Bachelor of Science Honours Specialization, Bachelor of Science Specialization
SHORT FORM FOR DEGREE TO BE CONFERRED <i>e.g., BSc Honours, MSc</i>	BA Honours, BA, BSc Honours, BSc
LOCATION OF PROGRAM TO BE OFFERED <i>e.g., North Bay, Distance or both</i>	North Bay
ACADEMIC UNIT RESPONSIBLE FOR PROGRAM <i>e.g., Department, School</i>	Department of Computer Science and Mathematics
ANTICIPATED START DATE OF NEW PROGRAM <i>e.g., Fall 2018</i>	Fall 2019
DEAN(S) RESPONSIBLE FOR PROPOSAL	Dean of Arts and Science
WORKING GROUP CHAIR & MEMBERS OF WORKING GROUP	Logan Hoen, Alexandre Karassev, Murat Tuncali, Tzvetalin Vassilev, Mark Wachowiak
DATE APPROVED BY AQAPC	Approved by AQAPC April 2018. Revised February 2019

APPENDICIES TO BE INCLUDED:

- Appendix 1: Course Syllabi
- Appendix 2: Curriculum Vitae
- Appendix 3: Budget
- Appendix 4: Library Report

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1. INTRODUCTION & OVERVIEW

1.1. PROGRAM DESCRIPTION

Provide a short descriptive paragraph of the program, which could be used in the calendar and/or view book describing the program to students, including: a description of what is being proposed, distinctive elements, program length, program type (full- or part-time) and program delivery method (classroom, online, blended/hybrid).

The degree programs BSc in Data Science and BA in Data Science lead to an undergraduate degree in Data Science which will provide graduates with the necessary mathematical and computational background to be a data scientist. They will also introduce students to the applications of data science in the students' areas of interest. Obtaining the degree will involve a combination of courses and experiential learning components in the form of a research paper and practicums/internships.

The 2015 report titled "[Closing Canada's Big Data Talent Gap](#)" explains the need for data scientists and provides a road map to meet the demand. Since the release of this report, we have seen many news and other reports about the need for data scientists. For instance, the August 2018 article "[Toronto's Tech Boom Increasing Demand for Data Skills](#)" states the need for talents with data skills in high tech industry. It is also clear that the demand for data scientists is high not only in high tech industries or financial institutions, but in all sectors of business, industry, medicine, and government. Given the trends in use of technology and prevailing use of data in all aspects of daily life, jobs which will require competence in data science will be in demand. Recently, various institutions in Ontario have introduced programs to train data scientists. With the introduction of the BA and BSc programs in Data Science, Nipissing will contribute to training specialists in data science, who are not only the end users of software packages to handle data, but also, and most importantly, those who are able to create the models and algorithms necessary to solve problems, and develop new methodologies in Data Science. In what follows, we provide the detailed proposal to achieve this goal.

1.2. APPROPRIATENESS OF DEGREE NOMENCLATURE

How is the specified degree designation (i.e., BSc, MA, PhD) relevant for the proposed program, and provide rationale for the proposed program name.

The proposed undergraduate programs in Data Science will be similar to the current BA Honours and BSc Honours degree structures at Nipissing University. The program requires a completion of 120 credit hours, including at least 54 credit hours as a specialization in Data Science, and 60-credit hours as Honours specialization in Data Science. The program names and degree designations are in agreement with current state of the discipline.

1.3. CONSISTENCY OF THE PROGRAM WITH THE INSTITUTION'S MISSION AND ACADEMIC PLANS

- Strategic Mandate Agreement:
 - <https://www.ontario.ca/page/2017-20-strategic-mandate-agreement-nipissing-university>
- Strategic Plan:
 - <https://www.nipissingu.ca/departments/presidents-office/strategic-plan>

“Big Data”, or data that are too large, heterogeneous, or complex to be processed by standard techniques, has emerged due to virtualization of information and computation, the rapid growth of social networks, the increased flow of data from mobile devices, and other developments in information technologies, as well as because of greater computational needs in application fields. Several challenges associated with this development are: meaningful interpretation and data analysis, efficient search, visualization, etc. Digital information is stored in a variety of formats, often redundant, often inconsistent, spread over multiple sources, and frequently unstructured, heterogeneous, and unsorted.

Data science is a relatively new field that lies at the intersection of mathematics, computer science, statistics, and other areas. Its primary objective is extracting relevant and applicable information and knowledge from existing data. In the long article “[50 years of Data Science](#)”, statistician David Donoho, who is the Anne T. and Robert M. Bass Professor in the Humanities and Sciences at Stanford University, discusses the definition of data science and its history. He argues that data science is not simply the use of computing and statistics skills to deal with “big” data, and that training of data scientists must be broadened in scope beyond these skills. Similar points were also made in the article “[Data Science and Prediction](#)” by Vasant Dhar, New York University, published in ACM Communications. Dr. Dhar is extensively quoted in the Wall Street Journal article “[Why Do We Need Data Science When We’ve Had Statistics for Centuries?](#)” by Irving Wladawsky-Berger. Given the current strengths of the Department of Computer Science and Mathematics as well as Nipissing University as a whole, proposed programs in Data Science have elements built in to broaden the learning experience beyond data analysis, and to train students with a depth and insight that enable them to deal with data to solve problems.

As mentioned before, based upon recent employment trends, there is a high demand in business, government, medicine, and industry for specialists in data science. It is predicted that this demand will grow in the immediate future, especially when sources, variety of data, and use of data grow with introduction of computing in all areas of daily life.

The proposed programs in data science will be based on new courses in the field and will combine them with the existing courses from mathematics, statistics, computer science, and application areas, preparing students to solve complex problems in science, technology, the humanities, business, and economics. Thus, the programs are truly interdisciplinary and multidisciplinary as mentioned above. Critical thinking and analytical skills are essential for mathematics and computer science, and are equally essential for solving present-day challenges. Therefore, the proposed programs fit well within the Nipissing University Strategic Plan and Strategic Mandate Agreement that emphasize student-centeredness, the highest standards in research and teaching, creativity, lifelong learning, and interdisciplinary focus.

The proposed programs will also prepare students to enter graduate programs and to conduct their own research. The programs also emphasize skills and knowledge that can be applied to solve real-

world problems, while simultaneously providing a solid foundation in mathematics and computer science.

The addition of the proposed programs to the program mix of Nipissing University is well aligned with the faculty plans and objectives, as well as the institution's Strategic Plan and Strategic Mandate Agreement.

1.4. CONSULTATION

Describe the approach used in the development of this program, including any consultations that took place with other internal academic units. Describe the impact this new degree program will have on other degree programs delivered at the University. If other programs/academic units will be affected (e.g., required courses, faculty resources), please provide evidence of consultations that took place to minimize the impact or to assist other units in planning for potential enrolment increases/decreases.

In the initial stages of developing this proposal, Dr. Tzvetalin Vassilev, chair of the Computer Science and Mathematics Department, consulted other disciplines and other departments. The proposal was discussed at the Faculty of Arts and Science Executive, whose members are department chairs, program coordinators, Dean and Associate Dean. Overall, the feedback was positive and we expect that once the program is in place, there will be collaboration opportunities among faculty from a variety of disciplines. To facilitate such opportunities further, we also include the Minor in Data Science in the proposal in addition to Specialization and Honours Specialization degree programs. Addition of the degree programs in Data Science will attract students who may not choose Nipissing University otherwise, not only in computer science and mathematics but also in other disciplines.

2. ADMISSIONS & ENROLMENT

2.1. ADMISSION REQUIREMENTS

- a) Describe the formal admission requirements of the program. Include recommended courses. Identify whether the program is direct entry or not. If a direct entry program, indicate entering average.

For the proposed programs, admission requirements for high school graduates will be as follows:

BSc: English; Calculus & Vectors; Advanced Functions; one of Biology, Chemistry or Physics with minimum GPA 70%.

BA: English; Calculus and Vectors; Advanced Functions with minimum GPA 70%.

- b) Sufficient explanation of alternative requirements, if applicable, for admission into a graduate, second-entry or undergraduate program, such as minimum entering average (grade point

average), additional languages or portfolios, along with how the program recognizes prior work or learning experience.

For students who are second-entry students, we will follow Nipissing University policies. For instance, Nipissing has articulation agreements with a number of colleges to give advanced standing in our programs. Such articulation agreements provide opportunity to obtain a BA or BSc degree in 2 years.

If there are students who would like to enter the program with prior work experience, we will follow our policies to grant admission to the program, and deal with applications on a case-by-case basis. In the past, the Department of Computer Science and Mathematics accepted students transferring from colleges, home schooled, or those with prior work experience. As a result, the department has the necessary experience in terms of assessment of applications from such students.

- c) Explain how the admission requirements are appropriate for the program and learning outcomes established for the completion of the program. How will the admission requirements help to ensure students are successful?

Proposed admission requirements are consistent with Nipissing University admission requirements for similar programs, and they are standard requirements for students to enter such programs and be successful. We believe these requirements are virtually identical to those at every other university in the province of Ontario.

2.2. ENROLMENT PLANNING

- a) Using the table below, indicate anticipated enrolment from initial year. Provide details regarding the projected yearly intake and steady state enrolment target (adjust table to meet timelines). Indicate when the program expects to reach steady state. For most undergraduate programs “maturity” will be reached in Yr 4.

Please refer to business plan in Appendix 3.

- b) Anticipated Class Size. Outline planning/anticipated class sizes and address how the program plans to support these class sizes.

For courses in mathematics and computer science, our class sizes for 1st year courses are 40-100 students with tutorials/labs of 20-25 students. In 2nd and 3rd year courses, class sizes are 10-30 students. In 4th year courses the numbers are around 5-20 students. We expect that these class sizes will increase modestly with the implementation of the data science programs. We manage our current programs in computer science, mathematics and physics through judicious course cycling. We will continue with this practice to manage class sizes and enrolments in courses for data science programs as well.

- c) How does the enrolment fit within the University’s total enrolment forecasts set out in the University’s SMA?

We believe that the proposed programs will help Nipissing to meet its enrolment targets set out in the SMA.

3. PROGRAM STRUCTURE & CURRICULUM

(Reference **Appendix 1 – Course Syllabi**)

3.1. PROGRAM REQUIREMENTS

- a) Provide details on program-specific degree requirements and course information as it would appear in calendar copy. Course listings should include short descriptions of courses with prerequisites. Both required and recommended courses should be included and identified. Course descriptions for new courses (that may not yet be fully developed) should be included.

Below we provide the list of courses for each year of the program. The listed courses are required courses. Each of the courses listed is a 3-credit course.

BA Specialization and BA Honours Specialization

BA Specialization

Year in program	Courses
1	COSC 1557 Introduction to Comp. Science COSC 1567 Programming in C++ DATA1XXX Introduction to Data Science MATH 1036 Calculus I MATH 1037 Calculus II MATH 1046 Introduction to Linear Algebra MATH 1056 Discrete Mathematics I
2	COSC 2006 Data Structures I COSC 2007 Data Structures II MATH 2036 Advanced Calculus I MATH 2037 Advanced Calculus II MATH 2076 Probability and Statistics I
3	COSC 2116 Artificial Neural Network Computing COSC 3007 Artificial Intelligence COSC 3606 Databases and Data Management DATA 3XXX Machine Learning DATA 3XXX Tools and Technologies in Data Science
4	DATA 4XXX Data Analytics

Note: All DATA courses are new courses; thus, the proposed program will have 8 new courses (four are in the table above; four additional courses are listed below in the requirements for Honours Specialization and Minor in Data Science).

BA Honours Specialization:

In addition to the above courses, students must complete at least 6 credits from the following list of courses:

DATA 3XXX Data Science Practicum II

DATA 4496 Research Project I

DATA 4997 Research Project II

BSc Specialization and BSc Honours Specialization

BSc Specialization

Year in program	Courses
1	COSC 1557 Introduction to Comp. Science COSC 1567 Programming in C++ DATA1XXX Introduction to Data Science MATH 1036 Calculus I MATH 1037 Calculus II MATH 1046 Introduction to Linear Algebra MATH 1056 Discrete Mathematics I
2	COSC 2006 Data Structures I COSC 2007 Data Structures II MATH 2036 Advanced Calculus I MATH 2037 Advanced Calculus II MATH 2076 Probability and Statistics I
3	COSC 2116 Artificial Neural Network Computing COSC 3007 Artificial Intelligence COSC 3606 Databases and Data Management DATA 3XXX Machine Learning DATA 3XXX Tools and Technologies in Data Science
4	DATA 4XXX Data Analytics

Note: All DATA courses are new courses; thus, the proposed program will have 8 new courses (four are in the table above; four additional courses are listed below in the requirements for Honours Specialization and Minor in Data Science).

BSc Honours Specialization:

In addition to the above courses, students must complete at least 6 credits from the following list of courses:

DATA 3XXX Data Science Practicum II

DATA 4496 Research Project I

DATA 4997 Research Project II

Minor in Data Science

DATA 1XXX Introduction to Data Science

MATH 1036 Calculus I

COSC 1557 Introduction to Computer Science

COSC 1567 Programming in C++

DATA 2XXX Data Science Practicum I

DATA 3XXX Data Science Practicum II

- b) University Degree Requirements beyond the program requirements.

Breadth Requirements

	BA	BSc`
Breadth Requirements in Humanities, Social Sciences and Professional Studies	ACAD 1601 Academic Writing 3 cr. of Humanities 6 cr. Social Sciences/ Professional Studies	ACAD 1601 Academic Writing 3 cr. of Humanities 6 cr. Social Sciences/Professional Studies
Breadth Requirements in Science	NONE	<i>6 credits from the following:</i> BIOL 1006 Introduction to Molecular and Cell Biology BIOL 1007 Introduction to Organismal and Evolutionary Biology CHEM 1006 General Chemistry I CHEM 1007 General Chemistry II PHYS 1006 General Physics I: Mechanics PHYS 1007 General Physics II: Mechanical Wave, Fluid Mechanics and Thermodynamics <i>Additional 6 credits from the following science disciplines:</i> Biology, Chemistry, Physical Geography, Geology, Physics

- c) Include any additional requirements applicable to the program (e.g., minimum grade requirements to remain in the program). Note any specific requirements that may be necessary to complete or enroll in a specific course, required or recommended (e.g., BIOL 4454 requires students to have a minimum cumulative average of 75%).

The minimum GPA requirement to remain in both BA and BSc Honours programs is 70%. Research courses will also require a completion of at least 30 credits and departmental approval. It is also a University policy that students need to have at least 70% GPA to enrol in research courses.

- d) Indicate and identify any new courses required for this program? Note any new courses will need to be approved by USC (for undergraduate courses) and by GSC (for graduate courses).

The program is based on currently offered computer science and mathematics courses with the addition of eight new courses including individualized study courses such as practicum and research courses. These new courses are as follows:

DATA 1XXX Introduction to Data Science
DATA 2XXX Data Science Practicum I
DATA 3XXX Data Science Practicum II
DATA 3XXX Machine Learning

DATA 3XXX Tools and Technologies in Data Science
DATA 4XXX Data Analytics
DATA 4496 Research Project I
DATA 4997 Research Project I

Descriptions of these courses are provided in Appendix 1.

3.2. PROGRAM CONTENT

- a) Evidence of a program structure that will ensure the intellectual quality of the student experience.

Computer science and mathematics are main components of the proposed program, and to achieve an adequate level of skills and knowledge in these subjects required for successful application of them in problem solving, a four-year program is essential. In addition, students will be expected to cover specialized data science courses as well as to fulfil all other Nipissing University academic requirements. These factors further justify the length of the program.

The curriculum is designed to provide students with a high level of technical expertise in mathematics, statistics, and computer science, as well as knowledge in and awareness of areas of application. The courses selected for the core of the program ensure that successful students will have strong background in calculus, linear algebra, probability and statistics, as well as in programming, databases, machine learning, artificial neural networks, and other artificial/computational intelligence approaches. These courses set the foundation for applied core courses and electives and, especially, for practicum and the fourth year research courses. The selection of courses and general structure of the program will be helpful to successful graduates in obtaining employment in many areas that require proficiency in data science and the ability to work with “big data”.

In addition, to complement those courses listed above, some other computer science courses, especially those in the second year, can also be slightly modified to emphasize data science concepts and techniques. For instance, COSC 2206 (Mathematical Computation) can be taught using the R programming language, which is the *de facto* language of Big Data and data analytics, and is widely taught in undergraduate and graduate data science programs (see, e.g. [Why R is the best data science language to learn today | R-bloggers](#), [R and Data Science | How R is Used in Data Science | What is R?](#)) Introductory courses should also introduce the Python language, extensively and increasingly employed in machine learning (an enabling technology for data science). COSC 2406 (Introduction to Game Design and Development) and COSC 4306 (Advanced Game Design and Development) already heavily emphasize artificial intelligence. These classes can be further enhanced to emphasize game analytics, employed to model player behaviour and strategies through high-frequency collection of game state data during gameplay. Game analytics is a rapidly growing area considered to be crucial for the design of new games, improving existing games, and for enhancing the player experience ([The Platform Evolution of Game Analytics – Towards Data Science](#)).

The details regarding the experiential learning implementation and assessment are presented in Sections 4 and 5. The majority of courses in mathematics and computer science require students to solve a substantial number of problems, either independently or working in groups. Often, these problems are motivated by practical applications of the field of study. It is especially true in the

case of courses in applied mathematics (such as probability and statistics) and most of the computer science courses in the proposed program. Thus, the majority of courses in the program contain an experiential learning component by design. Assessment is at the discretion of individual instructors, and in most cases would be a combination of assignments, projects, examinations, in-class participation, or presentations, as is the current practice in most of the courses taught by the department.

As noted, we propose to offer both BSc and BA options. While both options will have the same core courses and similar expectations, there is a difference in terms of admission requirements and choice of elective course. More information regarding this can be found in Sections 2.1 a), 3.1 a) and b).

- b) Identify ways in which the curriculum addresses the current state of the discipline or area of study.

As mentioned in the previous section, the curriculum is designed to provide a high level of technical expertise in mathematics, statistics, and computer science. The new courses together with the others will ensure that the students gain the necessary background and experience in machine learning and other artificial/computational intelligence approaches as well as knowledge in and awareness of areas of application.

- c) Identification of any unique curriculum or program innovations or creative components.

The proposed program is unique as currently there are no undergraduate programs in data science in Canada structured as the proposed one. In Ontario, Wilfred Laurier offers a BSc in Data Science, and Waterloo offers a Bachelor of Computer Science in Data Science and Bachelor of Mathematics in Data Science. The program at Waterloo is essentially a combination of mathematics and computer science courses with opportunity for students to choose electives from other areas. While our program is similar in the sense that it is based on courses in these two disciplines, the substantial difference is that we are planning to introduce eight new courses specifically addressing various aspects of data science as a field of study. The program at Wilfred Laurier is substantially applied in nature and geared towards business and finance. The proposed Nipissing program is aimed at a broad coverage of both theoretical and applied facets of data science.

Nipissing University's location and size bring uniqueness to the proposed program in terms of student experience and training opportunities. The university is located in Northeastern Ontario, in the city of North Bay, which is regarded as a gateway to the North. North Bay houses many small engineering companies serving mining, forestry, and other natural resource industries, and government. Our students will have opportunities to do practicums and internships locally. For instance, we are working to establish an internship program with a local company FDM4 for computer science students. As an institution, we offer programs in Humanities, Fine Arts, Social Sciences, Sciences and Professional Studies. We also offer certificates in Digital Humanities, Digital Classics, GIS, and Game Design and Development, all of which are important areas of applications of data science. For instance: game technology and game analytics are new fields of study derived from the massive amount of data generated from the behaviour of players of large multiplayer online games. Furthermore, Nipissing University houses a Research Data Centre branch (RDC) affiliated with Toronto Regional RDC. Consequently, the students in Data Science programs will have many unique opportunities for learning and development. Moreover, offering

the program as BA or BSc will attract students with backgrounds and interest in Arts and Humanities as well as Sciences. We envision that students will find opportunities to learn about applications in a variety of fields/disciplines, in particular through practicums and research courses. Through these courses, we also expect that the faculty in disciplines other than mathematics and computer science will have opportunity to supervise and co-supervise projects.

There are additional features that further differentiate the proposed program from those offered at Wilfred Laurier and Waterloo. The proposed Data Science program emphasizes a clear, synergistic relationship with existing programs and initiatives at Nipissing University. Among the several possibilities for mutual program development and enhancement, the digital humanities, geography, business, psychology, and kinesiology are notable. In fact, students have already undertaken such courses for many of the application areas described below. They also demonstrate existing links between departmental and program initiatives, and provide examples of how data science can be co-developed with other programs at the University.

In the digital humanities, there are existing projects with Classical Studies and Digital Classics in which large quantities of primary and secondary sources in numismatics, literature, and archaeology of ancient civilizations (e.g. the Seleucid Empire) are collected, analyzed, referenced, and visualized in an intuitive geographic information system framework (*Ancient History GeoVisage*). This initiative has been employed in courses offered through Classical Studies, and is currently emerging as a research platform. *Virtual Vimy Ridge*, in collaboration with the Military Communications and Electronics Museum in Kingston, ON, and a centerpiece of the Museum's 2017 Vimy Ridge celebrations, is another successful digital humanities project involving integration of data from maps, memoirs, journals, logs, and textual sources. Digital Humanities is also an important component in game design, to which COSC 2406 and COSC 3406 (Game Design and Development) can contribute. Collaborative research is also being conducted in data analytics and visual analytics in media gatekeeping. There are many other possibilities for synergy between the Digital Humanities and Data Science in other departments, with English (for textual analysis) and History (large, heterogeneous and noisy data) being among the most prominent.

The interface of data science, visual analytics, computation, and Geography, including geographic information systems (GIS), is arguably the most fruitful at Nipissing. Vast quantities of meteorological, environmental, and agricultural data are acquired from University sensors and weather stations. This work relates directly to Big Data processing, data analytics, visual analytics, and advanced statistical methods. This work has not only resulted in multiple publications in high impact factor journals, but has also provided valuable learning and research opportunities to students in Computer Science, Mathematics, Environmental Studies, and Geography/GIS. This work is an example of a successful multi-site collaboration including NU (Geography, Environmental Studies, Computer Science and Mathematics), provincial and federal government agencies (e.g. MNR, MOE, Ag-Canada), and agricultural producers. Publicly available websites hosted by the University (e.g. geovisage.nipissingu.ca, iwrc.nipissingu.ca) present intuitive and interactive interfaces for environmental data science and visual analytics to community stakeholders. Current focus areas are environmental monitoring of Lake Nipissing and decision support for agricultural producers in the "little clay belt" regions of northeastern Ontario. In this work, new, innovative visual and data analytics techniques are developed and published.

Business and management are the primary consumers of data science. Current collaborations of Computer Science faculty with Business faculty employ data science and machine learning for modeling decision-making and risk-assessment strategies based on noisy, incomplete, and heterogeneous survey data.

Psychology research and kinesiology at the University produce vast quantities of data that require analysis with machine learning, advanced statistical and computational paradigms, and visual analytics. The data science expertise supplied by faculty in Computer Science and Mathematics plays a crucial role in enabling the emergence of new insights from these complex data sets.

It is again emphasized that students in computer science and mathematics, as well as those from other departments, have gained theoretical and practical experience in data science by being involved in and contributing to this work. We plan to offer both BA and BSc degree programs in order to provide opportunities to those students who may have interest in humanities and fine arts, as well as students with interest in business, economics, education, social science, or other areas in sciences.

Nipissing University has more than 60% female students and a significant number of Indigenous students, and has close relationships with Indigenous communities in our region. Hence, it is important for us to offer a program that it is inclusive and attractive to a diverse student population. We have an opportunity to increase the participation of women and Indigenous people in data science and, in general, STEM fields.

In addition, the size of Nipissing University brings another dimension to the uniqueness of our proposed program in terms of faculty-student relations and faculty-faculty relations. Students are provided with many opportunities to enhance their learning experience while at Nipissing. Working with their professors in small classes, and with each other in small groups, students can discover how the rigorous but imaginative thinking gained through the study of data science develops one's ability to reason effectively and to be a proficient problem solver.

3.3. FOR GRADUATE PROGRAMS ONLY

- a) Provide a clear rationale for program length that ensures that the program requirements can be reasonably completed within the proposed time period.
- b) For research-focused graduate degree programs, a clear indication of the nature and suitability of the major research requirements for degree completion.
- c) Evidence that each graduate student in the degree program is required to take a minimum of two-thirds of the course requirements from among graduate level courses.

NOT APPLICABLE.

4. EXPERIENTIAL LEARNING OPPORTUNITIES

Where experiential education is a program requirement, provide evidence that all students can be accommodated. Include a description of any experiential learning component of the program, including:

- Requirements, credits, length;
- Integration/relation of this experience within the program of study;
- How the experiential learning component will be arranged;

- Supply of opportunities for students.

- a) Provide a short description of the experiential learning or work integrated learning opportunity, specifically including requirements/prerequisites, credits (full- or half-credit), length by term or number of hours.

As mentioned in other sections of this proposal, students in the Honours Specialization programs are required to complete either a practicum course at the 3rd year level and one 4th year research course or two 4th year research courses.

For both practicum and research courses, the department has established policies, as outlined in section 5.3. In practicum courses, students will have work-integrated learning opportunities or internships, or will work on applied projects within the University. For these courses, we follow the established Nipissing University policy on individualized study courses. In addition, we expect that there will be other experiential learning opportunities in other courses in the form of projects, presentations, case studies, and problem solving.

The faculty involved in the program have extensive experience supervising undergraduate research. Our faculty also have a history of projects with industry partners. As mentioned, Nipissing is in the process of establishing adequate support for experiential learning. Practicum courses will provide opportunity for the students to gain credits for internships in industry or working in companies or other organizations on data science related jobs.

- b) Comment specifically on resources that may be needed, including how the component will be arranged and supervised.

Administrative support will be needed for managing internships and relationships with agencies and businesses involved. As mentioned before, Nipissing University will create the necessary support to help programs manage experiential learning and internships. The Experiential Learning Coordinator in Student Development and Services will play this role.

- c) Indicate in what year the first cohort will participate in placements and expected number of students participating in placements (enrolment projections should reflect student numbers).

The first cohort is expected to participate in research projects and practicums which may include placements and/or internships during the 3rd year of the program. Those who plan to complete a minor in Data Science are expected to do a practicum in 2nd year.

- d) Identify potential placement sites/supply of opportunities for students. Number of placements should clearly be able to accommodate expected enrolment and required placements and/or internships (clearly show that all students can be accommodated). Students will not all engage in traditional placements, although agencies will be asked to provide opportunities for student learning (e.g., a student may be required to complete a project about an existing program).

Currently, Nipissing University and North Bay & District Chamber of Commerce are working in partnership on a pilot project to develop experiential learning opportunities for students. Through this project we will have access to almost all local businesses. We already have established relationships with local companies to do internships as mentioned elsewhere in this proposal.

Moreover, when the proposed programs are in place, we will have the necessary administrative support for our practicum courses. In addition, Nipissing has ongoing relationships with other local agencies, non-profit organizations, and the City of North Bay for service learning and other experiential learning. We will be able to utilize these relationships as well for internships

5. ASSESSMENT OF STUDENT LEARNING

Nipissing University Degree Level Expectations

	Baccalaureate/Bachelor's Degree <i>This degree is awarded to students who have demonstrated:</i>	Baccalaureate/Bachelor's Degree: Honours <i>This degree is awarded to students who have demonstrated:</i>
1. Depth and Breadth of Knowledge	a) general knowledge and understanding of many key concepts, methodologies, theoretical approaches and assumptions in a discipline, b) broad understanding of some of the major fields in a discipline, including, where appropriate, from an interdisciplinary perspective, and how the fields may intersect with fields in related disciplines, c) ability to gather, review, evaluate and interpret information relevant to one or more of the major fields in a discipline, d) some detailed knowledge in an area of the discipline, e) critical thinking and analytical skills inside and outside the discipline, f) ability to apply learning from one or more areas outside the discipline.	a) a developed knowledge and critical understanding of the key concepts, methodologies, current advances, theoretical approaches and assumptions in a discipline overall, as well as in a specialized area of a discipline, b) a developed understanding of many of the major fields in a discipline, including, where appropriate, from an interdisciplinary perspective, and how the fields may intersect with fields in related disciplines, c) a developed ability to: i) gather, review, evaluate and interpret information; and ii) compare the merits of alternate hypotheses or creative options, relevant to one or more of the major fields in a discipline, d) a developed, detailed knowledge of and experience in research in an area of the discipline, e) developed critical thinking and analytical skills inside and outside the discipline, f) the ability to apply learning from one or more areas outside the discipline.
2. Knowledge of Methodologies	a) an understanding of methods of enquiry or creative activity, or both, in their primary area of study that enables the student to: i) evaluate the appropriateness of different approaches to solving problems using well established ideas and techniques; and ii) devise and sustain arguments or solve problems using these methods.	a) an understanding of methods of enquiry or creative activity, or both, in their primary area of study that enables the student to: i) evaluate the appropriateness of different approaches to solving problems using well established ideas and techniques; ii) devise and sustain arguments or solve problems using these methods; and iii) describe and comment upon particular aspects of current research or equivalent advanced scholarship.

	Baccalaureate/Bachelor's Degree <i>This degree is awarded to students who have demonstrated:</i>	Baccalaureate/Bachelor's Degree: Honours <i>This degree is awarded to students who have demonstrated:</i>
3. Application of Knowledge	a) the ability to review, present, and interpret quantitative and qualitative information to: i) develop lines of argument; ii) make sound judgments in accordance with the major theories, concepts and methods of the subject(s) of study; and b) the ability to use a basic range of established techniques to: i) analyze information; ii) evaluate the appropriateness of different approaches to solving problems related to their area(s) of study; iii) propose solutions; and c) the ability to make use of scholarly reviews and primary sources.	a) the ability to review, present and critically evaluate qualitative and quantitative information to: i) develop lines of argument; ii) make sound judgments in accordance with the major theories, concepts and methods of the subject(s) of study; iii) apply underlying concepts, principles, and techniques of analysis, both within and outside the discipline; iv) where appropriate use this knowledge in the creative process; and b) the ability to use a range of established techniques to: i) initiate and undertake critical evaluation of arguments, assumptions, abstract concepts and information; ii) propose solutions; iii) frame appropriate questions for the purpose of solving a problem; iv) solve a problem or create a new work; and c) the ability to make critical use of scholarly reviews and primary sources.
4. Communication Skills	the ability to communicate accurately and reliably, orally and in writing to a range of audiences.	the ability to communicate information, arguments, and analyses accurately and reliably, orally and in writing to a range of audiences.
5. Awareness of Limits of Knowledge	an understanding of the limits to their own knowledge and how this might influence their analyses and interpretations.	an understanding of the limits to their own knowledge and ability, and an appreciation of the uncertainty, ambiguity and limits to knowledge and how this might influence analyses and interpretations.
6. Autonomy and Professional Capacity	a) qualities and transferable skills necessary for further study, employment, community involvement and other activities requiring: ▪ the exercise of personal responsibility and decision-making; ▪ working effectively with others; b) the ability to identify and address their own learning needs in changing circumstances and to select an appropriate program of further study; and	a) qualities and transferable skills necessary for further study, employment, community involvement and other activities requiring: ▪ the exercise of initiative, personal responsibility and accountability in both personal and group contexts; ▪ working effectively with others; ▪ decision-making in complex contexts; b) the ability to manage their own learning in changing circumstances, both within and outside the discipline and to select an appropriate program of further study; and
	c) behaviour consistent with academic integrity and social responsibility.	c) behaviour consistent with academic integrity and social responsibility.

Data Science Program Level Expectations

PROGRAM EXPECTATIONS	BACHELOR'S DEGREE <i>This degree is awarded to students who have demonstrated the following qualities and abilities:</i>	BACHELOR'S DEGREE HONOURS <i>This degree is awarded to students who have demonstrated the following qualities and abilities:</i>
1. DEPTH AND BREADTH OF KNOWLEDGE	a) a general knowledge and understanding of fundamental concepts, methodologies, and theoretical and practical approaches in data science, with some understanding of current advances b) a broad understanding of some topics in mathematics and computer science, foundational for data science, including calculus, discrete mathematics, linear algebra, probability and statistics, algorithms, programming languages, machine learning, artificial neural networks, and their practical importance for data science c) an ability to read, understand, and analyze the literature, including textbooks and other learning materials, in main areas of computer science, mathematics, and data science d) knowledge of foundations of data science e) ability to apply computational and mathematical knowledge to real-life problems related to big data and to data analytics, and to create solutions for such problems, in particular in the form of mathematical models and software applications f) critical thinking and analytical, problem-solving, and programming skills that can be used in the context of data science	a) a developed knowledge and critical understanding of the key concepts, methodologies, theoretical and practical approaches in data science, and understanding of current advances b) a developed understanding of main topics in mathematics and computer science, foundational for science and technology, including calculus, discrete mathematics, linear algebra, probability and statistics, algorithms, programming languages, machine learning, artificial neural networks, and their practical importance and application in data science c) a developed ability to read, understand, and analyze literature related to data science, including books and research papers d) knowledge of foundations of data science, in-depth knowledge of a particular topic in data science, and experience in research in this topic in the form of supervised research projects, which include presentations and written reports e) ability to apply computational and mathematical knowledge to real-life problems related to big data and to data analytics, and to create solutions for such problems, in particular in the form of mathematical models and software applications f) developed critical thinking and advanced analytical, problem-solving, and programming skills, that can be used in the context of data science
2. KNOWLEDGE OF METHODOLOGIES	a) an understanding of standard problem-solving ideas and techniques used in data science b) ability to evaluate the appropriateness of different approaches to solve problems using well established ideas, techniques, and algorithms	a) an understanding of standard problem-solving ideas and techniques used in data science, and some understanding of “leading-edge” approaches, and how new areas of data science emerge b) ability to evaluate the appropriateness of different approaches

	c) ability to apply problem-solving and programming ideas and techniques in various contexts d) some understanding of historical development of data science and its present structure	to solve problems using well-established ideas, techniques, and algorithms c) developed ability to apply problem-solving and programming ideas and techniques in various contexts d) understanding of historical development of data science and its present structure e) some understanding of current trends in data science
3. APPLICATION OF KNOWLEDGE	a) ability to design and to implement algorithms in a suitable programming language b) an ability to assess and prove correctness of solutions and algorithms c) an ability to gather, comprehend, and analyze new scientific knowledge from various sources and apply it to solve a given problem d) an ability to pose their own scientific and applied-type questions and problems and evaluate the appropriateness of approaches to solve them e) ability to think independently	a) developed ability to design and to implement algorithms in a suitable programming language b) an ability to assess and prove correctness of solutions and algorithms c) an ability to gather, comprehend, and analyze new scientific knowledge from various sources and apply it to solve a given problem d) an ability to pose their own scientific and applied-type questions and problems and evaluate the appropriateness of approaches to solve them e) developed ability to think independently, and ability to formulate appropriate projects for research and study.
4. COMMUNICATION SKILLS	a) an ability to communicate information, arguments, and analyses, both orally and in writing, to a range of audiences b) an ability to communicate scientific ideas, algorithms, questions, solutions, both orally and in writing, in a concise, clear, logical, and correct way	a) a developed ability to communicate information, arguments, and analyses, both orally and in writing, to a range of audiences b) a developed ability to communicate scientific ideas, algorithms, questions, solutions, both orally and in writing, in a concise, clear, logical, and correct way c) an ability to participate in discussions of advanced topics in data science d) a general understanding of principles of writing of research papers in science and engineering, including format, style, and citations
5. AWARENESS OF LIMITS OF KNOWLEDGE	a) an understanding of the limits of their own knowledge and an awareness of how these might affect their own analyses and interpretations	a) an understanding of the limits of their own knowledge and an awareness of how these might affect their own analyses and interpretations

		b) an understanding of the limits of scientific knowledge
6. AUTONOMY AND PROFESSIONAL CAPACITY	a) the exercise of good judgment, initiative, personal responsibility and accountability in both personal and group contexts b) an ability to apply problem-solving skills c) an ability to work effectively and collegially with others d) an ability to identify their own learning needs, including seeking assistance to identify and address weaknesses; an ability to identify goals for their degree and beyond, including selecting an appropriate program for further study e) behaviour consistent with academic integrity and social responsibility	a) the exercise of good judgment, initiative, personal responsibility and accountability in both personal and group contexts b) an ability to apply problem-solving skills and make decisions in complex contexts c) an ability to work effectively and collegially with others c) an ability to identify their own learning needs, including seeking assistance to identify and address weaknesses; an ability to identify goals for their degree and beyond, including selecting an appropriate program for further study e) behaviour consistent with academic integrity and social responsibility

Curriculum mapping for Data Science Program Expectations (Honours)

PROGRAM EXPECTATIONS	BACHELOR'S DEGREE HONOURS <i>This degree is awarded to students who have demonstrated the following qualities and abilities:</i>	COURSES
1. DEPTH AND BREADTH OF KNOWLEDGE	a) a developed knowledge and critical understanding of the key concepts, methodologies, theoretical and practical approaches in data science, and understanding of current advances b) a developed understanding of main topics in mathematics and computer science, foundational for science and technology, including calculus, discrete mathematics, linear algebra, probability and statistics, algorithms, programming languages, machine learning, artificial neural networks, and their practical importance and application in data science	a) DATA 1XXX Intr. Data Science DATA 3XXX Tools & Tech. Data DATA 3XXX Practicum II DATA 4496 Data Analytics DATA 4496 and 4497 Research Projects I and II b) COSC 1557 Intro to Comp. Sci. COSC 1567 Programming in C++ COSC 2006 Data Structures I COSC 2007 Data Structures II COSC 2116 ANN Computing MATH 1036 Calculus I MATH 1037 Calculus II MATH 1046 Intr. Lin. Algebra MATH 1056 Discrete Math. I MATH 2036 Adv. Calculus I MATH 2037 Adv. Calculus II MATH 2076 Prob. & Stat. I DATA 3XXX Tools & Tech. Data DATA 3XXX Machine Learning

	c) a developed ability to read, understand, and analyze literature related to data science, including books and research papers d) knowledge of foundations of data science, in-depth knowledge of a particular topic in data science, and experience in research in this topic in the form of supervised research projects, which include presentations and written reports e) ability to apply computational and mathematical knowledge to real-life problems related to big data and to data analytics, and to create solutions for such problems, in particular in the form of mathematical models and software applications f) developed critical thinking and advanced analytical, problem-solving, and programming skills, that can be used in the context of data science	c) DATA 3XXX Practicum II DATA 4496 Data Analytics DATA 4496 and 4497 Research Projects I and II d) DATA 4496 Data Analytics DATA 4496 and 4497 Research Projects I and II e) DATA 3XXX Tools & Tech. Data DATA 3XXX Practicum II DATA 4496 Data Analytics DATA 4496 and 4497 Research Projects I and II f) All COSC, DATA, and MATH courses in the program
2. KNOWLEDGE OF METHODOLOGIES	a) an understanding of standard problem-solving ideas and techniques used in data science, and some understanding of “leading-edge” approaches, and how new areas of data science emerge b) ability to evaluate the appropriateness of different approaches to solve problems using well-established ideas, techniques, and algorithms c) developed ability to apply problem-solving and programming ideas and techniques in various contexts d) understanding of historical development of data science and its present structure e) some understanding of current trends in data science	a) DATA 3XXX Tools & Tech. Data DATA 4496 Data Analytics DATA 4496 and 4497 Research Projects I and II b) All COSC, DATA, and MATH courses in the program c) COSC 1567 Programming in C++ COSC 2006 Data Structures I COSC 2007 Data Structures II COSC 2116 ANN Computing MATH 2036 Adv. Calculus I MATH 2037 Adv. Calculus II MATH 3276 Prob. & Stat. II DATA 3XXX Tools & Tech. Data DATA 3XXX Practicum II d) DATA 1XXX Intr. Data Science DATA 3XXX Tools & Tech. Data DATA 4496 Data Analytics DATA 4496 and 4497 Research Projects I and II e) DATA 3XXX Tools & Tech. Data DATA 4496 Data Analytics DATA 4496 and 4497 Research Projects I and II

3. APPLICATION OF KNOWLEDGE	a) developed ability to design and to implement algorithms in a suitable programming language b) an ability to assess and prove correctness of solutions and algorithms c) an ability to gather, comprehend, and analyze new scientific knowledge from various sources and apply it to solve a given problem d) an ability to pose their own scientific and applied-type questions and problems and evaluate the appropriateness of approaches to solve them e) developed ability to think independently, and ability to formulate appropriate projects for research and study.	a) COSC 1567 Programming in C++ COSC 2006 Data Structures I COSC 2007 Data Structures II COSC 3606 Databases b) All COSC and MATH courses in the program c) DATA 3XXX Practicum II DATA 4496 and 4497 Research Projects I and II d) DATA 3XXX Practicum II DATA 4496 and 4497 Research Projects I and II e) DATA 3XXX Practicum II DATA 4496 and 4497 Research Projects I and II
4. COMMUNICATION SKILLS	a) a developed ability to communicate information, arguments, and analyses, both orally and in writing, to a range of audiences b) a developed ability to communicate scientific ideas, algorithms, questions, solutions, both orally and in writing, in a concise, clear, logical, and correct way c) an ability to participate in discussions of advanced topics in data science d) a general understanding of principles of writing of research papers in science and engineering, including format, style, and citations	a) DATA 4496 Data Analytics DATA 4496 and 4497 Research Projects I and II b) DATA 4496 Data Analytics DATA 4496 and 4497 Research Projects I and II c) DATA 4496 Data Analytics DATA 4496 and 4497 Research Projects I and II d) DATA 4496 and 4497 Research Projects I and II
5. AWARENESS OF LIMITS OF KNOWLEDGE	a) an understanding of the limits of their own knowledge and an awareness of how these might affect their own analyses and interpretations b) an understanding of the limits of scientific knowledge	a) Most of the courses in the program b) COSC 3007 Artificial Intelligence DATA 3XXX Machine Learning DATA 4496 Data Analytics DATA 4496 and 4497 Research Projects I and II

6. AUTONOMY AND PROFESSIONAL CAPACITY	a) the exercise of good judgment, initiative, personal responsibility and accountability in both personal and group contexts b) an ability to apply problem-solving skills and make decisions in complex contexts c) an ability to work effectively and collegially with others c) an ability to identify their own learning needs, including seeking assistance to identify and address weaknesses; an ability to identify goals for their degree and beyond, including selecting an appropriate program for further study e) behaviour consistent with academic integrity and social responsibility	All courses in the program

5.1. CLARITY AND APPROPRIATENESS OF THE DEGREE PROGRAM REQUIREMENTS, STRUCTURE AND REGULATIONS TO MEET ASSOCIATED LEARNING OUTCOMES AND DEGREE LEVEL EXPECTATIONS

The institution's Degree Level Expectations and Program Level Expectations are provided above. We plan to satisfy the expectations through the following learning outcomes.

Learning Outcomes:

The successful graduate of this program will be able to:

- read, understand, and analyze the literature and other materials in main areas of data science;
- apply computational and mathematical knowledge to practical problems related to big data, and to create solutions for such problems, particularly in the form of mathematical models, algorithms, and software;
- use standard problem-solving ideas and techniques of data science;
- evaluate the efficacy of different approaches to solve problems using well established ideas, techniques, and algorithms;
- apply problem-solving and programming ideas and techniques in various contexts;
- design and implement algorithms, and assess and prove the correctness of these solutions and algorithms;
- gather, comprehend, and analyze new scientific knowledge from various sources, and apply it in various contexts;
- pose scientific application questions and problems, and evaluate the appropriateness of approaches to solve them;
- think independently;
- communicate and disseminate information, arguments, and analyses to diverse audiences, both orally and in writing;

- communicate scientific ideas, algorithms, questions, solutions, both orally and in writing, in a concise, clear, logical, and correct way;
- collaborate effectively and collegially with others.

Staged Program Expectations

I) At the completion of **1000-level courses**, successful students will have demonstrated the following abilities:

- a general knowledge and critical understanding of key concepts, methodologies, theoretical approaches in data science;
- a general understanding of the main topics in mathematics and computer science that are foundational for data science, including calculus, discrete mathematics, linear algebra, algorithms, programming languages, and the practical importance of these topics;
- ability to read, understand, and analyze introductory texts in computer science and mathematics;
- an understanding of some standard problem-solving ideas and techniques in mathematics, computer science, and data science;
- initial ability to evaluate the appropriateness of different approaches to solve problems using well established ideas, techniques, and algorithms;
- initial ability to design and to create algorithms and to implement and test them in programming code;
- initial ability to assess the correctness of solutions and algorithms and to analyze programming code;
- some understanding of the historical development of data science and its present structure;
- ability to think independently;
- an initial ability to communicate scientific ideas, algorithms, questions, solutions, both orally and in writing.

II) At the completion of **2000-level courses**, successful students will have demonstrated the following abilities:

- understanding of the main topics in mathematics and computer science, foundational for data science, including calculus, probability and statistics, and other stream-specific topics, and the practical importance and applications of these topics;
- initial ability to apply computational and mathematical knowledge to real-life problems involving big data and data analytics, and to design or propose solutions for such problems, in particular in the form of mathematical models and software applications;
- understanding of standard problem-solving ideas and techniques used in data science;
- ability to evaluate the appropriateness of different approaches to solve problems using well-established ideas, techniques, and algorithms;
- ability to design, create, implement, and test algorithms in programming code;

- an ability to assess and prove correctness of solutions and algorithms;
- initial ability to gather, comprehend, and analyze new scientific knowledge from various sources;
- initial ability to pose their own scientific and applied-type questions and problems and evaluate the appropriateness of approaches to solve them;
- ability to think independently;
- ability to communicate scientific ideas, algorithms, questions, solutions, both orally and in writing, in a concise, clear, logical, and correct way.

III) At the completion of **3000-level courses**, successful students will have demonstrated the following abilities:

- a general knowledge and critical understanding of the key concepts, methodologies, theoretical and practical approaches in data science, with some understanding of current advances;
- a broad understanding of the main topics in mathematics and computer science, foundational for data science, including calculus, discrete mathematics, linear algebra, probability and statistics, algorithms, programming languages, machine learning, artificial neural networks, and the practical importance and applications of these topics;
- ability to read, understand, and analyze the literature related to data science, including books and research papers;
- ability to apply computational and mathematical knowledge to real-life problems involving big data and to create solutions for such problems, in particular in the form of mathematical models and software applications;
- critical thinking and advanced analytical, problem-solving, and programming skills, that can be used in the context of data science;
- basic understanding of how new areas of data science emerge;
- ability to evaluate the appropriateness of different approaches to solve problems using well established ideas, techniques, and algorithms;
- ability to apply problem-solving and programming ideas and techniques in various contexts;
- understanding of the historical development of data science and its present structure;
- ability to design, create, implement, and test algorithms in programming code;
- an ability to gather, comprehend, and analyze new scientific knowledge from various sources and apply it in various contexts;
- an ability to pose their own scientific and applied-type questions and problems and evaluate the appropriateness of approaches to solve them;
- developed ability to think independently;
- a developed ability to communicate scientific ideas, algorithms, questions, solutions, both orally and in writing, in a concise, clear, logical, and correct way.

IV) At the completion of **4000-level courses**, successful students will have demonstrated the following abilities:

- a developed knowledge and critical understanding of the key concepts, methodologies, theoretical and practical approaches in data science, and an understanding of current advances, and in-depth knowledge of a specific area of data science;
- a developed understanding of main topics in mathematics and computer science, foundational for data science, including calculus, discrete mathematics, linear algebra, probability and statistics, algorithms, programming languages, machine learning, artificial neural networks, and the practical importance and applications of these topics;
- developed ability to read, understand, and analyze texts related to data science, including books and research papers;
- an in-depth knowledge of a topic in data science, and experience in supervised research in this topic in the form of research projects, which include presentations and written reports;
- developed critical thinking and advanced analytical, problem-solving, and programming skills, that can be used in the context of data science;
- some understanding of current trends in data science;
- developed ability to design, create, implement, and test algorithms in programming code;
- ability to formulate appropriate projects for research and to study independently;
- developed ability to communicate information, arguments, and analyses, orally and in writing to a range of audiences;
- ability to participate in discussions of advanced topics in data science;
- general understanding of principles of writing of research papers in science and engineering, including format, style, and citations.

We note that expectations listed above are gradually achieved during the program of study. Components insuring the fulfillment of expectations listed are integrated in various courses in the program. (The information about the structure of the program is provided in section 1.3.) In addition, the Department of Computer Science and Mathematics ensures that expectations listed will be fulfilled in part through periodic assessment and feedback. The Department of Computer Science and Mathematics requires a consistent demonstration of good judgment, personal responsibility, and academic integrity from all students throughout their program of study. The relevant student outcomes are as follows.

Student Outcomes

(i) Learning Outcomes

As the students progress through this program, they will acquire the following valuable skills and outcomes:

- a general knowledge and understanding of fundamental concepts, methodologies, and theoretical and practical approaches in data science, with some knowledge of historic development and current advances;

- a broad understanding of the relevant topics in mathematics and computer science which are foundational for data science, including calculus, discrete mathematics, linear algebra, probability and statistics, algorithms, programming languages, machine learning, artificial neural networks, and their practical importance in data science;
- an interdisciplinary outlook that will allow them to apply their skills to diverse fields;
- critical thinking and analytical, problem-solving, and programming skills that can be used in the context of data science;
- an understanding of the limits of their own knowledge and an awareness of how these limits may affect their analyses and interpretations;
- enhanced communication, presentation, and writing skills;

(ii) *Graduate outcomes:*

Graduates of the program will work in all areas where large volumes of data are acquired, analyzed, processed, or interpreted, including, but not limited to, information technology, finance, industry, medical and allied fields, management, government, etc. They will also be well prepared to continue their studies in graduate programs in data science and related areas.

(iii) *Other Outcomes:*

- the exercise of good judgment, initiative, personal responsibility, and accountability in personal, professional, and collaborative contexts;
- an ability to identify their own learning needs, including seeking assistance to identify and address weaknesses; an ability to identify their goals for their degree and beyond, including selecting an appropriate program for further study; ability to work in teams as well as to accept and succeed in leadership roles

5.2. MODES OF DELIVERY

- Appropriateness of the proposed modes of delivery (i.e., means or medium used in delivering a program (e.g., lecture format, distance on-line, problem-based, compressed part-time, different campus, inter-institutional collaboration or other non-standard form of delivery) to meet the intended program learning outcomes and Degree Level Expectations.
- Explain why these are the most appropriate methods of delivery to help students achieve the proposed learning outcomes and improve student learning experience.

The proposed delivery mode will be face-to-face. The program is based on currently offered computer science and mathematics courses with the addition of eight new courses including individualized study courses such as practicum and research courses. These new courses are as follows:

DATA 1XXX Intro to Data Science
 DATA 2XXX Data Science Practicum I
 DATA 3XXX Data Science Practicum II
 DATA 3XXX Machine Learning

DATA 3XXX Tools and Technologies in Data Science

DATA 4XXX Data Analytics

DATA 4496 Research Project I

DATA 4997 Research Project I

5.3. METHODS FOR ASSESSMENT OF STUDENT ACHIEVEMENT

- Appropriateness of the proposed methods for the assessment of student achievement of the intended program learning outcomes and Degree Level Expectations (*QAF evaluation criterion 2.1.6a*)
- Outline what types of assessments will be used to evaluate student progress in the program and explain why they have been selected. Provide a broad representation of proposed assessment practices: What skills will assessments evaluate? What is specifically collected from the students as evidence that they have achieved the program goal before they graduate? Do these assessments align with learning outcomes?

No changes in the current methods of assessment and evaluation of intended learning outcomes are anticipated in the existing courses in mathematics, computer science, and other disciplines. Similar assessment methods will be used in new specialized courses in data science. There are eight new courses planned for the program, two of which are new practicum courses, and two are capstone research project courses. These courses are likely to have similar methods of assessment, adjusted to the unique learning outcomes in those courses. Below we offer some general comments with respect to evaluation methods employed for the proposed program.

1. Invigilated final examinations are implemented in virtually all first- and second-year courses, and indeed in almost all of the third-year courses. In some exceptional cases, a non-invigilated take-home final exam may be utilized. There are no final exams in the (fourth-year) Student Research Project courses.
2. In addition to final examinations, the evaluation in virtually all courses includes some combination of term tests or quizzes, and written assignments, with the numbers and weights of these items varying considerably from course to course and instructor to instructor. Tests or quizzes are administered during class or tutorial time, and are invigilated. At the instructor's discretion, these may be open book in some cases, while, in other cases, information or formula sheets are permitted, or no aids may be allowed, whatsoever.
3. Students are encouraged to work together on assignments, but are expected to write up and submit their final solutions entirely on their own. Evidence of copying usually results in a stern warning and a partial deduction for a first offense, and a zero on the assignment (along with a report of academic dishonesty to the Dean) for a second offense.
4. Faculty do most of their own marking, including the grading of all final and midterm examinations and, in the upper-year courses, all assignments. In the first-year program courses, third- or fourth-year Honours majors or graduate students are often employed to mark all or some of the assignments and quizzes, according to marking templates provided by the instructors.

5. For research project courses, as well as practicum courses, the department has established a separate assessment strategy. Students are required to apply for these courses, and must have at least 70% GPA. Each student approved for such a course is assigned a supervisor. Supervisor and student have regular meetings during the term. Students are required to do presentations at the departmental research seminars, and to submit a final paper/report, as well as deliver a final presentation to the department. Final grade is assigned by the supervisor based on the performance, presentations, and the final paper/report.
6. Finally, we suggest that any evaluation of the appropriateness of methods of assessment should consider the issue of feedback, from the students' perspective. Students need to feel that they get adequate feedback on their progress, that the feedback is timely, and that it is useful. In this regard, we are pleased to emphasize that all faculty members charged with delivering the program endeavor: (i) to provide a sufficient mix of assignments and tests to allow the students to gauge their progress on an ongoing basis; (ii) to return submitted work in a timely fashion, and, in particular, to ensure that students have enough feedback prior to final withdrawal dates to make informed decisions; and (iii) to provide solutions and/or relevant written commentary with graded assignments and tests, so that students can learn from their mistakes.

5.4. DOCUMENTING AND DEMONSTRATING STUDENT LEVEL OF PERFORMANCE

- Completeness of plans for documenting and demonstrating the level of performance of students, consistent with the institution's statement of its Degree Level Expectations (*QAF evaluation criterion 2.1.6b*)
- Consider a holistic approach to learning: How do we know that students have attained specific knowledge, skills and abilities? Which key assessment pieces can be used to demonstrate that students have met learning outcomes? How could this evidence be documented and communicated?

Students in the Data Science program as outlined above will be required to have at least 70% GPA on the courses listed above in order to graduate. In the case of BA or BSc specialization 70% GPA will be calculated over 54 credits of courses as listed above, and in the case of Honours specialization 70% will be calculated over 60 credits of courses because of practicum or research project courses. This requirement is consistent with Nipissing University graduation requirements for BA and BSc programs.

In addition to standard ways of documenting the level of performance of students, such as transcripts, at Nipissing we utilize other means of documenting and collecting information about our programs and the performance of students. Nipissing University conducts student opinion surveys in each course offered. These surveys, in particular confidential student comments, provide feedback to each instructor about their courses. Nipissing University Academic Advising provide very important feedback about the overall program requirements, issues concerning the program structure, and the selection of courses offered as well as the performance of students. Nipissing University Institutional Planning Office also collects information and conducts surveys on current students and graduates. Nipissing also keeps track of graduates in terms of employment.

6. FACULTY: RESOURCES & QUALITY INDICATORS

The University will provide evidence of a sufficient number and quality of faculty who will actively participate in program delivery to achieve program goals. Evidence should be provided to ensure the intellectual quality of the student experience and show the appropriateness of collective faculty expertise to contribute substantively to the proposed program. Tables below can be modified to better suit the program.

- For Information of External Reviewer – Nipissing University Faculty Association Collective Agreement: may be found at: <http://www.nipissingu.ca/hr/>
- See **Appendix 2 – Curriculum Vitae** for complete details on faculty expertise and research

TABLE: FACULTY EXPERTISE AND RESEARCH

- include indicators that provide evidence of quality (e.g., qualifications, research, innovation and scholarly record, including recent research or professional/clinical expertise)

NAME	MAIN AREAS OF EXPERTISE
Hatef, Ali	Physics: Computational Nano- & Bio-photonics
Hoehn, Logan	Mathematics: Topology
Karashev, Alexandre	Mathematics: Topology
Schreyer, Boguslaw	Computer Science: AI, ANN, Computer Aided Creativity, Robotics, Image Processing
Stasyuk, Ihor	Mathematics: Topology
Tuncali, Murat	Mathematics: Topology
Valov, Vesko	Mathematics: Topology
Vassilev, Tzvetalin	Mathematics: Combinatorics, Graph Theory
Wachowiak, Mark	Computer Science: Biomedical computing, signal processing, Spatial computing, high-performance computing, Data analytics, visualization, computational science
Zhu, Haibin	Computer Science: Collaborative Systems, Role-Based Collaboration, Software Engineering, Team Performance

- a) Specifically comment on the recent research or professional/clinical expertise needed to sustain the program, promote innovation and foster an appropriate intellectual climate.

As noted above, a substantial part of the program relies on the existing courses offered by the Department of Computer Science and Mathematics with the addition of eight new courses. Current faculty in the department have the expertise to teach all the courses including the new courses proposed for the program, and supervise research projects. The department has research strengths in artificial neural networks, deep machine learning, algorithmic graph theory, computational geometry, computational physics with focus on nanotechnology and nanomedicine, optimization, signal analysis and role-based collaborative systems. However, if the enrolment grows as expected,

there will be a need for a new faculty member, in particular with expertise in machine learning to complement current faculty strengths.

The list of the faculty participating in the program is included above. Their CV's are also attached to this proposal.

- b) If relevant, describe the plan and/or commitment to provide additional faculty resources to support the program (e.g., faculty renewal plan, administration support).
Comment on plan/requirements as presented in **Appendix 3 – Budget**. This appendix will not be shared externally, therefore, it is important to provide evidence of sufficient faculty who will be involved in the delivery of the new program. Details will need to be included here demonstrating that faculty resources will be adequate for the degree program.

The program, at least in the initial several years of its implementation, will be based on existing facilities, labs, library resources etc. As the enrolment increases in the program, we will need additional resources. The full financial forecast for this program is attached as Appendix 3. It needs to be noted that we expect to have the first cohort of students to start the program in the 2020/21 academic year. When the cohort reaches 3rd year, we will be in a good position to have an assessment of the program resources and staffing needs based on the enrolments.

Any new hires will go through the standard search process. Taking into account that any new hire will have a significant role in the new program, their competence and fitness for the needs of the program will be part of the position requirements.

- c) Comment on the role of part-time and/or adjunct faculty

There will not be a need for a part-time faculty to deliver the program. However, in some instances, adjunct/part-time faculty may co-supervise student projects or teach courses on specialized topics.

- d) For graduate programs: evidence of how supervisory loads will be distributed, and the qualifications and appointment status of faculty who will provide instruction and supervision.

NOT APPLICABLE.

7. PROGRAM COSTS & RESOURCE PLANNING

7.1. PROGRAM COSTS

Comment on the plan/requirements as presented in **Appendix 3 – Budget**; this appendix will not be shared externally, therefore, details will need to be included here. References to the appendix should not be included in the text.

Demonstrate that the University has the resources to offer the degree program. Include:

- A description of how it plans to finance and staff the proposed program, including any sources of funds beyond tuition and Ministry funding;
- A summary of capital requirements, estimated costs and sources, or an explanation of how the program will be accommodated within the University.

Please refer to the business plan provided in Appendix 3 for this section.

7.2. RESOURCES

For the resources outlined in a) through f) below, comment on the following:

- evidence of the adequacy of the administrative unit's planned utilization of existing human, physical and financial resources;
- institutional plans/commitment to provide additional or necessary resources to support the implementation and sustainability of the program;
- ability of students to achieve program goals, sustaining the quality of undergraduate and graduate student scholarship and graduate research activities.

a) Administrative Support

(i.e., daily operational activities of the program, Chair, Director, Coordinator)

The current administrative support for the Department of Computer Science and Mathematics will be sufficient to manage daily operational activities. As noted above, support for Experiential Learning will be needed. This also has been addressed by the University.

The program Specialization in Data Science does not have specific research requirements. Students in the Honours Specialization program will be expected to complete two individualized study research courses, with final reports and presentations as part of the requirements. No funds for research equipment, labs, or other research-related resources will be required for starting the implementation of the proposed program. However, there will be a need for library additions in the future. As the program grows and enrolment increases, we expect to upgrade our computer labs.

b) Library Support (assessment of information resources and services prepared and provided by the Subject Librarian and/or the Executive Director, Library Services)

*Reference **Appendix 4 – Library Report***

Current library resources are adequate. However, it is expected that there will be a need for additional library resources as the program grows. We refer you to Appendix 4 for the detailed report on library resources.

c) Technology Support (e.g., technical services, computer labs, software, audio-visual)

As indicated above, existing computer labs and facilities are adequate to implement the program. In addition, Nipissing has a GIS lab and a lab for computer graphics. Nipissing University is a member of SHARCNET, and Dr. Mark Wachowiak is our SHARCNET site leader. Through SHARCNET, we have access to supercomputing facilities. Nipissing University is also an affiliated member of the Fields Institute for Research in Mathematical Sciences.

Computer Science faculty are also working with University Technology Services to install implementations of Hadoop and MapReduce, which are open source tools for data science and Big Data analytics. The SHARCNET consortium (part of Compute Canada) provides cloud computing and high performance computing resources to undergraduate and graduate research students. The University supports these undertakings, as exposing undergraduates to state-of-the-art and leading-edge tools (including exposure to the R and Python programming languages, visualization and visual analytics tools, and statistical software) gives them a competitive advantage as they start their careers.

- d) Physical Space – laboratories, classrooms, offices, student space

Existing physical space is adequate for this program.

- e) Miscellaneous /Other – comment on any other resources deemed appropriate

All faculty involved in the delivery of the main components of the proposed program have completed Ph.D. degrees, and most are tenured. Moreover, all are active researchers, and the majority hold external research grants. Many of these faculty members have research interests in data science and closely related fields. Faculty members are very active in attending and organizing workshops and conferences, as well as in participating in outreach activities.

We believe that the library facilities are currently adequate to introduce the program. Current resources include access to several data science and analytics journals from the library's research databases, as well as a large collection of books and texts in the field. However, a reasonable small investment may be required to add some books and subscriptions in specific areas. In terms of Nipissing University's facilities, classrooms, and administration, we believe that they are all satisfactory for the delivery of this program. Given the nature of this program, it is not dependent upon the acquisition of new resources to start. With enrolment increases, as mentioned above, we will be in a position to assess our resource and staffing needs when the first cohort of students reaches 3rd year of the program.

- f) For graduate programs:

Student Financial Assistance. Where appropriate to the program, evidence that financial assistance for students will be sufficient to ensure quality and number of students. Discuss adequacy relevant to number of students and to length of program.

NOT APPLICABLE

APPENDIX 1
COURSE SYLLABI
and
NEW COURSE DESCRIPTIONS

COMPUTER SCIENCE COURSES



COSC1557E: Introduction to Computing

Instructor: Dr. Haibin Zhu
Office: A124A **Ext:** 4434
Email: haibinz@nipissingu.ca

Web: <http://faculty.nipissingu.ca/haibinz>
Office Hours: Thur.: 2:30pm-6:30pm or by appointment

Course Description: Problem solving with computers is discussed by Object-Centered Designs. High-level languages will be introduced with an emphasis on writing programs in C++. Control statements, functions, data types, vectors, and an introduction to input and output (I/O) streams. Supervised laboratories are conducted on: an introduction to a C++ programming environment; appropriate programming exercises emphasizing top-down design methodology and simple or structured data types; key topics of the discipline and areas of applications, the use of the Internet for communication and research. It is designed as a first course for majors in Computer and Mathematical Sciences and has implied prerequisites.

Topic prerequisites: Knowledge and understanding of the use, terminology, and notation of mathematical functions.

Recommended Textbook: Cay Horstmann, C++ For Everyone, Wiley, 978-0-470-92713-7, 2nd Eds.

Lecture Notes: <http://www.nipissingu.ca/faculty/haibinz/lect1557.htm>.

Course grade:

- Two tests (30%) and one final exam (34%), (Or one final exam (64%))
- 4 programming projects (16%), and
- 10 Laboratory reports (20%).

Schedule for COSC1557 (Lecture Thursday 12:30PM - 2:20PM, A120) (Lab Tuesday 12:30PM – 2:20PM, A120)

Lecture	Date	Lecture and Lab	Notes
	09/04	Lab 0	Basic facts of computing
1	09/6	Lect1	Software Engineering and Objects
	09/11	Lab1	Use Visual C++
2	09/13	Lect2	Operations
	09/18	Lab2	C++ Expressions
3	09/20	Lect3	Functions
	09/25	Lab3	More on C++ Expressions
4	09/27	Lect4	Using Classes, Proj1
	10/02	Lab4	Simple Functions
5	10/04	Test1	A120 (Written Test) , Proj 1 due ,
	10/09	Study Week	No Lab
	10/11	Study Week	No Lecture
	10/16	Lab5	<i>string</i> Class and Objects,
6	10/18	Lect5	Selections, Proj2
	10/23	Lab6	Controlling Function Behavior
7	10/25	Lect6	Repetition
	10/30	Lab7	<i>Switch</i> Selection
8	11/01	Lect7	Parameter Passing Mechanisms Chap 8, Proj2 due
	11/06	LAB Test	A120 (Lab Test)
9	11/08	Lect8	Scopes Proj3
	11/13	Lab8	Parameter Passing and Scope
10	11/15	Lect9	File I/O,
	11/20	Lab9	File I/O
11	11/22	Lect10	Vectors, Proj3 due , Proj4
	11/27	Lab10	Vectors
12	11/29	No Lecture	Review, Proj4 due
	12/??	Final Exam	

Note: Everything may be subject to change, please pay attention to the class declarations.

COSC1567E: Programming in C++

Instructor: Dr. Haibin Zhu
Email: haibinz@nipissingu.ca

Office: A124A **Ext:** 4434 **Web:** <http://faculty.nipissingu.ca/haibinz>
Office Hours: Mon: 11:30am-2:30pm, Wed: 3:30pm-5:30pm or by appointment

Course Description:

The main purpose of this course is to provide students with a strong understanding C++ programming language and an introduction to object-oriented programming, including functions, pointers, arrays, structures, classes, inheritance, friends and operator overloading, and exception handling.

Prerequisite Courses: COSC1557E

Textbook: Walter Savitch, *Absolute C++*, 4/E, Addison-Wesley, 2009, 984 pp, ISBN-10: 0136083811, ISBN-13: 9780136083818,

Reference: Farrell, Joyce, *Object-Oriented Programming Using C++*, 3/e, *Course Technology*, ©2008. ISBN: 0-619-03361-4

Web Sites: <http://www.pearsonhighered.com/educator/product/Absolute-C/9780136083818.page>.

<http://www.nipissingu.ca/faculty/haibinz>.

Course grade:

- 10 laboratory assignments (15%).
- 4 programming projects (12%), and
- 2 tests (30%),
- 1 comprehensive final exam (43%).

The course grade is determined by the standard college formula based on the course average:

- "A" (80-100),
- "B" (70-79),
- "C" (60-69),
- "D" (50-59), or
- "F" (0-49).

The written test and the final exam are closed book. The lab test is open-book and open note. *Attendance is not graded as described above. However, bad attendance leads to bad grades normally. Generally, there are no makeup tests and quizzes. You must show strong evidences and authorization to have a makeup test.*

Schedule for COSC1567E

(Lectures in A126 on Mon: 12:30PM - 3:20PM; Lab in A126 on Thur: 03:30PM - 4:20PM)

No.	Date	Lecture and Lab	Notes
1	01/09	Lect1	Overview of Programming and Control Structures Chap1 & Chap2
	01/10	Lab1	Control Structures
2	01/16	Lect2	Chap3, Array and Pointers, Prj1
	01/17	Lab2	Array and Pointers
3	01/23	Lect3	Chap4, Functions
	01/24	Lab3	Array and Pointers
4	01/30	Lect4	Chap 5, Class, Prj1 due
	01/31	Lab4	Functions
5	02/06	Lect5	Chap 6, Class,
	02/07	Lab5	Class
	02/13	Review and Test 1	Prj2
	02/14	Lab6	Class
6	02/20	Study week	No class
	02/21	No lab	No lab
7	02/27	Lect6	Chap7, Friends, Proj2 due, Prj3
	02/28	Lab7	Friends
8	03/06	Lect7	Chap8, Overloading Operators
	03/07	Lab8	Overloading Operators
9	03/13	Lect8	Chap9, Inheritance Prj3 due
	03/14	Test2 (Lab)	
10	03/20	Lect9	Chap10, Advanced I/O, Prj4
	03/21	Lab9	Advanced I/O
11	03/27	Lect10	Chap11, Templates
	03/28	Lab10	Templates
12	04/03	Lect11	Chap12, Exception Handling, Prj4 due
	04/04	Lab11	Review Lab
	04/??	Final	

Note: Everything may be subject to change, please pay attention to the class declarations.

Nipissing University
Department of Computer Science and Mathematics

Data Structures I – COSC 2006 FA 2016
Syllabus

INSTRUCTOR: Dr. Mark Wachowiak (Office R210, Extension 4115)
e-mail: Use Blackboard email

TIME AND ROOM: Th 3:30 – 6:30 PM, A126

OFFICE HOURS: W 12:00 – 2:00 PM or by appointment

CALENDAR COURSE DESCRIPTION:

This course introduces students to abstract data structures. Topics include: lists, sets, stacks, trees and heaps; static and dynamic allocation, pointers; data access, searching and sorting; internal and external computer representation of data.

PREREQUISITES: COSC 1567 and MATH 1056

REQUIRED TEXT: Data Abstraction and Problem Solving with C++ by F. M. Carrano and T. M. Henry, 7th Edition, Pearson, ISBN 0-13-446397-8, 2017.

For C++ reviews, see Appendices A – C, G, and H, and J. For the analysis of algorithms, you may find Appendices E and F useful. For those who enrolled in COCS 1557 FA 2015, Appendix L discusses the relationship between Python and C++. Additionally, the text contains helpful information in the “Interlude” sections in some of the chapters.

Student resource materials, including source code examples from the text, are available at www.pearsonhighered.com/carrano

Other materials, including code, will be posted on Blackboard.

STUDENT STRATEGIES FOR SUCCESS:

- Students are self-directed learners, who will seek guidance when needed, prepare for class by completing all required readings, and participate in class discussions.
- Students will submit all the required labs and assignments before or on the specified date. Students will write midterms and final exams (tests) as scheduled. Students missing tests without informing the instructor prior to

the test without valid documentation will not be permitted to write the tests at a later date.

COURSE OBJECTIVES (that which the instructor will do in this course):

- Motivate the importance of understanding data structures and algorithms in computer science and other fields.
- Present and demonstrate basic and advanced data structures.
- Solve problems using data structures and writing programs for these solutions.

LEARNING EXPECTATIONS (that upon which students will be measured)

By the end of the course students should be able to:

- Demonstrate an understanding of basic data structures by using them to solve problems in a program.
- Describe and fully understand recursive algorithms.
- Describe the properties of basic data structures including list, stack, queue, tree, and heap.
- Demonstrate an understanding of search algorithms for different data structures by completely working coding examples.
- Choose an appropriate data structure for a given application, and discuss why that choice was made.
- Discuss the computational efficiency of inserting and retrieving data from various data structures.
- Analyze algorithms and compute expressions for their computational complexity using standard terminology (e.g. "Big-Oh" notation).
- Describe the concept of self-adjusting data structures and their applications in future software development.

COURSE OUTCOMES (what should result from successfully completing this course)

- An understanding of abstract data types (List, Stack, Queues, Tables, Trees, and Heaps): 1) Describe common applications for each data structure; 2) Implement the user-defined data structures in a high-level language; 3) Compare alternative implementations of data structures with respect to performance. 4) Write programs that use each of the following data structures: linked lists, stacks, queues, trees, and heaps; and 5) Compare and contrast the costs and benefits of dynamic and static data structure implementations.
- The ability to write recursive algorithms in a high-level programming language: 1) Describe the concept of recursion and give examples of its

- use; 2) Identify the base case and the general case of a recursively defined problem; 3) Compare iterative and recursive solutions for elementary problems such as factorial; 4) Describe the divide-and-conquer approach; 5) Implement, test, and debug simple recursive functions and procedures; and 6) Determine when a recursive solution is appropriate for a problem.
- An ability to choose the appropriate data structure for modeling a given problem.
 - An ability to implement and use fundamental searching and sorting techniques with a standard high-level programming language.
 - An ability to write programs employing several of the data structures covered.
 - The ability to analyze algorithms for computational complexity.
 - An ability to critically read and to analyze basic literature devoted to algorithm analysis.
 - An understanding of the field of analysis of algorithms, and why it is important in both theoretical and applied computer science.

COURSE EVALUATION:

The relative weighting of the evaluation components may be slightly adjusted during the semester.

(A) Midterm exam	30%
(B) Quizzes	20%
(C) Assignments	20%
(D) Final exam	30%

Final mark: $(A + B + C + D) \times (\text{sgn}(A) \times \text{sgn}(B) \times \text{sgn}(C) \times \text{sgn}(D))$

The 75-minute midterm exam will be administered in class. The format for the exam will be discussed. Exam and quiz dates are announced at least one week in advance. Quizzes are given in class. Assignments include regular written homework and C++ programming assignments.

PLAGIARISM

Plagiarism in any form will not be tolerated. Penalties may include: mark of zero on the plagiarized assignment, even for only one offence; mark of zero in the course; referral to Nipissing University administration.

See Academic Calendar and Nipissing University policy on plagiarism.

Additionally, all source code must be adequately documented. Comments in the “Javadoc” style are preferred. See Appendix B, Section B.2.7, and Appendix I.

TENTATIVE OUTLINE: Topics will be selected from chapters 1 – 15.

Chapter 1	1.1 – 1.5	Abstraction
Chapter 2	2.1 – 2.4, parts of 2.5	Recursion
Chapter 3	3.1 – 3.3	Arrays
Chapter 4	4.1 – 4.5	Linked lists
Chapter 5	Parts of 5.3, 5.4	Recursion analysis
Chapter 6	6.1 – 6.2, 6.5	Stacks
Chapter 7	7.1 – 7.3	
Chapter 10	10.1 – 10.2	Analysis
Chapter 11	11.1, 11.2.2	Sorting
Chapter 13	13.1 – 13.2	Queues
Chapter 14	14.1	
Chapter 15	15.1 – 15.3	Trees

HIGHLY RECOMMENDED:

C++ Interlude 1 (Ch. 1)	C++ Classes
C++ Interlude 2 (Ch. 3)	Pointers, Polymorphism, and Memory Allocation
C++ Interlude 3 (Ch. 6)	Exceptions
C++ Interlude 4 (Ch. 9)	Safe Memory Management Using Smart Pointers

Appendix A	Review of C++ Fundamentals
Appendix B	Important Themes in Programming
Appendix C	The Unified Modeling Language
Appendix E	Mathematical Induction (for Analysis of Algorithms)
Appendix F	Algorithm Verification
Appendix G	Files
Appendix H	C++ Header Files and Standard Functions
Appendix J	ASCII Character Codes

Nipissing University
Department of Computer Science and Mathematics

Data Structures II – COSC 2007
Syllabus

INSTRUCTOR: Dr. Renata Smolikova- (Office H153, Extension 4260)
Wachowiak
e-mail: renatas@nipissingu.ca

TIME AND ROOM: T, Th 2:00 – 3:20 PM, A120

OFFICE HOURS: M 2:00 – 3:30 PM or by appointment

REQUIRED TEXT: Data Abstraction and Problem Solving with C++ by F. Carrano, Pearson, ISBN 0-321-43332-7, 2006.

TENTATIVE OUTLINE: Topics will be selected from chapters 10 – 14. Additionally, splay trees, text pattern matching, and Huffman codes will be introduced.

CALENDAR COURSE DESCRIPTION:

This course introduces data structures and their algorithms. Topics include: self-adjusting lists, binomial heaps, binary search trees, balanced trees, B-trees, and recursive programming.

STUDENT STRATEGIES FOR SUCCESS:

- Students are self directed learners, who will seek guidance when needed, prepare for class by completing all required readings, and participate in class discussions.
- Students will submit all the required labs and assignments before or on the specified date. Students will write midterms and final exams (tests) as scheduled. Students missing tests without informing the instructor prior to the test without valid documentation will not be permitted to write the tests at a later date.

COURSE OBJECTIVES (that which the instructor will do in this course):

- Motivate the importance of understanding data structures and algorithms in computer science and other fields.
- Present and demonstrate advanced data structures.

- Solve problems using advanced data structures and writing programs for these solutions.

LEARNING EXPECTATIONS (that upon which students will be measured)

By the end of the course students should be able to:

- Demonstrate an understanding of advanced trees and their applications by describing the main characteristics of red-black, avl, n-ary, and B+ trees.
- Discuss useful applications of advanced tree data structures.
- Discuss tree-balancing strategies and their importance.
- Demonstrate an understanding of graphs and their applications by describing graph characteristics and components (edges, vertices, etc.).
- Describe some of the main theoretical results of graph theory (i.e. shortest path, etc.).
- Discuss useful applications of graph data structures.
- Demonstrate an understanding of hash tables by completely working a coding example.
- Describe and fully document recursive algorithms.
- Choose an appropriate data structure for a given application, and discuss why that choice was made.
- Discuss the computational efficiency of inserting and retrieving data from various data structures.
- Analyze algorithms and compute expressions for their computational complexity using standard terminology (e.g. "Big-Oh" notation).
- Describe the concept of self-adjusting data structures and their applications in future software development.

COURSE EVALUATION:

Midterm	30%
Quizzes	20%
Assignments	20%
Final exam	30%

Exam (1.5 hours long) is given in class. The format for the exam will be discussed with the class. Exam and quiz dates are announced at least one week in advance.

Quizzes are given in class.

Assignments include regular written homework and computer programming in C++.

COURSE OUTCOMES (what should result from successfully completing this course)

- An understanding of abstract data types (trees, graphs, hash structures, adaptive algorithms).
- An ability to discern and to select various data structures to solve specific problems.
- An ability to use data structures properly
- An ability to implement and use advanced searching and sorting techniques with a standard high-level programming language.
- An ability to write programs employing several of the data structures covered.
- The ability to analyze algorithms for computational complexity.
- A growth in the ability to think independently.
- An Ability to critically read and to analyze basic literature devoted to algorithm analysis.
- The ability to write recursive algorithms in a high-level programming language.
- An understanding of the field of analysis of algorithms, and why it is important in both theoretical and applied computer science.

COSC 2116

Artificial Neural Networks

Fall session. September 04 – December 03, 2018

Prerequisite: COSC 1557 and MATH 1056

Instructor: Dr. B. J. Schreyer, Ext: 4541, Office: A124

Classes: Wednesday 03:30 – 06:20PM, A132 (SUN Lab)

Office Hours: After class or by appointment

Required text: Fundamentals of Neural Networks. Laurene Fausett, Prentice Hall

Class Webpage: <http://www.nipissingu.ca/faculty/bjs/>, Username: **2116**, Password: **haslo43**

Other recommended texts:

1. The Neural Networks Design. M.T.Hagan, et all, PWS
2. Pattern Recognition and Neural Networks. B.D. Ripley, Cambridge University Press

Course Objectives:

1. Achieve the understanding of the Artificial Neural Networks and its applications
2. Acquire an understanding of the basic machine learning models
3. Acquire the practical skills in ANN computer models design.

Evaluation Criteria

3 Assignments (or Project(s) A)	30% (3*10%)
3 Test (or Project(s) T)	30% (3*10%)
Final Exam	40%

Evaluation Criteria Explanation:

Assignments or Projects (30%):

The assignments should be handed in on a CD disk or email directly to me:

bjs@nipissingu.ca and on a 8 1/2" x 11" not sealed envelope, before the class. The late assignments will not be accepted. An envelope, a printout and a disk should be labeled with your name; a course code, an assignment number and a due date, all clearly printed. The assignments that do not follow those standards may be rejected. The outstanding assignments may obtain a bonus mark (up to 20%).

There is nothing wrong with working with your classmates and discuss your problems and your concepts; I will not however accept the assignments indicating the mechanisms of copying. For obvious reasons, your assignments must show your original and independent concepts and design. The assignments will be graded on the following criteria: content and documentation: 50%, method: 30%, and presentation: 20%. Project marking scheme is similar to the assignments.

Tests or Projects (30%):

The tests will take place at the end of each month. They cover all topics learned in class to-date and are one hour and twenty minutes long. The tests may include all kind of theory questions (short answers, multiple choice or true-false) as well as practical, hand on programming questions. Some materials may be allowed. Those, who do not like writing the tests, may 'trade' all of them or some of them for the Individual Project in the field of your interest.

Final Exam (40%):

A three-hour exam will be held in during the regular final exam period on December. It will contain a variety of theory questions in form of essays, short answers, multiple-choice and true-false type.

General remarks:

The following schedule a tentative Course Schedule. The actual schedule may somehow vary in function of our pace, working conditions and a thorough understanding of the all covered topics. Consider every lecture equally important. It is your responsibility to make up the classes you miss and be up-to-day with all recently covered topics.

The recommended texts may serve for deepening the mathematical aspects of ANN, especially for those students having a stronger calculus background and for those willing to create the mathematical and computer models of some ANN. During the course, I will supply several supplementary materials, mostly the copies of the research papers and from other sources. I am strongly recommending you to browse the Internet, starting with URLs included in an extensive bibliography, you may find in your course' handout

Tentative Course Schedule:

Week #:	Subject:
Week 1	Introduction to ANN. Generalities. Useful properties of the ANN. Major developments in ANN . The artificial neuron
Week 2	Linear Algebra refresher. Linear separability. Hebb Net.
Week 3	Perceptron. Adaline.
Week 4	Pattern association. Associative memories. BAM.
Week 5	Competitive learning and its models. Kohonen Maps.
Week 6	October 08-12, Study week.
Week 7	Learning vector quantization
Week 8	Boltzman learning.
Week 9	Counterpropagation.
Week 10	Adaptive resonance theory. ART1
Week 11	ART2
Week 12	Back-propagation learning and its models.
Week 13	Other neural nets. Applications by network type

COSC3007 EA
Artificial Intelligence
Fall 2015, September 08 – December 07

Instructor:

Dr. B. J. Schreyer

Phone: ext.: 4541

E-mail: bjs@nipissingu.ca

URL: <http://www.nipissingu.ca/faculty/bjs/>

(user ID: 3007, pass.)

Classes:

Monday, 12:30-3:20PM, A132

Office Hours (A124):

As needed, by appointment

Text: “Computational Intelligence Paradigms.

Theory and applications using Matlab”,

S.Sumathi, Surekha P., CRC Press, 2010

Course Objectives:

1. Achieve the understanding of the basics of AI,
2. Practical ability of solving basic problems in the domain of an AI,
2. Implement the ACM/IEEE Computing Curricula recommendations in *specification, design, implementation, and use* of the AI.

Evaluation Criteria

Theory Presentations:	20%
AI Software (or Theory) Project	20%
Bi-Weekly Progress Reports	20%
Take home exam:	40%

Evaluation Criteria Explanation

Theory Presentations (30%)

The pdf presentations are related to the theory covered in your text. It is recommended, but not necessary, that a presentation is illustrated by the Matlab (or other) programs. You should have two, one hour long presentations, starting with September 28th. As a result, we meet every week for your presentations and for discussion. A personalized presentation schedule will be determined soon. An attendance on these presentations will be checked. We need a discussion after each presentation. The following topics, corresponding to your text, may be covered in your presentations:

1. Artificial Neural Networks,
2. Fuzzy systems,
3. Evolutionary Computation,
4. Genetic algorithms,
5. Swarm intelligence.

An AI software project (30%)

The projects are related to the Matlab applications covered in your book. A software project will be presented and submitted at the end of classes, in November.

The AI software project can be replaced by an AI theory project. The list of the possible topics is available in your Class Website.

Every two weeks, starting with September 28 you should send me by email your Theory and Software (or AI theory project)) Progress Report. In this Report you specify time spent, and theory study covered as well as. I need those Reports every second Monday.

A take-home exam (40%) will be given at the end of classes. It will cover AI theory presentation and software (or AI theory project). The exact timing of your presentations will be announced later.

Nipissing University
Department of Computer Science and Mathematics

Databases and Data Management – COSC 3606 FA 2018
Syllabus

PROFESSOR:

Dr. M. Wachowiak
e-mail:

Office R210, Phone (705) 474-3450 x4115
Blackboard email for class-related correspondence

MEETING TIMES: Th 6:30 – 9:20 P.M.

OFFICE HOURS: W 4:00 – 6:00 P.M. or by appointment.

REQUIRED TEXTS:

Database Systems. C. Coronel et al., 12th or newest edition, Nelson, ISBN 1-305-62748-2, 2016 (12th Ed.).

Appendix M: MS Access Tutorial – Cengage site for main text.

Databases: Nelson Education – Find text, and click on [Student Companion Materials](#).

Additionally, selected articles and other reading will be assigned. You are required to bring all materials, including the text, to each class.

CALENDAR COURSE DESCRIPTION:

Introduction to database systems and management of large collections of data. Methods used for storage, selection, presentation and retrieval of data. Theory and analysis of relational, hierarchical and other database models. The design of database management systems.

PREREQUISITES: COSC 1567

SOFTWARE: Microsoft Access

LEARNING EXPECTATIONS (How your progress will be measured)

By the end of the course students should be able to:

- Define key technical terms associated with database systems.
- Outline the major parts of a relational database management system (DBMS).
- Define and generate a database with SQL DDL, and query and update databases with SQL DML.
- Write programs in high-level programming languages (C, C++, Java) that connect to a DBMS and that employ embedded SQL.
- Compare and contrast relational and object-oriented databases, explaining the advantages and disadvantages of each.
- Explain the role of DBMS in daily life.
- Outline security and privacy concerns in DBMS, and explain how these concerns are currently addressed.
- Plan a DBMS from specifications.
- Discuss new and emerging paradigms in DBMS by describing a leading-edge example.
- Explain performance issues with DBMS and describe methods to increase DBMS performance.

COURSE OUTCOMES (What you should be able to do and what skills you should have gained, exercised, or enhanced by completing this course)

- A knowledge and understanding of key concepts and methodologies in DBMS and database technology.
- The ability to plan, implement, and test SQL queries.
- A basic knowledge of data mining and online analytic processing, and how it relates to DBMS.
- An understanding of leading edge DBMS applications, including content-driven searches and business intelligence.
- The ability to correctly and thoroughly document the entire process of DBMS development, from inception to final testing.

COURSE EVALUATION:

The relative weighting of these factors **may** be adjusted **slightly** during the semester.

(A) Midterm exam	30% of the final grade
(B) Two (2) assignments	20%
(C) Quizzes	15%
(D) Final exam (nature of which TBA)	35%

All four components (A – D) must be completed to pass the course.

TENTATIVE COVERAGE: Topics will be selected from Chapters 1 – 3, 4 (parts), 6 (parts), 7 – 8, 11 (parts), 13 (parts), 14.

PLAGIARISM

Plagiarism in any form will not be tolerated. Penalties may include: mark of zero on the plagiarized assignment, even for only one offence; mark of zero in the course; referral to Nipissing University administration.

See Academic Calendar and Nipissing University policy on plagiarism.

NIPISSING UNIVERSITY FACULTY ASSOCIATION STATEMENT ON INTELLECTUAL PROPERTY

All materials developed for this course, including, but not limited to, lectures, lecture notes and slides, assignments, examinations and syllabi, that are provided in class or online, are the intellectual property of the course instructor. Recording lectures in any way is prohibited unless express written consent has been granted by the instructor. Posting, providing, sharing or selling unauthorized audio, video, or textual material violates an instructor's intellectual property rights, the Canadian Copyright Act, and may violate the rights and privacy of others in the classroom. Failure to follow these instructions is in contravention of the university's Code of Student Rights and Responsibilities. Participation in this course constitutes an agreement by all parties to respect the intellectual property and privacy of others during and after their association with Nipissing University.

MATHEMATICS COURSES



MATH 1036

Calculus I

Fall 2016

Instructor:	Dr. Logan Hoehn A124-D, 705-474-3450 ext. 4338, loganh@nipissingu.ca
Office hours:	Wed 2:00pm–4:00pm, or by appointment
Class meetings:	Tue, Thu 3:30pm–4:50pm, A137
Prerequisite:	MCV4U or MCB4U or OAC Calculus or MATH 1912
Antirequisite:	MATH 1035
Textbook:	Stewart, James. <i>Calculus</i> . 8th Ed. (Available at the bookstore)
Approximate midterm exam dates:	Sep 30/Oct 3 , in tutorial Nov 11/Nov 14 , in tutorial
Relevant dates:	Classes begin: Tue Sep 6 Last day to register: Mon Sep 19 Study week (no classes): Mon Oct 10 – Fri Oct 14 Last day to withdraw: Sat Nov 5 Last day of classes: Mon Dec 5 (our last meeting: Thu Dec 1) Final exam period: Tue Dec 6 – Sun Dec 18

TOPICS

- Functions of one real variable
- Limits and continuity
- Differentiation
- The intermediate value theorem and the mean value theorem
- Inverse functions
- L'Hôpital's rule
- Curve sketching
- Applications of the derivative

The understanding of a concept is demonstrated by an ability to solve pertinent problems related to that concept.

ASSESSMENT PROCEDURES

- **Homework (15%)** – Weekly assignments consisting primarily of questions selected from the textbook, to be handed in *at the beginning of class* on the due date.
- **Midterm exams (2, contribute 25% each)** – Tests containing problems similar to homework exercises. These will be taken in your tutorial session.

- **Quizzes** – Short in-class quizzes, announced or unannounced, may be given sporadically throughout the term. These may replace a portion of the homework grade.
- **Final exam (35%)** – A comprehensive test on *all* material covered in the course.

TUTORIALS

In addition to class meetings, this course includes a two-hour tutorial session each week. Tutorial leaders will solve and discuss strategies for exercises similar to homework problems, answer student questions, and provide one-on-one assistance with homework and course questions.

Midterm exams will also be taken during tutorial sessions.

You must attend the tutorial session corresponding to your course section.

- MATH 1036 FA001 Tutorial: Mon 1:30pm–3:20pm, R307
- MATH 1036 FA002 Tutorial: Fri 12:30pm–2:20pm, R307
- MATH 1036 FA003 Tutorial: Mon 3:30pm–5:20pm, B211

COURSE POLICIES

- Please make sure that you are able to receive e-mail through your Nipissing University account. Official course announcements will be sent to that address.
- If you wish to request a disability accommodation, please contact Student Accessibility Services (B210).
- If a test is missed due to a serious verifiable circumstance or official university business, the test grade will be replaced with the properly rescaled final exam score. You must advise the instructor of such circumstances at the earliest possible time, and provide documentation when applicable.
- No books, notes, calculators, or other electronic devices will be allowed during any of the tests or quizzes.
- No electronic devices (e.g. computers, phones, iPods, iPads, recorders, etc.) are to be used during lectures, unless an arrangement is made with the professor in writing in advance. Such devices are distracting to other students, and to the professor.
- Students are expected to undertake at least 4 hours of private study and homework per week.
- Homework submitted must be the student's *own work*. You are free to work together on homework problems, but be sure to subsequently disband and write up all solutions *yourself*. Students submitting identical homework will receive zero for that assignment.
 - ◊ Students must adhere to the university Policy on Academic Dishonesty, which can be found in the calendar: <http://www.nipissingu.ca/calendar/> (follow the link to “University Regulations”, then navigate to “Academic Policies and Regulations” then “Student Appeals and Petitions”).

TIPS

- Take advantage of the office hours. This time is set aside for students to drop in to ask any questions related to course material and homework. If you are not available during the scheduled office hours, please feel free to e-mail me to set up an appointment at another time.
- Help is also available in the Math Drop-In Centre (H349, Mon–Fri 12:00–2:00pm).
- By working steadily and regularly, you will increase your chances to succeed in this course.



Department of Computer Science and Mathematics

2014/2015 Academic Year, January – April 2015

MATH 1037 – Calculus II
Course Outline

COURSE TITLE: MATH 1037 - Calculus II

PREREQUISITE

MATH 1036 – Calculus I

SCHEDULE

Lectures: Monday and Wednesday, 12:30– 13:50. **Room:** H106

Tutorials:

	Schedule		Leader
Thursday	10:30 - 12:20	Room: A118	Mitchell Haslehurst
Thursday	16:30 - 18:20	Room: A236	Heather-Lynn Topping
Friday	13:30 - 15:20	Room: A236	Mitchell Haslehurst

INSTRUCTOR: Alexandre Karassev

Office: A124C

Phone: 474-3461 ext. 4140

E-mail: alexandk@nipissingu.ca

OFFICE HOURS:

Monday 11:00 – 12:30

Wednesday 10:00 – 12:30

or by appointment

REQUIRED TEXTBOOK:

"Single Variable Calculus" by James Stewart with *CourseMate*, 7th edition (available in the campus shop).

COURSE WEBPAGE

The course webpage <http://faculty.nipissingu.ca/alexandk/teaching/m1037/m1037.html> is an on-line tool that gives you access to important learning resources for the course. Links to videos, lecture notes, course outline, suggested exercises, sample exams and solutions, announcements, and other materials will be posted there.

THE STRUCTURE OF THE COURSE

The course consists of 3 hours per week (two 90-minutes meetings) of lectures and 2 hours of tutorials (1 tutorial each week). There will be 3 sections of tutorials. Some weeks, a part of tutorial hours will be used for pop-up tests or midterm examinations. The tutorials will be conducted by tutorial leaders.

PREPARING FOR LECTURES

Often, you will be asked to read the corresponding section in the textbook, watch videos and demonstrations, and use other relevant materials **prior** to the lecture in which the material will be taught. This will be followed by the discussion of the materials in class in the form of seminar.

COURSE CONTENT

This is a standard first-year level Integral Calculus course, which covers a wide variety of topics. The course is based on Chapters 4-8 of the textbook. The following sections will be covered (time permitting) in the given order: 6.1-6.4, 6.6, 6.8, 4.1 - 4.5, 5.1 - 5.4, 7.1 - 7.3, 7.8, 7.4, 7.5, 8.1, 8.2

Topics include: inverse functions; L'Hospital's rule; the definite integral; the fundamental theorem of calculus; integration of transcendental functions; the substitution rule; techniques of integration; applications of the integral; and improper integrals.

COURSE OBJECTIVES

By the end of the course, students will:

- demonstrate understanding of the concepts of a one-to-one function and inverse function by finding inverse functions, its derivatives, and investigating whether a function is one-to-one; use properties of the inverse function in problem solving
- solve problems that involve inverse trigonometric functions, and exponential and logarithmic functions
- use L'Hospital's rule to compute limits
- demonstrate understanding of the concepts of Riemann integral by solving problems that involve definition of the integral and its fundamental properties (additivity, linearity, comparison properties etc.)
- solve problems using the fundamental theorem of calculus
- use a variety of techniques to compute definite and indefinite integrals, including the substitution rule, integration by parts, trigonometric substitutions, and partial fraction
- demonstrate understanding of the concept of improper integral by solving related problems; compute improper integrals using various techniques; use comparison test to determine whether improper integral converges or diverges
- use integration to find areas, volumes, and work
- apply the methods of integral calculus to solve problems arising from real-life applications

COURSE OUTCOMES

Successful graduates of this course will demonstrate:

- a general knowledge and understanding of some key concepts and methodologies in mathematics
- a general understanding of differential calculus and its connection with physics, engineering, and other sciences
- initial ability to read, understand, and analyze introductory mathematical textbooks
- understanding of some standard problem-solving ideas and techniques and initial knowledge of proof techniques
- ability to evaluate the appropriateness of calculus-driven approaches to solve problem using standard ideas and techniques
- initial ability to think independently
- initial ability to communicate calculus solutions and proofs, both orally and in writing

GRADING

Three 60-minutes tests	30% (each at 10%)
One take-home test	10%
Two 110-minutes Midterm Examinations	20 % (each at 10%)
Final Examination	40 %

IMPORTANT – READ CAREFULLY!

■ Tests and examinations

On tests and examinations students must show their work. **No marks** will be given for stating an answer without providing a detailed solution to the question.

■ Policy on Academic Dishonesty

According to the Academic Calendar, “The University takes a most serious view of such offences against academic honesty as plagiarism, cheating, and impersonation. Penalties for dealing with such offences will be strictly enforced.” Please see <http://www.nipissingu.ca/calendar/regulations/academic/Pages/Student-Appeals-and-Petitions.aspx> for complete description of the policy. In particular, no copying of assignments will be tolerated, and students copying each other’s assignments or exams will receive grade zero for such assignments or exams. This policy will be strictly followed.

■ Attendance

- ▶ According to the **Academic Regulations**, “punctual and regular attendance is essential for the successful completion of a course. When absenteeism **exceeds 20%**, the student may be excluded from writing the final examination”. **The attendance of lectures and labs for this course will be monitored.**
- ▶ Students **must** write tests and midterm examinations with the tutorial section in which they are registered. If a student writes a test with a different section without Instructor’s permission the student gets **zero** on this test.

■ Missed tests and examinations

Students who are unable to write a midterm examination or test because of illness or other circumstances beyond their control **may be** granted permission to write a make-up exam by the instructor. In such circumstances, student must contact the instructor and fully support their case by a medical certificate in the case of illness or by appropriate documents in other cases.

■ Calculators

The use of **simple** scientific calculators is allowed during the examinations and tests. However **the use of graphic or programmable calculators will not be permitted.** Note also that the questions for the tests and exams will be set up in such a way that the use of calculators is not required and sometimes misleading!

ADDITIONAL RESOURCES

1) Diagnostic Tests in eBook

Interactive eBook that comes with the CourseMate provides you an access to Diagnostic tests with instant feedback and detailed solutions.

2) Nipissing University Calculus Help Site

<http://www.nipissingu.ca/calculus>

The website provides an access to on-line tutorials, additional exercises, and tests.

3) Irln.Com: More Online Tests

The website <http://ilrn.com> is a source of additional self-assessment tests.

MATH DROP-IN CENTER (ROOM A223)

Math Drop-In Center is a place where you can come if you need help with your math classes. Student assistants and faculty members will be there to help you. In the Math Drop-In Center you can study, ask questions, work on your assignments etc. It will operate during the academic year. The schedule for the winter term (starting January 26) is as follows:

Monday	14:00 - 15:30
Tuesday	14:00 - 15:30
Wednesday	14:00 - 15:30
Thursday	14:00 - 15:30
Friday	11:00 - 12:00

DATES TO REMEMBER

Sunday, January 25 – Last day to register for WI courses. Students withdrawing from WI courses after this date but before the respective withdrawal dates will receive a WDR on their academic record.

Thursday, March 12 – Last date for withdrawing from a WI course.

February 16 – 20 – Study week

MATH 1037 – Calculus II

Suggested Exercises

Text: *"Single Variable Calculus"* by James Stewart, 7th edition

Chapter 4

Section 4.1: 2, 4, 20, 22

Section 4.2: 3, 6, 12, 17, 19, 22, 30, 34, 36, 37, 40, 41, 48-50, 52, 57, 60, 66

Section 4.3: 6, 8, 11, 14, 16, 19-38, 50, 55, 56, 58

Section 4.4: 5-16, 19-42, 46, 58, 69, 70, 71

Section 4.5: 1-30, 35-51, 60, 67-84

Chapter 5

Section 5.1: 6,8,9,11,12,14,16,17,20,22,23,25,26,27,50,55

Section 5.2: 1-18, 50, 64

Section 5.3: 9-20, 30, 46

Section 5.4: 8, 12, 14, 16, 19

Chapter 6

Section 6.8: 12,14,17,22,24,30,31,34,42,44,45,46,49,52,53,54,56,57,61,66,73,75-80,100

Chapter 7

Section 7.1: 3,5,7,9,10,12,14,15,17,19,20,21,24,26,28,29,31,33,34,37,38,41,42,48,51,52,72

Section 7.2: 1-4,6,10,12,13,16,17,19-32,41,42,43,48,63,68

Section 7.3: 4-30, 41, 43

Section 7.4: 7-46

Section 7.5: 1-6,8,9,12,14,16,18,23,25,27,30,31,32,35,41,43-48,52,54,56,62,63,64,67,71,74

Section 7.8: 5-40, 42, 49-59



Department of Computer Science and Mathematics

2018/2019 Academic Year, January – April 2019

**MATH 1046 – Introductory Linear Algebra
Course Outline**

COURSE TITLE: MATH 1046 – Introductory Linear Algebra

PREREQUISITE

MCV4U or MGA4U or OAC Algebra and Geometry or MATH 1911 or MATH 1912

SCHEDULE

Lectures: Tuesday and Thursday, 10:30– 12:20. **Room:** A224

INSTRUCTOR: Alexandre Karassev

Office: A124C

Phone: 474-3461 ext. 4140

E-mail: alexandk@nipissingu.ca

OFFICE HOURS:

Friday 8-12:30

or by appointment

REQUIRED TEXTBOOK:

"Linear Algebra: A Modern Introduction" by David Poole, 4th edition (available in the campus shop).

COURSE WEBPAGE

The course webpage <http://faculty.nipissingu.ca/alexandk/teaching/m1046/m1046.html> is a source of useful resources, such as lecture notes, course outline, sample exams and solutions, announcements, and other materials.

COURSE CONTENT

This is a standard first-year level Linear algebra course, which treats a wide variety of topics.

Time permitting, most of Chapters 1-4 of the textbook will be covered.

Topics include: systems of linear equations; vectors in 2- and 3- dimensional Euclidean spaces; linear transformations; matrix algebra; determinants; and introduction to eigenvalues and eigenvectors and their applications.

COURSE OBJECTIVES

By the end of the course, students will:

- represent systems of linear equations using matrices; solve systems of linear equations using variety of techniques; apply systems of linear equations to model real-life problems;
- demonstrate the understanding of concepts of row, column, and null space, and relations between their ranks, by solving related problems;
- use matrix algebra;
- compute determinants of matrices using various techniques; use properties of determinants to solve related problems
- demonstrate the understanding of concepts of vector space, subspace, and linear transformations, and its geometric interpretations, by applying properties of vector space and linear transformations to solve problems related to 2- and 3-dimensional Euclidean spaces;
- demonstrate the understanding of the concept of a basis and dimension of a vector space by solving related problems;
- compute eigenvalues and eigenvectors of 2×2 and 3×3 matrices; interpret results geometrically;
- apply concepts of matrix, vector space, and linear transformation to real-life problems;
- develop simple proofs related to linear algebra.

COURSE OUTCOMES

Successful graduates of this course will demonstrate:

- a general knowledge and understanding of some key concepts, methodologies, theoretical approaches in mathematics;
- a general understanding of some areas of linear algebra, and their connection with physics, engineering, and other sciences;
- a developed ability to read, understand, and analyze introductory mathematical textbooks;
- an understanding of some standard problem-solving ideas and techniques and some knowledge of proof techniques;
- initial ability to evaluate the appropriateness of different approaches to solve problems using well established ideas and techniques;
- ability to think independently;
- an initial ability to communicate mathematical solutions and proofs, both orally and in writing.

GRADING

Assignments	15%
Three midterm exams	45% (each at 15%)
Final Examination	40 %

IMPORTANT – READ CAREFULLY!

■ Examinations

On examinations students must show their work. **No marks** will be given for stating an answer without providing a detailed solution to the question.

■ Policy on Academic Dishonesty

According to the Academic Calendar, “The University takes a most serious view of such offences against academic honesty as plagiarism, cheating, and impersonation. Penalties for dealing with such offences will be strictly enforced.” Please see the Academic Calendar for complete description of the policy. In particular, no copying of assignments will be tolerated, and students copying each other’s assignments or exams will receive grade zero for such assignments or exams. This policy will be strictly followed.

■ Attendance

According to the **Academic Regulations**, “punctual and regular attendance is essential for the successful completion of a course. When absenteeism **exceeds 20%**, the student may be excluded from writing the final examination”. **The attendance of lectures for this course will be monitored.**

■ Missed examinations

Students who are unable to write a midterm examination because of illness or other circumstances beyond their control **may be** granted permission to write a make-up exam by the instructor. In such circumstances, student must contact the instructor and fully support their case by a medical certificate in the case of illness or by appropriate documents in other cases.

■ Calculators

The use of **simple** scientific calculators is allowed during the examinations. However, **the use of graphic or programmable calculators will not be permitted.** Note also that the questions for the examinations will be set up in such a way that the use of calculators is not required and sometimes misleading!

ASSIGNMENTS

There will be eight assignments (time-permitting), two for each chapter – see the end of this course outline.

- Problems will be selected from the textbook (“*Linear Algebra: A Modern Introduction*”).
- Due date for each assignment is listed.
- No late assignments will be accepted (except for health and other legitimate reasons).

EXAMINATIONS

There will be three **Midterm Examinations** and a **Final Examination** for this course.

- Midterm examinations will be 60 minutes long and will be held during class hours.
- Each midterm examination will consist of 5 questions.
- Tentative dates for midterm examinations:

Thursdays January 31, February 28, March 28

- The **final examination** will be 3 hours long and will consist of 20 questions that will cover all material of the course.
- The final examination will be scheduled during the examination period (April 6 – April 26).
- A **sample final examination** is available on the course webpage.

IMPORTANT: All examinations will be **open book**. Students may use the textbook assigned for the course ("Linear Algebra: A Modern Introduction " by David Poole). However, **no** other materials (such as notes, formula sheets etc.) will be permitted.

NIPSSING UNIVERSITY LINEAR ALGEBRA HELP SITE

algebra.nipssingu.ca

The website provides an access to on-line tutorials, additional exercises, and tests.

MATH DROP-IN CENTER (ROOM A129)

Math Drop-In Center is a place where you can come if you need help with your math classes. Student assistants and faculty members will be there to help you. In the Math Drop-In Center you can study, ask questions, work on your assignments etc. The schedule for the winter term (starting January 15) is Monday to Friday 10:00 – 12:00

DATES TO REMEMBER

Friday, January 18 – Last day to register for WI courses.

February 18 – 22 – Study week

Friday, March 8 – Last date to withdraw from a WI course.

Thursday, April 4 – Last class for this course.

MATH 1046 – Assignments

"Linear Algebra: A Modern Introduction" by David Poole, 4th edition

Section numbers and due dates are in **bold font**.

Assignment 1

Due: January 24

1.1: 14, 18

1.2: 20, 30, 34, 36, 42, 48, 60, 72

Assignment 5

Due: March 7

3.1: 8, 14, 18, 24, 30, 36, 37

3.2: 24, 36, 45

3.3: 6, 12, 28, 38, 45, 54

Assignment 2

Due: January 31

1.3: 8, 10, 12, 14, 22, 24, 28, 30, 38, 44

Assignment 6

Due: March 21

3.4: 10, 20

3.5: 8, 20, 28, 44, 46, 60

3.6: 6, 10, 18, 34

Assignment 3

Due: February 7

2.1: 16, 28, 40

2.2: 18, 26, 30, 40, 46, 48

Assignment 7

Due: March 28

4.1: 6, 12

4.2: 6, 17, 12, 32, 38, 46, 54, 56, 60

Assignment 4

Due: February 28

2.3: 4, 8, 12, 16, 19, 28, 46

Assignment 8

Due: April 5

4.3: 8, 19, 20, 24, 34, 40

4.4: 12, 20, 44

MATH 1056 - Discrete Mathematics I

Fall 2018

Course Outline

- **Class Hours**

Lectures: Tue, Thu, 9:30–11:20 AM, Room A226

- **Instructor**

Dr. Tzvetalin S. Vassilev

Office: A124E

Phone: 474-3450, ext. 4568

E-mail: tzvetalv@nipissingu.ca

Office Hours: Tue, Thu 12:00–2:00PM, or by appointment

- **Required Text**

Susanna S. Epp, *Discrete Mathematics with Applications*, 4th Edition,
BROOKS/COLE CENGAGE Learning, 2011, ISBN: 978-0-495-39132-6

- **Course Content**

The course is based on Chapters 1–5 of the textbook.

Topics Include: Propositional and Predicate Logic, Applications to Computer Science, Quantified Statements, Methods of Proof, Applications to Algorithms, Introduction to Mathematical Induction and others as chosen by the instructor.

- **Evaluation**

Assignments and Quizzes – 30%

Midterm examination – 30%

Final examination – 40%

- **Examinations**

- Date of the midterm examination:

Thursday, October 25, 2018

- Date of final examination:

TBD

- Midterm examination will be 110 minutes long and will be held during the time slot normally allocated for the lecture.

- Midterm and final examinations will be closed book.

- **Assignments and Quizzes**

- Short quizzes covering the material of the previous lecture or two will be given in class frequently.

- Homework will be assigned on weekly basis.

- Problems will be assigned from the text.

- The due date of each assignment will be announced in class and on the course web-site.

- No late work will be accepted.

- **Intellectual Property and Copyright**

All materials developed for this course, including, but not limited to, lectures, lecture notes and slides, assignments, examinations and syllabi, that are provided in class or online, are the intellectual property of the course instructor. Recording lectures in any way is prohibited unless express written consent has been granted by the instructor. Posting, providing, sharing or selling unauthorized audio, video, or textual material violates an instructor's intellectual property rights, the Canadian Copyright Act, and may violate the rights and privacy of others in the classroom. Failure to follow

these instructions is in contravention of the university's Code of Student Rights and Responsibilities. Participation in this course constitutes an agreement by all parties to respect the intellectual property and privacy of others during and after their association with Nipissing University.

- **Electronic Equipment**

Cellphones, computers, tablets and other electronic devices should be off for the duration of the lecture, and should not be displayed. Students who violate this rule will be dismissed from the lecture and reported to the Dean.

Calculators are neither required, nor permitted for use in this class.

Nipissing University
North Bay, Ontario

ADVANCED CALCULUS I
MATH 2036

Course Outline

General Information

Instructor: Vesko Valov

Office : A124 B

Phone : 474-3461 ext:4389

Webpage: <https://faculty.nipissingu.ca/veskov>

Text Book: Multivariable Calculus (8th edition) by J. Stewart, Published by
Brooks/Cole

Topics to be covered:

Chapter 12. Infinite Sequences and Series (all sections);

Chapter 17. Second Order Differential Equations (all sections).

The course will begin with the study of infinite sequences of real numbers and will continue with the study of series (infinite sums) and representation of functions of real variables as power series. In the second part of the course we will study differential equations. This study will include the solution of second order homogeneous and non-homogeneous differential equations with constant coefficients, as well as differential equations with non-constant coefficients.

Students are strongly encouraged to review limit techniques, differentiation and integration techniques studied in Math 1035.

WebAssign Class Key: nipissingu.ca 5496 6305

You need the class key to **self-enroll** in the WebAssign, please see the attached Student Quick

Start Guide. If you did not purchase the book that is bundled with an Access Code, you can do that online (see <https://webassign.net/login.html> –Quick Links-Ordering Access Code). If you intend to take Math 2037, it is cheaper to purchase WebAssign for the whole academic year.

Course Grading

Midterm tests: two test , each 15%

Assignments: 30%

Final Exam: 40%

Suggested Dates for Midterm Exams

1st – October 23

2nd – November 22

Nipissing University
North Bay, Ontario

ADVANCED CALCULUS II
MATH 2037

Course Outline

General Information

Instructor: Vesko Valov
Office : A124 B
Phone : 474-3461 ext:4389
e-mail : veskov@nipissingu.ca
Web Site: <http://www.nipissingu.ca/faculty/veskov/>
Textbook: Multivariable Calculus by James Stewart, edition 8.

WebAssign: nipissing.ca 9553 3783	

Topics to be covered (intended):

Vectors and the geometry of space (properties of vectors, equations of lines and planes, cylindrical and quadric surfaces) , Vector functions (vector functions and space curves, arc length and curvature, motion in space) , Functions of several variables (limits and continuity, partial differentiation, tangent planes and linear approximations, directional derivatives and gradient vector, maximum and minimum values, Lagrange multipliers), Multiple Integration (double and iterated integrals, double integrals in polar coordinates, applications of double integrals, triple integrals, change of variables in multiple integrals).

Course Grading

Midterm tests: two tests, each 15%
Assignments/Quizzes: 30%
Final Exam: 40%

Suggested dates for the mid-term exams:

1st – February 28;
2nd -- March. 28



2015/2016 Academic Year, January - April 2016

MATH 2076 – Probability and Statistics I

Course Outline

Prerequisite: MATH 1037 (Calculus II)

Lectures: Monday and Wednesday 14:30 – 16:20. **Room:** A223

Instructor: Alexandre Karassev

Office: A124C

Phone: 474-3461 ext. 4140

E-mail: alexandk@nipissingu.ca

Office Hours:

Monday 10 – 12

Wednesday 10 – 12

or by appointment

Required Textbook: “*Mathematical Statistics with Applications*”, by D.D. Wackerly, W. Mendenhall and R.L. Scheaffer, *Duxbury Press*, 7th edition

Course Webpage

The course webpage <http://faculty.nipissingu.ca/alexandk/teaching/m2076/m2076.html> is an on-line tool that gives you access to important learning resources for the course. Links to notes and presentations, course outline, suggested exercises, sample exams and solutions, announcements, and other materials will be posted there.

Course Content

The course will be based on Chapters 2 – 5 of the text. More specifically, the following sections will be covered (time-permitting): 2.2, 2.4 – 2.11, 3.1 – 3.5, 3.7 – 3.9, 3.11, 4.2 – 4.6, 4.9, 4.10, 5.2 – 5.8, 5.11. For some lectures, you will be asked to read the corresponding section in the textbook and/or other relevant materials **prior** to the lecture in which the material will be taught.

Applets

Computer applets that come with the text may help to visualize various concepts of probability and statistics.

Course expectations

- demonstrate understanding of the concepts of sample space, events, and probability of event by solving related problems; calculate probabilities of events using axioms and properties of probabilities; demonstrate understanding of concepts of mutually exclusive and independent events by computing probabilities in respective cases
- use elementary combinatorics to compute probabilities of events in discrete models; compute conditional probabilities and apply the concept of conditional probability in various contexts; compute probabilities using Bayes' theorem
- create probabilistic models for real-life problems and compute probabilities of events using such models
- use Tchebysheff's theorem to estimate probabilities
- use the concept of random variable to create models for real-life situations; solve problems involving geometric, binomial, hypergeometric, Poisson, uniform, normal, gamma distributions; compute mean and variance of random variables and functions of random variables using variety of techniques; determine distributions of random variables using variety of methods
- compute generating functions of random variables; use generating functions to compute moments, mean, variance, and to determine distribution of a random variable
- determine distributions of multivariable random variables in discrete and continuous cases; compute marginal and conditional distributions; compute and interpret covariance and correlation of two random variables; use multivariable distributions to model real-life problems; demonstrate understanding of the concept of independent random variables by solving related problems
- conduct simple to moderate difficulty proofs related to probability theory

Course outcomes

Successful graduates of this course will demonstrate:

- a broad understanding of main areas of probability and statistics, and their applications
- a general understanding of probability theory and its connection with physics, engineering, and other sciences
- initial ability to apply knowledge of probability and statistics to real-life problems and to create mathematical models for such problems
- understanding of some standard problem-solving ideas and techniques
- ability to evaluate the appropriateness of different approaches to solve problems using well established ideas and techniques;
- some understanding of historical development of probability and statistics and its present structure

Grading

Four Assignments (5 % each)	20 %
Two Midterm Examinations (20 % each)	40 %
Final Examination	40 %

Policy on Academic Dishonesty

According to the Academic Calendar, “The University takes a most serious view of such offences against academic honesty as plagiarism, cheating, and impersonation. Penalties for dealing with such offences will be strictly enforced.” Please see http://www.nipissingu.ca/calendar/Documents/AC/1213x_Regulations_Info_Students.pdf for complete description of the policy. In particular, no copying of assignments will be tolerated, and students copying each other’s assignments or exams will receive **grade zero** for such assignments or exams. This policy will be **strictly followed**.

Examinations

- There will be two midterm examinations and a final examination for this course.
- Each midterm examination will consist of 5 problems.
- Final examination will consist of 10 problems.
- Midterm examination will be 60 minutes long and will be held during the time slot normally allocated for the class.
- Tentative dates of midterm examinations: Mondays, February 22 and April 4.
- The final exam will be scheduled during the exam period (April 20 – April 30).
- Midterm and Final Examinations will be **open book**. However, the use of other materials (e.g. notes or formula sheets) will not be permitted.
- The use of simple scientific calculators is allowed during midterm and final examinations.

Assignments

Problems will be assigned from the textbook (“*Mathematical Statistics with Applications*”). Due date for each assignment will be announced. No late work will be accepted. There will be 4 home assignments (time-permitting).

#	Problems	Tentative Due Date
1	Chapter 2 28, 56, 76, 92, 94, 120, 124	February 10
2	Chapter 3 10, 16, 26, 60, 80, 110, 130, 155, 170	March 14
3	Chapter 4 7, 8, 12, 30, 74 (a – d, f), 92, 96, 140, 154 (a,b)	April 4
4	Chapter 5 14, 16, 26, 58, 64, 76, 84, 92, 96, 100, 105, 146	April 18

Suggested Exercises

The following problems are optional and will not be marked. However, they are **strongly recommended**.

Chapter 2

85, 93, 95, 100, 107, 119, 121, 129

Chapter 3

5, 8, 23, 29, 48, 71, 81, 119, 133, 139, 145, 147, 173

Chapter 4

34, 35, 37, 43, 62, 103, 111, 141

Chapter 5

3, 11, 61, 63, 67, 74, 81, 87, 94, 113, 115

Math Drop-in Center (Room A223)

The schedule for the winter term (starting February 1) is as follows:

Monday – Thursday 10-12

Friday 12-14

Dates to remember

Sunday, January 31 – Last day to register for WI courses.

Thursday, March 17 – Last date for withdrawing from a WI course.

February 15 – 19 – Study week

DATA SCIENCE COURSE DESCRIPTIONS

DESCRIPTIONS OF NEW COURSES

DATA 1xxx- Introduction to Data Science

This course introduces the principles and methods of data science and their applications. “Big Data” and methods to work with these data will be presented. Topics include: characteristics of big data; basics of cloud computing and distributed data processing; the need for data science and data analytics; applications; introduction to visual techniques.

DATA 2xxxx- Data Science Practicum I

In this course, the student works on an approved project in data science, either while placed in a business enterprise/organization or supervised by a faculty member on campus. Projects may range from practical/experiential to theoretical, and the student is expected to successfully integrate theory and skills learned in the program. Evaluation of the student's final report and presentation is on a pass/fail basis.

DATA 3xxx -- Machine Learning

This course introduces the main machine learning technologies and tools used in data science and data analytics, including clustering, decision trees, recurrent and convolutional neural networks, support vector machines, Bayesian learning, reinforcement learning, and methods from computational intelligence. Applications and solutions to problems in data science and data analytics are presented.

DATA 3xxx -- Tools and Technologies in Data Science

This course presents the main state-of-the-art tools and technologies employed in data science and data analytics, including Hadoop, MapReduce, NoSQL database systems, visual analytics, and programming in the R and Python programming languages. Use of these tools will be motivated by real-world applications. The computational, mathematical, statistical, and theoretical foundations of these tools will also be developed.

DATA 3xxx -- Data Science Practicum II

In this course, the student works on an approved advanced project in data science, either while placed in a business enterprise/organization or supervised by a faculty member on campus. Projects may range from practical/experiential to theoretical, and the student is expected to successfully integrate theory and skills learned in the program. Evaluation of the student's final report and presentation is on a pass/fail basis.

DATA 4xxx -- Data Analytics

This course develops and presents the principles, concepts, and techniques of data analytics and applications. State-of-the-art technologies, including Hadoop, MapReduce, will be presented. Data analytics applications in the R and/or Python programming languages will be introduced. Other topics include: statistics for “Big Data”; advanced statistical analysis of large volumes of high-frequency, heterogeneous data; data transformations; visual analytics; database issues and NoSQL; research into data analytics and methodologies.

DATA 4996 -- Research I

An individualized studies course in which an honours student conducts research in a topic in data science not specifically covered in other courses, under the supervision of a faculty member with expertise in that area. Each student will be required to make oral presentations on their work to faculty and students at

several seminar sessions held for this purpose, and to submit a final report, written in the format of a journal article.

DATA 4997 -- Research II

An individualized studies course in which an honours student conducts research in a topic in data science not specifically covered in other courses, under the supervision of a faculty member with expertise in that area. Each student will be required to make oral presentations on their work to faculty and students at several seminar sessions held for this purpose, and to submit a final report, written in the format of a journal article.

APPENDIX 2

CURRICULUM VITAE

This is a draft version only. Do not submit to any funding organization. Only the final version from the History page can be submitted.

Dr. Ali Hatef

Correspondence language: English

Sex: Male

Date of Birth: 3/18

Canadian Residency Status: Canadian Citizen

Contact Information

The primary information is denoted by (*)

Address

Home

467 Chippewa
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North Bay Ontario P1B 6G5
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This is a draft version only. Do not submit to any funding organization. Only the final version from the History page can be submitted.



Protected when completed

Dr. Ali Hatef

Language Skills

Language	Read	Write	Speak	Understand	Peer Review
English	Yes	Yes	Yes	Yes	Yes
French	Yes	No	Yes	Yes	No
Persian	Yes	Yes	Yes	Yes	Yes

Degrees

2008/1 - 2011/12	Doctorate, PhD, Physics, University of Western Ontario Degree Status: Completed Thesis Title: Quantum Coherence and Interference in Metallic Photonic Crystals and Hybrid Systems Supervisors: Prof. Mahi Singh, 2008/1 - 2011/12
1998/9 - 2001/8	Master's Thesis, Master of Science, Physics, Shiraz University Degree Status: Completed Thesis Title: Muon Cycling Studies in D/T Mixture Including Doubly Muonic Four Body Molecule Formation
1994/9 - 1998/8	Bachelor's, Bachelor of Science, Physics, Shiraz University Degree Status: Completed Thesis Title: Nuclear magnetic resonance spectroscopy

User Profile

Researcher Status: Post-doctoral Student

Research Interests: [1] Interaction of light with nanoscale systems: (a) Absorption / emission of light (b) Artificial quantum structures (dots, wires, wells) (c) Photonic band gap materials [2] Optical interactions between nanosystems: (a) Forster resonance energy transfer (FRET) (b) Coupled excitations (exciton-plasmon coupling) [3] Resonance phenomena: (a) Local and surface plasmon resonance (LSPR/SPR) [4] Strongly focused light (a) Femtosecond laser-material interaction

Fields of Application: Foundations and Knowledge Acquisition, Biomedical Aspects of Human Health, Communication and Information Technologies

Disciplines Trained In: Physics

Areas of Research: Optics and Photonics, Modelization and Simulation, Mathematics of Computing, Mathematical Analysis

Research Specialization Keywords: Light nano-structure interactions, Nanophotonics, Plasmonics, Quantum Optics, Ultrashort laser interaction with materials

Research Disciplines: Physics, Applied Mathematics, Computer Science

Employment

2017/5 - 2017/7	Engineering Physics, Ecole Polytechnique de Montreal Part-time, Visiting Professorship, Assistant Professor
2014/7 - 2017/6	Assistant Professor computer science and mathematics, Arts and Science, Nipissing University Full-time, Term, Assistant Professor Tenure Status: Non Tenure Track I have a full-time three-year limited-term appointment (LTA2) as an assistant professor. The nature of my research is mostly in the field of computational physics. My normal teaching duties consists of five three-credit courses.
2012/1 - 2014/7	Postdoctoral fellow Engineering Physics, Ecole Polytechnique de Montreal Full-time, Term Tenure Status: Non Tenure Track
2013/1 - 2014/5	Lecturer Physics, Dawson College Part-time, Sessional, Lecturer Tenure Status: Non Tenure Track
2008/1 - 2011/12	Research assistant Physics and Astronomy, University of Western Ontario Full-time, Term Tenure Status: Non Tenure Track
2001/9 - 2007/8	Instructor Physics, Science, Kazeroon Azad University Full-time, Term, Lecturer Tenure Status: Tenure Track
2002/9 - 2006/8	Information Technology Services Manager Kazeroon Azad University; Shiraz, Iran

Affiliations

The primary affiliation is denoted by (*)

(*) 2012/1 - 2013/1 , École Polytechnique de Montréal

Research Funding History

Awarded [n=5]

2016/5 - 2021/4	NSERC Discovery Grant, Grant
Principal Applicant	Clinical Research Project?: No Project Description: Fundamentals and Design of Metal/Semiconductor Nanostructures for Plasmon-Enhanced Applications

Funding Sources:

2016/5 - 2021/4	Natural Sciences and Engineering Research Council of Canada (NSERC) Discovery Total Funding - 120,000 (Canadian dollar) (Canadian dollar) Funding Renewable?: No Funding Competitive?: Yes

2015/5 - 2016/4 Principal Investigator	Internal Research Grant (IRG), Grant Funding Sources: 2015/5 - 2016/4 Nipissing University Internal Research Grant (IRG) Total Funding - 4,250 Portion of Funding Received - 4,250 Funding Competitive?: Yes
2014/7 - 2014/9 Principal Applicant	Nipissing Start-Up Research Grant (SURG), Grant Clinical Research Project?: No Funding Sources: 2014/7 - 2017/6 Nipissing University SURG Total Funding - 5,000 Portion of Funding Received - 5,000 Funding Competitive?: No
2012/4 - 2014/4 Principal Applicant	GRSTB(Groupe de recherche en sciences et technologies biomédicales), Scholarship Funding Sources: 2012/4 - 2014/4 École Polytechnique de Montréal GRSTB Total Funding - 38,000 Portion of Funding Received - 38,000 Funding Competitive?: Yes
2011/5 - 2011/12 Principal Applicant	Ontario Graduate Scholarship Program (OGS), Scholarship Funding Sources: 2011/5 - 2011/12 Ministry of Training, Colleges and Universities OGS Total Funding - 15,000 (Canadian dollar) Portion of Funding Received - 15,000 Funding Competitive?: Yes
Declined [n=1] 2014/5 - 2016/4 Principal Applicant	FQRNT (Québec Fund for Nature and Technology Research), Scholarship Funding Sources: 2014/5 - 2014/4 Gouvernement du Québec FQRNT Total Funding - 60,000 Portion of Funding Received - 60,000 Funding Competitive?: Yes

Student/Postdoctoral Supervision

Bachelor's [n=6]

2106/1 - 2019/4 Principal Supervisor	Calvin Bailey (In Progress) , Nipissing University Student Degree Expected Date: 2019/4 Thesis/Project Title: A single-photon transistor using metal nanoparticle-semiconductor quantum dot hybrid system coupling to a metal nanowire
2018/5 - 2018/8 Principal Supervisor	Daynen Murphy (In Progress) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Modeling photothermal induced response in gold-vanadium dioxide hybrid nanostructures
2016/6 - 2019/7 Principal Supervisor	Keith Afas (In Progress) , Western University Thesis/Project Title: Deformation of a Cellular Membrane by a Plasmonic Assisted Optoporation
2016/5 - 2018/7 Principal Supervisor	Quinlan McParland (In Progress) , Nipissing University Thesis/Project Title: Electrodynamics of phase change metamaterials coupled to gain media
2014/9 - 2015/7 Principal Supervisor	Burke, Adam (Completed) , Nipissing University Thesis/Project Title: Dynamic of plasma nucleation around cold nanostructures irradiated by femtosecond pulsed laser in water
2012/5 - 2013/12 Co-Supervisor	Fortin-Deschênes, Simon (Completed) , École Polytechnique de Montréal Student Degree Start Date: 2013/5 Thesis/Project Title: Photothermal response of hollow gold nanoshell to laser irradiation: continuous wave, short and ultrashort pulse

Master's Thesis [n=1]

2015/5 - 2016/7 Principal Supervisor	Johnston, William (In Progress) , Nipissing University Thesis/Project Title: Numerical study on ultra fast switching mechanism of optical bistable elements using phase transition materials

Doctorate [n=5]

2018/3 - 2018/8 Co-Supervisor	Arezou Rashidi (In Progress) , University of Tabriz Student Canadian Residency Status: Study Permit Thesis/Project Title: Modeling photothermal induced bistability in vanadium dioxide/1D photonic crystal composite nanostructures
2016/7 - 2019/7 Academic Advisor	Naser Jahanbakhshizadeh (In Progress) , Shiraz University Thesis/Project Title: Study of Metal-Organic and Metal Oxide Additives on Characteristics of Perovskite Solar Cells and Supercapacitors
2016/6 - 2018/7 Academic Advisor	Naser Zamani (In Progress) , Shiraz University Thesis/Project Title: Optimization of optical properties of quantum dot-metal nanoparticle systems
2015/5 - 2017/8 Academic Advisor	Ebtehaj, Zahra (In Progress) , Isfahan University, Isfahan, Iran Student Degree Expected Date: 2017/8 Thesis/Project Title: Modelling mechanisms of graphene-assisted photothermal response of neurons stimulated by ultrafast lasers

2014/1 - 2017/12 Dagallier Adrien (In Progress) , École Polytechnique de Montréal
 Co-Supervisor Student Degree Start Date: 2014/1
 Thesis/Project Title: Analysis of cavitation dynamics from gold nanostructures irradiated by ultra-short pulsed laser

Research Associate [n=2]

2014/9 - 2015/12 Darvish, Behafarid (Completed) , Nipissing University
 Principal Supervisor Thesis/Project Title: Photoacoustic response from gold nanostructures irradiated by an ultrashort pulsed laser

2014/9 - 2015/7 Moafmashhadi, Parastoo (Completed) , Nipissing University
 Principal Supervisor Thesis/Project Title: Study of gold nanoparticle assisted stimulation of neurons in degenerative diseases

Event Administration

2010/12 - 2011/3 Local Organizer, (An International Conference on Frontier Topics in Nanostructures and Condensed Matter Theory) The University of Western Ontario; London, ON, Conference, 2011/3 - 2011/3

Editorial Activities

2018/4 Reviewer, Scientific Reports, Journal

2016/5 - 2019/5 Reviewer, Iranian Journal of Science and Technology, Transactions A: Science, Journal

- 2016/6 Reviewer, Physical Chemistry Chemical Physics, Journal

- 2016/5 Reviewer, Computational Materials Science, Journal

2014/7 - 2016/3 Reviewer, Optics Communications, Journal

2014/10 - 2014/10 Reviewer, Applied Surface Science, Journal

Presentations

- (2017). Tunable coupling between exciton-polariton and exciton-surface plasmon in hybrid systems consisting of VO₂ nanoparticles and quantum dots. SPIE Optics + Photonics, San Diego, San Diego, United States
 Main Audience: Researcher
 Invited?: No, Keynote?: No, Competitive?: Yes
- Darvish B, Dagallier A, Boutopoulos C and Meunier M. (2016). Analysis of photoacoustic response from plasmonic nanostructures irradiated by ultrafast laser in water. Photonic West, San Francisco, United States
 Invited?: No, Keynote?: Yes
- (2016). Plasma mediated Response from Plasmonic Nanostructures Irradiated by Ultrafast Laser for Biomedical Application. 4th Conference of Engineering and Physics of Plasma, Yazd, Iran, Islamic Republic of
 Main Audience: Researcher
 Invited?: Yes, Keynote?: Yes, Competitive?: Yes

4. (2016). Plasma mediated Response from Plasmonic Nanostructures Irradiated by Ultrafast Laser for Biomedical Application. 4th Conference of Engineering and Physics of Plasma, Yazd, Iran, Islamic Republic of
Invited?: Yes, Keynote?: Yes
5. Boutopoulos C, Dagallier A, Sansone M, Lecavalier-Hurtubise É, Blanchard-Dionne A and Meunier M. (2016). Polarization-depended nanocavitation in plasmonic nanobowties enhanced femtosecond laser generation of nanobubbles. Photonic West, San Francisco, United States
Invited?: No, Keynote?: No
6. Boutopoulos C, Bergeron E, Fortin-Deschênes M, Rioux D, Lachaine R, Hatef A, Meunier M. (2015). Near-field amplification of ultrafast laser for generation of nanobubbles for cell nanosurgery. The 2015 E-MRS Spring Meeting and Exhibit, Lille, France
Invited?: No, Keynote?: No
7. Boutopoulos C, Hatef A, Fortin-Deschênes M, Rioux D, Lachaine R, Meunier M. (2015). Effect of nanoparticle size on plasmonic enhanced off-resonance femtosecond laser nanocavitation. SPIE Photonics West, San Francisco, United States
Invited?: No, Keynote?: No
8. Boutopoulos C, Hatef A, Dagallier A, Lachaine R, Rioux D, Boulais E, Meunier M. (2015). Mechanism investigations of gold nanoparticle enhanced ultrafast laser near field optical breakdown and nanocavitation. The 13th Conference on Laser Ablation (COLA-2015), Cairns, Australia
Invited?: No, Keynote?: No
9. Hatef A, Darvish B, Davletshin Y, Dagallier A, Johnston W, Kumaradas K, Rioux D, Meunier M. (2015). Modelling the photoacoustic response from gold-silver alloy nanoparticles in water for biomedical imaging application. 4th Nano Today Conference, Dubai, United Arab Emirates
Invited?: No, Keynote?: Yes
10. Hatef A, Darvish B, Dagallier A, Boutopoulos C, Meunier M. (2015). Analysis of plasma-mediated photoacoustic response from plasmonic nanoparticles in ultrashort regime. COMSOL Conference 2015 Boston, Boston, United States
Invited?: Yes, Keynote?: Yes
11. Boutopoulos C, Sansone M, Dagallier A, Lecavalier-Hurtubise E, Blanchard-Dionne A-P, Hatef A, Meunier M. (2015). Plasmonic nano-bowties enhanced femtosecond laser generation of nanobubbles. The 2015 E-MRS Spring Meeting and Exhibit, Lille, France
Invited?: No, Keynote?: No
12. Hatef A, Meunier M. (2014). Simulation of laser-induced thermal and plasma dynamics of gold nanoparticle dimers in hyperthermia therapy. Photonics North 2014, Montreal, Canada
Main Audience: Researcher
Invited?: No, Keynote?: Yes
13. Boutopoulos C, Fortin-Deschenes M, Hatef A, Meunier M. (2014). Dynamic imaging of nanocavitation around plasmonic nanoparticles irradiated by an off-resonance femtosecond laser. Photonics North, Montreal, Canada
Invited?: No, Keynote?: No
14. Hatef A, Meunier M. (2013). Quantum control of atoms and new nanostructures. APS Division of Atomic, Molecular and Optical Physics and the CAP Division of Atomic, Molecular and Optical Physics, Quebec, Canada
Main Audience: General Public
Invited?: Yes, Keynote?: Yes

15. Hatef A, Singh M, Sadeghi S. (2011). Coherent molecular resonance in quantum dot-metallic nano-particle systems. Departmental Talk, Department of Chemistry and Chemical Biology at Harvard University, Boston, United States
Main Audience: Researcher
Invited?: Yes, Keynote?: Yes
16. Hatef A, Singh M. (2010). The study of three-photon absorption in quantum dots doped in two-dimensional metallic photonic crystals. Nano Ontario 2010, Ontario Nanoscience and Nanotechnology Workshop, The University of Western Ontario, London, Canada
Main Audience: Researcher
Invited?: No, Keynote?: Yes

Publications

Journal Articles

1. Ebtehaj Z, Hatef A, Malekmohammad M and Soltanolkotabi M. (2018). **Computational modeling and validation of thermal-induced electrical capacitance changes for biological membranes irradiated by pulsed laser**. Physical Chemistry B. Accepted,
Refereed?: Yes, Open Access?: No
2. Katchinskiy N, Godbout R, Hatef A and Elezzabi A Y. (2018). **Targeted Treatment of Retinoblastoma using Femtosecond Laser Pulses and Gold Nanorods**. Advanced Therapeutics. 1(1800009)
Published,
Refereed?: Yes, Open Access?: No
3. Sani M, Hosseini Farzad M, Hatef A and Safarzade F. (2018). **Anderson localization of propagating surface plasmons in a graphene-based random grating nanostructure**. Europhysics Letters. Accepted,
4. Sadeghi S, Gutha R, Christina S and Hatef A. (2018). **Mapping lattice-induced plasmon modes in metallic nanoantenna arrays using fluorescence decay of semiconductor quantum dots**. Optical Materials. Submitted,
5. Rashidi A, Hatef A and Namdar A. (2018). **Modeling photothermal induced bistability in vanadium dioxide/1D photonic crystal composite nanostructures**. Applied Physics Letters. Submitted,
6. Gutha R, Sadeghi S and Ali Hatef. (2018). **Ultrahigh refractive index sensitivity via lattice-induced meta-dipole modes in flat metallic nano antenna arrays**. Applied Physics Letters. 112(223102)
Published,
7. Hatef A, Zamani N, Johnson W. (2017). **Optical Nanothermometer based on the absorption quenching and energy transfer pathway of an infrared quantum dot hybridized with a metal-insulator transition nanoparticle**. Journal of Physics: Condensed Matter. 29(155305)
Published,
Refereed?: Yes, Open Access?: No
8. Zamani N, Nadgaran H, Keshavarz A. (2017). **Control of Electromagnetically Induced Transparency via a Hybrid Semiconductor Quantum Dot-VO₂ Nanoparticle System**. Journal of Nanophotonics. 11(3): 036011.
Published, SPIE,
9. Sadeghi S, Wing W, Gutha R, Sharp C and Hatef A. (2017). **Optically saturated and unsaturated collective resonances of flat metallic nano antenna arrays**. Journal of Applied Physics. 122(063102)
Published,

10. Hatef A, Darvish B, Burke A, Dagallier A and Meunier M. (2016). **Computational characterization of plasma effects in ultrafast laser irradiation of spherical gold nanostructures for photothermal therapy**. Journal of Physics D: Applied Physics. 49: 105401.
Published,
Refereed?: Yes, Open Access?: No
11. Hatef A, Darvish B, Sajjadi A. (2016). **Computational study of plasma assisted photoacoustic response from gold nanoparticles irradiated by off-Resonance ultrafast laser**. Journal of Nanoparticle Research.
Submitted,
Refereed?: Yes, Open Access?: No
12. Sadeghi S, Dagallier A, Hatef A and Meunier M. (2016). **Collective modes in multipolar plasmonic lattices: control of interparticle-gap upward/ downward energy streams**. Journal of the Optical Society of America B.
Submitted,
Refereed?: Yes, Open Access?: No
13. Hatef A and Meunier M. (2015). **Plasma-mediated photothermal effects in ultrafast laser irradiation of gold nanoparticle dimers in water**. Optics Express. 23(3): 1967-1980.
Published,
Refereed?: Yes, Open Access?: Yes
14. Hatef A, Darvish B, Dagallier A, Johnston W, Davletshin Y R, Kumaradas C, Rioux D and Meunier M. (2015). **Analysis of Photoacoustic Response from Gold-Silver Alloy Nanoparticles Irradiated by Short Pulsed Laser in Water**. Journal of Physical Chemistry C.
Published,
Refereed?: Yes, Open Access?: No
15. Hatef A, Darvish B, Burke A, Dagallier A, and Meunier M. (2015). **Computational characterization of plasma effects in ultrafast laser irradiation of spherical gold nanostructures for photothermal therapy**. Journal of Physics D: Applied Physics.
Accepted,
Refereed?: Yes, Open Access?: No
16. Hatef A, Fortin-Deschênes S, Boulais E, Lesage F and Meunier M. (2015). **Photothermal response of hollow gold nanoshell to laser irradiation: continuous wave, short and ultrashort pulse**. International Journal of Heat and Mass Transfer. 89: 866–871.
Published,
Refereed?: Yes, Open Access?: Yes
17. Sadeghi S M, Hood B, Nejat A, West R G and Hatef A. (2014). **Excitation intensity dependence of plasmonic enhancement of energy transfer between quantum dots**. Journal of Physics D: Applied Physics. 47(165302)
Last Author
Published,
Refereed?: Yes, Open Access?: No
18. Boutopoulos C, Hatef A, Fortin-Deschênes M, Meunier M. (2014). **Dynamic imaging of single gold nanoparticle in liquid irradiated by off-resonance femtosecond laser**. Nanoscale. 7(27): 11758-11765.
Published,
Refereed?: Yes, Open Access?: No
19. Sadeghi S M, Hatef A, Nejat A, Campbell Q, and Meunier M. (2014). **Plasmonic emission enhancement of colloidal quantum dots in the presence of bimetallic nanoparticles**. Journal of Applied Physics. 115(13431)
Co-Author
Published,
Refereed?: Yes, Open Access?: No

20. Tawil N, Hatef A, Sacher E, Maisonneuve M, Gervais T, Mandevilleand R and Me M. (2013). **Surface plasmon resonance determination of the binding mechanisms of L-cysteine and 11-mercaptoundecanoic acid on gold**. Journal of Physical Chemistry C. 117: 6712–6718.
Co-Author
Published,
Refereed?: Yes, Open Access?: No
21. Sadeghi S M, Hatef A, and Meunier M. (2013). **Quantum detection and ranging using exciton-plasmon coupling in coherent nanoantennas**. Applied Physics Letters. 102(203113)
Co-Author
Published,
Refereed?: Yes, Open Access?: No
22. Boulais E, Lachaine R, Hatef A and Meunier M. (2013). **Plasmonics for pulsed-laser cell nanosurgery: Fundamentals and applications**. Journal of Photochemistry and Photobiology C: Photochemistry Reviews. 17: 26-49.
Co-Author
Published,
Refereed?: Yes, Open Access?: No
23. Hatef A, Sadeghi S M, Fortin-Deschênes S, Boulais E and Meunier M. (2013). **Coherently-enabled environmental control of optics and energy transfer pathways of hybrid quantum dot-metallic nanoparticle systems**. Optics Express. 21(5): 5643-5653.
First Listed Author
Published,
Refereed?: Yes, Open Access?: Yes
24. Sadeghi S M, Hatef A, Fortin-Deschênes S, and Meunier M. (2013). **Coherent confinement of plasmonic field in quantum dot–metallic nanoparticle molecules**. Nanotechnology. 24(205201)
Co-Author
Published,
Refereed?: Yes, Open Access?: No
25. Hatef A and R Singh M. (2012). **Effect of magnetic field on a two-dimensional metallic photonic crystal**. Physical Review A. 86(043839)
First Listed Author
Published,
Refereed?: Yes, Open Access?: No
26. Hatef A, Sadeghi S M and R Singh M. (2012). **Coherent molecular resonances in quantum dot-metallic nanoparticle systems: coherent self-renormalization and structural effects**. Nanotechnology. 23(205203)
First Listed Author
Published,
Refereed?: Yes, Open Access?: No
27. Hatef A, Sadeghi S M and R Singh M. (2012). **Plasmonic electromagnetically induced transparency in metallic nanoparticle-quantum dot hybrid systems**. Nanotechnology. 23(065701)
First Listed Author
Published,
Refereed?: Yes, Open Access?: No
28. Hatef A, Sadeghi S M, Boulais E and Meunier M. (2012). **Quantum dot-metallic nanorod sensors via exciton-plasmon interaction**. Nanotechnology. 015502(24)
First Listed Author
Published,
Refereed?: Yes, Open Access?: No

29. Hatef A and R Singh M. (2011). **Decay of a quantum dot in two-dimensional metallic photonic crystals**. Optics Communications. 284(9): 2363–2369.
First Listed Author
Published,
Refereed?: Yes, Open Access?: No
30. R Singh M, Schindel D G, and Hatef A. (2011). **Dipole-dipole interaction in a quantum dot and metallic nanorod hybrid system**. Applied Physics Letters. 99(181106)
Co-Author
Published,
Refereed?: Yes, Open Access?: No
31. Hatef A and R Singh M. (2010). **Plasmonic effect on quantum coherence and interference in metallic photonic crystals doped with quantum dots**. Physical Review A. 81(063816)
First Listed Author
Published,
Refereed?: Yes, Open Access?: No
32. Hatef A and R Singh M. (2010). **The study of quantum interference in metallic photonic crystals doped with four-level quantum dots**. Nanoscale Research Letters. 5: 464–468.
First Listed Author
Published,
Refereed?: Yes, Open Access?: No

Conference Publications

1. Hatef A, Fortin-Deschênes S, and Meunier M. (2014). **Simulation of nanosecond laser-induced thermal dynamics of hollow gold nanoshells for hyperthermia therapy**. AIP Conf. Proc. 1590. International Conference on Nanomaterials 2013, London, Canada (105-110),
Conference Date: 2013/8
Paper
First Listed Author
Published
Refereed?: Yes, Invited?: Yes
2. R Singh M, and Hatef A. (2009). **Time evolution of absorption process in nonlinear metallic photonic crystals**. physica status solidi (c). Third International Conference on Optical, Optoelectronic and Photonic Materials and Application, Natal, (S158–S161),
Conference Date: 2008/8
Paper
Co-Author
Published
Refereed?: Yes, Invited?: Yes
3. R Singh M and Hatef A. (2009). **Quantum interference due to the spontaneous emission in nonlinear metallic photonic crystals**. Microelectronics Journal. International Conference on Superlattices, Nanostructures and Nanodevices (ICSNN 2008), Edmonton, Canada (854-856),
Conference Date: 2008/7
Paper
Co-Author
Published
Refereed?: Yes, Invited?: Yes

This is a draft version only. Do not submit to any funding organization. Only the final version from the History page can be submitted.

Dr. Logan Cedric Hoehn

Correspondence language: English

Sex: Male

Date of Birth: 7/31

Contact Information

The primary information is denoted by (*)

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Primary Affiliation (*)

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This is a draft version only. Do not submit to any funding organization. Only the final version from the History page can be submitted.



Protected when completed

Dr. Logan Hoehn

Language Skills

Language	Read	Write	Speak	Understand	Peer Review
English	Yes	Yes	Yes	Yes	Yes

Degrees

- 2011/3 Doctorate, Mathematics, University of Toronto
Degree Status: Completed
Areas of Research: Topology
Research Disciplines: Pure Mathematics
Supervisors: William Weiss, 2007/9 - 2011/3
- 2007/8 Master's Thesis, Mathematics, University of Toronto
Degree Status: Completed
Areas of Research: Logic, Topology
Research Disciplines: Pure Mathematics
Supervisors: William Weiss, 2006/9 - 2007/8
- 2006/4 Bachelor's Honours, Mathematics and Computer Science, University of Saskatchewan
Degree Status: Completed
- 2005/12 Certificate, Mathematics, Independent University of Moscow
Degree Status: Completed

Recognitions

- 2016/1 Nipissing University Research Achievement Award - 5,000
Nipissing University
Prize / Award
Recognition of meritorious research achievement as an established faculty member at Nipissing University.
- 2013/9 Mary Ellen Rudin Young Researcher Award - 15,000
Elsevier
Prize / Award
An annual international award recognizing a talented young researcher in any of the areas central to topology. Recipient must be at most one year away from completing his/her PhD or at most three years after his/her PhD.

User Profile

Research Specialization Keywords: Topology, Continuum theory, Dynamical systems

Employment

2016/7	Associate professor of mathematics Computer Science and Mathematics, Nipissing University Full-time, Associate Professor Tenure Status: Tenure Conducting research in the topology group; teaching undergraduate and graduate courses in mathematics; service on university committees and organizing committees for international topology research conferences.
2012/7 - 2016/6	Assistant professor of mathematics Computer Science and Mathematics, Nipissing University Full-time, Assistant Professor Tenure Status: Tenure Track Conducted research in the topology group; taught undergraduate and graduate courses in mathematics and computer science; service on university committees and organizing committees for international topology research conferences.
2010/8 - 2012/5	Visiting assistant professor of mathematics Mathematics, University of Alabama at Birmingham Full-time, Visiting Professorship, Assistant Professor Tenure Status: Non Tenure Track Conducted research in the topology group under the supervision of Dr. Lex Oversteegen; taught undergraduate mathematics courses (six total).
2003/5 - 2003/8	Software developer emPowerTools, Inc. Computer programming, modelling, and testing for various local agriculture research and administration projects.

Research Funding History

Awarded [n=1]

2013/5 - 2019/4 Principal Investigator	Separating sets in tree products, and applications, Grant Funding Sources: Natural Sciences and Engineering Research Council of Canada (NSERC) Discovery Grant Total Funding - 120,000 Portion of Funding Received - 120,000 Funding Competitive?: Yes

Courses Taught

2018/05/07 - 2018/08/03	Professor, Computer Science and Mathematics, Nipissing University Course Title: Introduction to Algebraic Topology Course Code: MATH 5067 Course Level: Graduate Academic Session: Spring Number of Students: 2 Number of Credits: 3 Lecture Hours Per Week: 3
2018/01/08 - 2018/04/10	Professor, Computer Science and Mathematics, Nipissing University Course Title: Calculus II Course Code: MATH 1037 Course Level: Undergraduate Academic Session: Winter Number of Students: 31 Number of Credits: 3 Lecture Hours Per Week: 3
2018/01/08 - 2018/04/10	Professor, Computer Science and Mathematics, Nipissing University Course Title: General Topology Course Code: MATH 5066 Course Level: Graduate Academic Session: Fall Number of Students: 1 Number of Credits: 3 Lecture Hours Per Week: 3
2017/09/05 - 2017/12/04	Professor, Computer Science and Mathematics, Nipissing University Course Title: Calculus I Course Code: MATH 1036 Course Level: Undergraduate Academic Session: Fall Number of Students: 49 Number of Credits: 3 Lecture Hours Per Week: 3
2017/09/05 - 2017/12/04	Professor, Computer Science and Mathematics, Nipissing University Course Title: Discrete Mathematics II Course Code: MATH 2056 Course Level: Undergraduate Academic Session: Fall Number of Students: 17 Number of Credits: 3 Lecture Hours Per Week: 3
2017/01/09 - 2017/04/07	Professor, Computer Science and Mathematics, Nipissing University Course Title: Algebra I Course Code: MATH 3156 Course Level: Undergraduate Academic Session: Winter Number of Students: 16 Number of Credits: 3 Lecture Hours Per Week: 3

2017/01/09 - 2017/04/07	Professor, Computer Science and Mathematics, Nipissing University Course Title: Calculus II Course Code: MATH 1037 Course Level: Undergraduate Academic Session: Winter Number of Students: 30 Number of Credits: 3 Lecture Hours Per Week: 3
2016/09/06 - 2016/12/05	Professor, Computer Science and Mathematics, Nipissing University Course Title: Calculus I Course Code: MATH 1036 Course Level: Undergraduate Academic Session: Fall Number of Students: 44 Number of Credits: 3 Lecture Hours Per Week: 3
2016/09/06 - 2016/12/05	Professor, Computer Science and Mathematics, Nipissing University Course Title: Topology Course Code: MATH 3166 Course Level: Undergraduate Academic Session: Fall Number of Students: 2 Number of Credits: 3 Lecture Hours Per Week: 3
2016/01/18 - 2016/04/19	Professor, Computer Science and Mathematics, Nipissing University Course Title: Introductory Linear Algebra Course Code: MATH 1046 Course Level: Undergraduate Academic Session: Winter Number of Students: 52 Number of Credits: 3 Lecture Hours Per Week: 4
2016/01/18 - 2016/04/19	Professor, Computer Science and Mathematics, Nipissing University Course Title: Topology Course Code: MATH 3166 Course Level: Undergraduate Academic Session: Winter Number of Students: 1 Number of Credits: 3 Lecture Hours Per Week: 3
2016/01/18 - 2016/04/19	Professor, Computer Science and Mathematics, Nipissing University Course Title: Advanced Linear Algebra Course Code: MATH 2046 Course Level: Undergraduate Academic Session: Winter Number of Students: 27 Number of Credits: 3 Lecture Hours Per Week: 3

2015/09/08 - 2015/12/07	Professor, Computer Science and Mathematics, Nipissing University Course Title: Discrete Mathematics I Course Code: MATH 1056 Course Level: Undergraduate Academic Session: Fall Number of Students: 53 Number of Credits: 3 Lecture Hours Per Week: 4
2015/09/08 - 2015/12/07	Professor, Computer Science and Mathematics, Nipissing University Course Title: Data Structures I Course Code: COSC 2006 Course Level: Undergraduate Academic Session: Fall Number of Students: 11 Number of Credits: 3 Lecture Hours Per Week: 3
2015/01/12 - 2015/04/14	Professor, Computer Science and Mathematics, Nipissing University Course Title: Introductory Linear Algebra Course Code: MATH 1046 Course Level: Undergraduate Academic Session: Winter Number of Students: 53 Number of Credits: 3 Lecture Hours Per Week: 4
2015/01/12 - 2015/04/14	Professor, Computer Science and Mathematics, Nipissing University Course Title: Algebra I Course Code: MATH 3156 Course Level: Undergraduate Academic Session: Winter Number of Students: 23 Number of Credits: 3 Lecture Hours Per Week: 3
2014/09/08 - 2014/12/05	Professor, Computer Science and Mathematics, Nipissing University Course Title: Discrete Mathematics I Course Code: MATH 1056 Course Level: Undergraduate Academic Session: Fall Number of Students: 47 Number of Credits: 3 Lecture Hours Per Week: 4
2014/09/08 - 2014/12/05	Professor, Computer Science and Mathematics, Nipissing University Course Title: Topology Course Code: MATH 3166 Course Level: Undergraduate Academic Session: Fall Number of Students: 7 Number of Credits: 3 Lecture Hours Per Week: 3

2014/09/08 - Professor, Computer Science and Mathematics, Nipissing University
2014/12/05 Course Title: Algebra
Course Code: MATH 5056
Course Level: Graduate
Academic Session: Fall
Number of Students: 1
Number of Credits: 3
Lecture Hours Per Week: 3

2014/01/06 - Professor, Computer Science and Mathematics, Nipissing University
2014/04/04 Course Title: Introductory Linear Algebra
Course Code: MATH 1046
Course Level: Undergraduate
Academic Session: Winter
Number of Students: 43
Number of Credits: 3
Lecture Hours Per Week: 4

2014/01/06 - Professor, Computer Science and Mathematics, Nipissing University
2014/04/04 Course Title: Advanced Linear Algebra
Course Code: MATH 2046
Course Level: Undergraduate
Academic Session: Winter
Number of Students: 18
Number of Credits: 3
Lecture Hours Per Week: 3

2013/09/09 - Professor, Computer Science and Mathematics, Nipissing University
2013/12/06 Course Title: Discrete Mathematics II
Course Code: MATH 2056
Course Level: Undergraduate
Academic Session: Fall
Number of Students: 16
Number of Credits: 3
Lecture Hours Per Week: 3

2013/09/09 - Professor, Computer Science and Mathematics, Nipissing University
2013/12/06 Course Title: Discrete Mathematics I
Course Code: MATH 1056
Course Level: Undergraduate
Academic Session: Fall
Number of Students: 35
Number of Credits: 3
Lecture Hours Per Week: 4

2013/01/07 - Professor, Computer Science and Mathematics, Nipissing University
2013/04/08 Course Title: Algebra I
Course Code: MATH 3156
Course Level: Undergraduate
Academic Session: Winter
Number of Students: 32
Number of Credits: 3
Lecture Hours Per Week: 3

2013/01/07 - 2013/04/08	Professor, Computer Science and Mathematics, Nipissing University Course Title: Introductory Linear Algebra Course Code: MATH 1046 Course Level: Undergraduate Academic Session: Winter Number of Students: 45 Number of Credits: 3 Lecture Hours Per Week: 4
2012/09/10 - 2012/12/07	Professor, Computer Science and Mathematics, Nipissing University Course Title: Discrete Mathematics I Course Code: MATH 1056 Course Level: Undergraduate Academic Session: Fall Number of Students: 37 Number of Credits: 3 Lecture Hours Per Week: 4
2012/09/10 - 2012/12/07	Professor, Computer Science and Mathematics, Nipissing University Course Title: Topology Course Code: MATH 3166 Course Level: Undergraduate Academic Session: Fall Number of Students: 3 Number of Credits: 3 Lecture Hours Per Week: 3

Program Development

Co-developer, Computer Science and Mathematics, Nipissing University
Program Title: Data Science
Course Level: Undergraduate
Unique / innovative characteristics: Will be the first undergraduate program in Data Science in Canada.

Student/Postdoctoral Supervision

Bachelor's Honours [n=13]

2018/1 - 2018/4 Principal Supervisor	Trevor Gansekoele (Completed) , Nipissing University Thesis/Project Title: Spectral graph theory, an introduction Present Position: Student (BEd), Nipissing University
2017/9 - 2017/12 Principal Supervisor	Marlayna Kolkman (Completed) , Nipissing University Thesis/Project Title: Braid groups, an introduction Present Position: Student (BEd), Nipissing University
2017/5 - 2017/8 Principal Supervisor	Kit Paulson (Completed) , Nipissing University Thesis/Project Title: NSERC USRA: Homogeneity degree of dendroids Present Position: unknown
2016/1 - 2016/4 Principal Supervisor	Paul Belanger (Completed) , Nipissing University Thesis/Project Title: Visualization and approximation of Riemann maps using circle packings Present Position: Software developer, HLS Hard-Line Solutions

2015/5 - 2015/8 Principal Supervisor	Jacob Baisley (Completed) , Nipissing University Thesis/Project Title: Inverse limits of continua, embeddings and mappings Present Position: Lecturer, Canadore College
2015/5 - 2015/8 Principal Supervisor	Paul Belanger (Completed) , Nipissing University Thesis/Project Title: NSERC USRA: Circle packings and geometric function theory Present Position: Software developer, HLS Hard-Line Solutions
2014/9 - 2015/4 Principal Supervisor	Heather-Lynn Topping (Completed) , Nipissing University Thesis/Project Title: The fundamental group, van Kampen's Theorem, and covering spaces Present Position: unknown
2014/9 - 2015/4 Principal Supervisor	Katie Chase (Completed) , Nipissing University Thesis/Project Title: Topics in music theory, and permutations and the Rubik's cube Present Position: unknown
2014/5 - 2014/8 Principal Supervisor	Paul Belanger (Completed) , Nipissing University Thesis/Project Title: NSERC USRA: Disjoint commuting maps of trees Present Position: Software developer, HLS Hard-Line Solutions
2013/9 - 2014/4 Principal Supervisor	Cassandra Schizkoske (Completed) , Nipissing University Thesis/Project Title: Introduction to continuum theory Present Position: Teacher
2013/9 - 2014/4 Principal Supervisor	Carmelina McParland (Completed) , Nipissing University Thesis/Project Title: The Fourier transform and function approximations Present Position: Teacher, St. Joseph-Scollard Hall Catholic Secondary School
2013/9 - 2014/4 Principal Supervisor	Rachel Stevenson (Completed) , Nipissing University Thesis/Project Title: Advanced topics in group theory Present Position: unknown
2012/9 - 2013/4 Principal Supervisor	Whitney Lewis (Completed) , Nipissing University Thesis/Project Title: Circle packing and spherical geometry Present Position: unknown

Post-doctorate [n=3]

2018/1 - 2018/6 Principal Supervisor	Jernej Cinc (Completed) , Nipissing University Thesis/Project Title: Weak chain patterns in hereditarily indecomposable continua Present Position: Post-doctoral fellow, University of Ostrava
2017/1 - 2017/7 Principal Supervisor	Yaziel Pacheco Juarez, Nipissing University Thesis/Project Title: Homogeneity degree of dendroids Present Position: Lecturer, Universidad Juarez del Estado de Durango, Mexico
2016/2 - 2016/5 Principal Supervisor	Rodrigo Hernandez Gutierrez, Nipissing University Thesis/Project Title: Fixed-point free mappings on tree-like continua Present Position: Assistant Professor, Metropolitan Autonomous University, Mexico

Research Associate [n=1]

2018/5 - 2018/8 Principal Supervisor	Edie Shillum (In Progress) , Nipissing University Thesis/Project Title: NSERC USRA: Dendroids with low homogeneity degree Present Position: Student, Nipissing University

Event Administration

2013/9 - 2018/7	Co-organizer, Math Circles, Club, 2013/9 - 2018/7
2017/10 - 2018/5	Co-organizer, 15th annual Nipissing University Workshop on Topology and Dynamical Systems, Workshop, 2018/5 - 2018/5
2012/9 - 2018/4	Organizer, Nipissing University Mathematics and Computer Science research seminar, Seminar, 2012/9 - 2018/4
2017/6 - 2018/3	Co-organizer, 53rd Spring Topology & Dynamics Conference, Continuum Theory session, Conference, 2018/3 - 2018/3
2016/10 - 2017/5	Co-organizer, 14th annual Nipissing University Workshop on Topology and Dynamical Systems, Workshop, 2017/5 - 2017/5
2016/6 - 2017/3	Co-organizer, 52nd Spring Topology & Dynamics Conference, Continuum Theory session, Conference, 2017/3 - 2017/3
2015/10 - 2016/5	Co-organizer, 13th annual Nipissing University Workshop on Topology and Dynamical Systems, Workshop, 2016/5 - 2016/5
2015/5 - 2016/3	Co-organizer, 51st Spring Topology & Dynamics Conference, Continuum Theory session, Conference, 2016/3 - 2016/3
2014/10 - 2015/5	Co-organizer, 12th annual Nipissing University Workshop on Topology and Dynamical Systems, Workshop, 2015/5 - 2015/5
2013/10 - 2014/5	Co-organizer, 11th annual Nipissing University Workshop on Topology and Dynamical Systems, Workshop, 2014/5 - 2014/5
2013/5 - 2014/3	Co-organizer, 49th Spring Topology & Dynamics Conference, Continuum Theory session, Conference, 2014/3 - 2014/3
2012/7 - 2013/8	Co-organizer, 28th Summer Conference on Topology and its Applications, Conference, 2013/7 - 2013/7

Journal Review Activities

2017/10	Referee, Advances in Mathematics Number of Works Reviewed / Refereed: 1
2014/10	Referee, Canadian Journal of Mathematics Number of Works Reviewed / Refereed: 1
2013/10	Referee, Bulletin des Sciences Mathématiques Number of Works Reviewed / Refereed: 1
2012/1	Referee, Memoirs of the American Mathematical Society Number of Works Reviewed / Refereed: 1
2012/1	Referee, Topology and its Applications Number of Works Reviewed / Refereed: 6
2012/1	Referee, Topology Proceedings Number of Works Reviewed / Refereed: 6
2011/10	Referee, Fundamenta Mathematicae Number of Works Reviewed / Refereed: 2

Graduate Examination Activities

2013/8 - 2014/1	Capping Project Evaluator, Emily Tian, Computer Science and Mathematics, Nipissing University
2012/7 - 2012/10	Capping Project Evaluator, Stephanie Hicks, Computer Science and Mathematics, Nipissing University

Research Funding Application Assessment Activities

2013/7 - 2013/9	External Reviewer, Funder, Academic Reviewer, Czech Science Foundation Number of Applications Assessed: 1

Community and Volunteer Activities

2013/9	Co-organizer, Nipissing University Math Circles

Committee Memberships

2013/4	Committee Member, Spring Topology and Dynamics Conference Steering Committee, Spring Topology and Dynamics Conference An international group of 35 researchers in a variety of research areas within topology. We solicit and approve proposals to host the annual conference, and each year support the local organizers with applications for funding and selection of session topics & session organizers.
2016/12 - 2018/7	Committee Member, Advisory committee for the 33rd Summer Conference on Topology and its Applications, Western Kentucky University An international group of 8 researchers in a variety of research areas within topology. We worked together to select invited speakers, decide on special session topics, and find special session organizers.
2016/7 - 2018/7	Committee Member, Undergraduate standings and petitions committee, Nipissing University A group of faculty and administration from various schools and departments within the university. We hear and decide on undergraduate student petitions concerning their academic standing, such as late withdrawal from courses and exceptions to program requirements.
2014/9 - 2018/1	Committee Member, Academic regulations and curriculum committee, Nipissing University A group of faculty from various departments within the Faculty of Arts and Science. We review proposals for changes and additions to academic programs.
2014/9 - 2016/8	Committee Member, Scientific committee for Topology Symposium 2016, Charles University An international group of 7 researchers in a variety of research areas within topology. We worked together to select invited speakers, decide on special session topics, and find special session organizers.

2014/9 - 2016/8 Committee Member, Research council, Nipissing University
 A group of representatives from colleges, research disciplines, and administration within the university. We discussed and made recommendations regarding the universities strategic goals pertaining to research, oversaw administration of university research awards and events, and reviewed applications for funding for research centers and activities.

Presentations

1. (2018). Hereditarily indecomposable weakly chainable continua. 33rd Summer Conference on Topology and its Applications, Bowling Green, KY,
2. (2017). Graphs in the study of 1-dimensional continua and span. Workshop on Graphs and Continua Theory, Pittsburgh, PA, United States
 Main Audience: Researcher
 Invited?: Yes, Keynote?: No
3. (2016). A complete classification of homogeneous plane continua. 50th Spring Topology and Dynamics Conference, Waco, TX, United States
 Main Audience: Researcher
 Invited?: Yes, Keynote?: Yes
4. (2016). Homogeneity and dendroids. University of Alabama at Birmingham Mathematics Colloquium, Birmingham, AL, United States
 Main Audience: Researcher
 Invited?: Yes, Keynote?: No
5. (2016). A new example of a tree-like continuum with a fixed-point-free self-map. 31st Summer Conference on Topology and its Applications, Leicester, United Kingdom
 Main Audience: Researcher
 Invited?: Yes, Keynote?: No
6. (2016). A complete classification of homogeneous plane continua. Chico Topology Conference, Chico, CA, United States
 Main Audience: Researcher
 Invited?: Yes, Keynote?: No
7. (2016). Workshop on homogeneous plane continua. 50th Spring Topology and Dynamics Conference, Waco, TX, United States
 Main Audience: Researcher
 Invited?: Yes, Keynote?: Yes
8. (2015). A complete classification of homogeneous plane continua. Wasatch Topology Conference, Park City, UT, United States
 Main Audience: Researcher
 Invited?: Yes, Keynote?: No
9. (2015). A complete classification of homogeneous plane continua. 30th Summer Conference on Topology and its Applications, Galway, Ireland
 Main Audience: Researcher
 Invited?: Yes, Keynote?: Yes
10. (2015). A complete classification of homogeneous plane continua. 49th Spring Topology and Dynamics Conference, Bowling Green, OH, United States
 Main Audience: Researcher
 Invited?: Yes, Keynote?: No

11. (2014). Isotopies of compact sets in the plane. Chico Topology Conference, Chico, CA, United States
Main Audience: Researcher
Invited?: Yes, Keynote?: No
12. (2014). Paths in Euclidean space. 29th Summer Conference on Topology and its Applications, New York, NY, United States
Main Audience: Researcher
Invited?: Yes, Keynote?: No
13. (2014). Paths in Euclidean space. Mexican International Conference on Topology and its Applications, Cocoyoc, Mexico
Main Audience: Researcher
Invited?: Yes, Keynote?: No
14. (2014). Isotopies of compact sets in the plane. 48th Spring Topology & Dynamics Conference, Richmond, VA, United States
Main Audience: Researcher
Invited?: Yes, Keynote?: Yes
15. (2013). A weakly mixing, but not mixing, map on a dendrite. 47th Spring Topology & Dynamics Conference, New Britain, CT, United States
Main Audience: Researcher
Invited?: Yes, Keynote?: No
16. (2012). Shortest paths in plane domains. Nipissing Topology Workshop, North Bay, ON, Canada
Main Audience: Researcher
Invited?: Yes, Keynote?: No
17. (2012). An alternative to the Euclidean path length in the plane. 46th Spring Topology & Dynamics Conference, Mexico City, Mexico
Main Audience: Researcher
Invited?: Yes, Keynote?: No
18. (2011). Homogeneous continua and uncountable collections of tree-like continua in the plane. Nipissing Topology Workshop, North Bay, ON, Canada
Main Audience: Researcher
Invited?: Yes, Keynote?: No
19. (2011). A non-chainable continuum with span zero. Topology Symposium, Prague, Czech Republic
Main Audience: Researcher
Invited?: Yes, Keynote?: Yes
20. (2011). Uncountable collections of pairwise disjoint non-chainable tree-like continua in the plane. 45th Spring Topology & Dynamics Conference, Tyler, TX, United States
Main Audience: Researcher
Invited?: Yes, Keynote?: No
21. (2010). A non-chainable continuum with span zero. Tulane Geometry and Topology Seminar, New Orleans, LA, United States
Main Audience: Researcher
Invited?: Yes, Keynote?: No
22. (2010). Course on non-chainable continua and Lelek's problem. V Taller Estudiantil de Teoría de Continuos y sus Hiperespacios (Workshop on Continuum Theory and Hyperspaces), Acapulco, Mexico
Main Audience: Researcher
Invited?: Yes, Keynote?: Yes

23. (2010). A non-chainable continuum with span zero. Auburn Mathematics Colloquium, Auburn, AL, United States
Main Audience: Researcher
Invited?: Yes, Keynote?: No
24. (2010). A non-chainable continuum with span zero. 44th Spring Topology & Dynamics Conference, Starkville, MS, United States
Main Audience: Researcher
Invited?: Yes, Keynote?: Yes
25. (2010). Chain covers of graphs. Nipissing Topology Workshop, North Bay, ON, Canada
Main Audience: Researcher
Invited?: Yes, Keynote?: No
26. (2010). A non-chainable continuum with span zero. Topology Planet Birmingham, Birmingham, AL, United States
Main Audience: Researcher
Invited?: Yes, Keynote?: No
27. (2009). A non-chainable continuum with span zero. Nipissing Topology Seminar, North Bay, ON, Canada
Main Audience: Researcher
Invited?: Yes, Keynote?: No
28. (2009). Span zero vs. surjective span zero. 43rd Spring Topology & Dynamics Conference, Gainesville, FL, United States
Main Audience: Researcher
Invited?: Yes, Keynote?: No
29. (2009). Chain covers of graphs. Lloyd Roeling Mathematics Conference, Lafayette, LA, United States
Main Audience: Researcher
Invited?: Yes, Keynote?: No
30. (2009). A construction of a compact metric space from a compact Hausdorff space. Nipissing Topology Workshop, North Bay, ON, Canada
Main Audience: Researcher
Invited?: Yes, Keynote?: No
31. (2009). A counterexample for Lelek's problem in continuum theory. Southern Wisconsin Logic Colloquium, Madison, WI, United States
Main Audience: Researcher
Invited?: Yes, Keynote?: No
32. (2007). A tool for constructing metrics on graphs, with applications to span. Nipissing Topology Workshop, North Bay, ON, Canada
Main Audience: Researcher
Invited?: Yes, Keynote?: No
33. (2006). Open problems in span theory. Nipissing Topology Workshop, North Bay, ON, Canada
Invited?: Yes, Keynote?: No

Publications

Journal Articles

1. Hernandez-Gutierrez R, Hoehn L. (2018). A fixed-point-free map of a tree-like continuum induced by bounded valence maps on trees. Colloquium Mathematicum. 151(2): 305-316.
Published,
Refereed?: Yes, Open Access?: Yes

2. Hoehn L, Oversteegen L, Tymchatyn E. (2018). Extension of isotopies in the plane. Transactions of the American Mathematical Society.
Submitted,
Refereed?: Yes
3. Hoehn L, Oversteegen L. (2018). Characterizations of the pseudo-arc; in Problems in Continuum Theory, in memory of Sam B. Nadler Jr. Topology Proceedings. 52
Published,
Refereed?: Yes, Open Access?: No
4. Acosta G, Hoehn L, Pacheco Y. (2017). Homogeneity degree of fans. Topology and its Applications. 231: 320-328.
Published,
Refereed?: Yes, Open Access?: Yes
5. Hoehn L, Oversteegen L. (2016). A complete classification of homogeneous plane continua. Acta Mathematica. 216(2): 177-216.
Published,
Refereed?: Yes, Open Access?: Yes
6. Hoehn L, Mouron C. (2014). Hierarchies of chaotic maps on continua. Ergodic Theory and Dynamical Systems. 34(6): 1897–1913.
Published,
Refereed?: Yes, Open Access?: Yes
7. Hoehn L. (2013). An uncountable family of copies of a non-chainable tree-like continuum in the plane. Proceedings of the American Mathematical Society. 141(7): 2543-2556.
Published,
Refereed?: Yes, Open Access?: No
8. Hoehn L. (2011). A non-chainable plane continuum with span zero. Fundamenta Mathematicae. 211(2): 149-174.
Published,
Refereed?: Yes, Open Access?: No
9. Bartosova D, Hart K, Hoehn L, van der Steeg B. (2011). Lelek's problem is not a metric problem. Topology and its Applications. 158(18): 2479-2484.
Published,
Refereed?: Yes, Open Access?: Yes
10. Hoehn L, Karassev A. (2009). Equivalent metrics and the spans of graphs. Colloquium Mathematicum. 114(1): 135-153.
Published,
Refereed?: Yes, Open Access?: Yes

Journal Issues

1. Anusic A, Bruin H, Cinc J, Bankston P, Bellamy D, Boronski J, Charatonik W, Insall M, Fernandez L, Puga I, Hoehn L, Oversteegen L, Illanes A, Lewis W, Minc P, Mouron C, Prajs J, Smith M. (2018). Problems in continuum theory, in memory of Sam B. Nadler Jr. Topology Proceedings. 52: 28.
Published,
Refereed?: Yes, Open Access?: No
Editors: Hoehn L, Minc P, Tuncali M

Book Chapters

1. Hoehn L, Oversteegen L, Tymchatyn E. (2014). Continuum Theory. Hart K, van Mill J, Simon P. Recent Progress in General Topology, III. : 581–600.
Published, Atlantis Press,
Refereed?: Yes

Dissertations

1. Non-chainable continua and Lelek's problem. (2011). University of Toronto. Doctorate.
Number of Pages: 57 Supervisor: William Weiss
Funding Sources: Natural Sciences and Engineering Research Council of Canada (NSERC) - CGS-D

Dr. Alexandre Karassev

Correspondence language: English

Date of Birth: 4/04

Contact Information

The primary information is denoted by (*)

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Primary Affiliation (*)

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This is a draft version only. Do not submit to any funding organization. Only the final version from the History page can be submitted.



Protected when completed

Dr. Alexandre Karassev

Language Skills

Language	Read	Write	Speak	Understand	Peer Review
English	Yes	Yes	Yes	Yes	Yes
Russian	Yes	Yes	Yes	Yes	Yes

Degrees

- 2002/3 Doctorate, Mathematics, University of Saskatchewan
Degree Status: Completed
Supervisors: Alex Chigogidze, 1999/9 - 2002/3
- 1996/6 Master's Thesis, Mathematics and Applied Mathematics, Lomonosov Moscow State University
Degree Status: Completed
Supervisors: Vitaly Fedorchuk, 1993/9 - 1996/5

User Profile

Fields of Application: Foundations and Knowledge Acquisition, Communication and Information Technologies

Areas of Research: Topology, Functional Analysis

Research Specialization Keywords: mathematics, topology, dimension theory

Research Disciplines: Pure Mathematics

Employment

- 2003/7 Professor
Computer Science and Mathematics, Nipissing University
Full-time, Professor
Tenure Status: Tenure
- 2002/1 - 2003/6 Lecturer
Mathematics and Statistics, University of Saskatchewan
Part-time, Sessional, Lecturer
Tenure Status: Non Tenure Track
- 2000/9 - 2002/12 Instructor - Mathematics and Statistics Help Centre
Mathematics and Statistics, University of Saskatchewan
Part-time
Tenure Status: Non Tenure Track

1999/9 - 2002/4	Teaching Assistant Mathematics and Statistics, University of Saskatchewan Part-time Tenure Status: Non Tenure Track
1997/6 - 1999/8	Instructor Educational Center "LANIT Networking Academy" Taught numerous courses for users of IT systems; authored and co-authored several textbooks
1997/1 - 1997/5	Instructor Economics, Lomonosov Moscow State University Part-time, Term, Lecturer Tenure Status: Non Tenure Track

Research Funding History

Awarded [n=4]

2015/4 - 2020/4 Principal Applicant	NSERC Discovery Grant, Grant Funding Sources: Natural Sciences and Engineering Research Council of Canada (NSERC) Total Funding - 55,000 Portion of Funding Received - 55,000 Funding Competitive?: Yes
2009/4 - 2015/4 Principal Investigator	NSERC Discovery Grant, Grant Funding Sources: 2009/4 - 2015/4 Natural Sciences and Engineering Research Council of Canada (NSERC) Discovery Grant - Individual Total Funding - 80,000 Portion of Funding Received - 80,000 Funding Competitive?: Yes 2009/4 - 2015/4 Total Funding - 80,000 Portion of Funding Received - 80,000 Funding Competitive?: Yes
2004/4 - 2009/4 Principal Investigator	NSERC Discovery Grant, Grant Funding Sources: 2004/4 - 2009/4 Natural Sciences and Engineering Research Council of Canada (NSERC) Discovery Grant - Individual Total Funding - 45,000 Portion of Funding Received - 45,000 Funding Competitive?: Yes
2008/5 - 2008/5 Principal Investigator	Nipissing University Research Achievement Award

Funding Sources:

2008/5 - 2008/5 Nipissing University
 Total Funding - 5,000
 Portion of Funding Received - 5,000
 Funding Competitive?: Yes

Courses Taught

2018/09/04 - Instructor, Computer Science and Mathematics, Nipissing University
 2018/12/04 Course Title: Selected Topics in Pure Mathematics
 Course Code: MATH 6101
 Course Topic: Tilings and patterns
 Course Level: Graduate
 Academic Session: Fall
 Number of Students: 2
 Number of Credits: 3
 Lecture Hours Per Week: 3
 Guest Lecture?: No

2018/09/04 - Instructor, Computer Science and Mathematics, Nipissing University
 2018/12/04 Course Title: Probability and Statistics II
 Course Code: MATH 3276
 Course Topic: Advanced probability and statistics
 Course Level: Undergraduate
 Academic Session: Fall
 Number of Students: 9
 Number of Credits: 3
 Lecture Hours Per Week: 3
 Guest Lecture?: No

2018/09/04 - Instructor, Computer Science and Mathematics, Nipissing University
 2018/12/04 Course Title: Complex Analysis
 Course Code: MATH 3146
 Course Topic: Introductory Complex analysis
 Course Level: Undergraduate
 Academic Session: Fall
 Number of Students: 13
 Number of Credits: 3
 Lecture Hours Per Week: 3
 Guest Lecture?: No

2018/01/09 - Instructor, Computer Science and Mathematics, Nipissing University
 2018/04/09 Course Title: History of Mathematics
 Course Code: MATH 2306
 Course Topic: History of Mathematis
 Course Level: Undergraduate
 Academic Session: Winter
 Number of Students: 9
 Number of Credits: 3
 Lecture Hours Per Week: 3
 Guest Lecture?: No

2018/01/06 - Instructor, Computer Science and Mathematics, Nipissing University
 2018/04/05 Course Title: Introductory Linear Algebra
 Course Code: MATH 1046
 Course Topic: Introduction to linear algebra
 Course Level: Undergraduate
 Academic Session: Winter
 Number of Students: 23
 Number of Credits: 3
 Lecture Hours Per Week: 3
 Tutorial Hours Per Week: 1
 Guest Lecture?: No

2018/01/06 - Instructor, Computer Science and Mathematics, Nipissing University
 2018/04/05 Course Title: Number Theory
 Course Code: MATH 3126
 Course Topic: Introduction to number theory
 Course Level: Undergraduate
 Academic Session: Winter
 Number of Students: 13
 Number of Credits: 3
 Lecture Hours Per Week: 3
 Guest Lecture?: No

2017/09/08 - Instructor, Computer Science and Mathematics, Nipissing University
 2017/12/05 Course Title: Mathematics of finance
 Course Code: MATH 3286
 Course Topic: Mathematic of finance
 Course Level: Undergraduate
 Academic Session: Fall
 Number of Students: 8
 Number of Credits: 3
 Lecture Hours Per Week: 3
 Guest Lecture?: No

2017/01/09 - Instructor, Computer Science and Mathematics, Nipissing University
 2017/04/10 Course Title: Selected Topics I
 Course Code: MATH 3396
 Course Topic: Cryptography
 Course Level: Undergraduate
 Academic Session: Winter
 Number of Students: 2
 Number of Credits: 3
 Lecture Hours Per Week: 3
 Guest Lecture?: No

2016/01/05 - Instructor, Computer Science and Mathematics, Nipissing University
 2016/04/05 Course Title: Calculus II
 Course Code: MATH 1037
 Course Topic: Integral Calculus
 Course Level: Undergraduate
 Academic Session: Winter
 Number of Students: 35
 Number of Credits: 3
 Lecture Hours Per Week: 3
 Tutorial Hours Per Week: 1
 Guest Lecture?: No

2015/09/05 - Instructor, Computer Science and Mathematics, Nipissing University
 2015/12/05 Course Title: Calculus I
 Course Code: MATH 1036
 Course Topic: Calculus
 Course Level: Undergraduate
 Number of Students: 60
 Number of Credits: 3
 Lecture Hours Per Week: 3
 Tutorial Hours Per Week: 1
 Guest Lecture?: No

2015/01/05 - Instructor, Computer Science and Mathematics, Nipissing University
 2015/04/05 Course Title: Probability and Statistics I
 Course Code: MATH 2076
 Course Topic: Introduction to probability
 Course Level: Undergraduate
 Academic Session: Winter
 Number of Students: 9
 Number of Credits: 3
 Lecture Hours Per Week: 3
 Tutorial Hours Per Week: 1
 Guest Lecture?: No

2013/05/01 - Instructor, Computer Science and Mathematics, Nipissing University
 2013/08/31 Course Title: Selected Topics in Computational Mathematics
 Course Code: MATH 6201
 Course Topic: Introduction to Expanders
 Course Level: Graduate
 Academic Session: Summer
 Number of Students: 1
 Number of Credits: 3
 Lecture Hours Per Week: 3
 Guest Lecture?: No

2013/01/07 - Instructor, Computer Science and Mathematics, Nipissing University
 2013/04/08 Course Title: Algebra
 Course Code: MATH 5056
 Course Topic: Advanced algebra
 Course Level: Graduate
 Academic Session: Winter
 Number of Students: 1
 Number of Credits: 3
 Lecture Hours Per Week: 3
 Guest Lecture?: No

2012/01/10 - Instructor, Computer Science and Mathematics, Nipissing University
 2012/04/10 Course Title: Algebraic Topology
 Course Code: MATH 5067
 Course Topic: Introduction to algebraic topology
 Course Level: Graduate
 Academic Session: Winter
 Number of Students: 4
 Number of Credits: 3
 Lecture Hours Per Week: 3
 Guest Lecture?: No

2011/09/13 - 2011/12/13	Instructor, Computer Science and Mathematics, Nipissing University Course Title: General Topology Course Code: MATH 5066 Course Topic: General topology Course Level: Graduate Academic Session: Fall Number of Students: 4 Number of Credits: 3 Lecture Hours Per Week: 3 Guest Lecture?: No
2009/09/10 - 2009/12/10	Instructor, Computer Science and Mathematics, Nipissing University Course Title: Introduction to computational geometry Course Code: MATH 2216 Course Topic: Introduction to computational geometry Course Level: Undergraduate Academic Session: Winter Number of Students: 20 Number of Credits: 3 Lecture Hours Per Week: 3 Guest Lecture?: No

Course Development

2019/1	Developer, Computer Science and Mathematics, Nipissing University Course Title: Introduction to Stochastic Processes Course Level: Undergraduate Introduction to Stochastic Processes
2009/5	Developer, Computer Science and Mathematics, Nipissing University Course Title: Calculus I (Online version) Course Level: Undergraduate Differential calculus
2009/1	Co-developer, Computer Science and Mathematics, Nipissing University Course Title: Computational geometry Course Level: Undergraduate Introduction to computational geometry Co-developers: Wachowiak, Mark
2006/9	Developer, Nipissing University Course Title: MATH 1036, MATH 1037 - Calculus I and II Course Level: Undergraduate Differential Calculus, Integral Calculus

Program Development

Co-developer, Computer Science and Mathematics, Nipissing University

Program Title: Data science

Course Level: Undergraduate

Program Description: Data science

Unique / innovative characteristics: This is a unique undergraduate program that prepares students to analyze Big data using tools of mathematics and computer science. The program is designed to give students strong foundations in both disciplines and develop problem-solving abilities.

Co-developer, Computer Science and Mathematics, Nipissing University

Program Title: Mathematical Economics

Course Level: Undergraduate

Program Description: Mathematical Economics

Unique / innovative characteristics: The goal of the program is to give the students necessary background in both mathematics and economics, as well as in computer science, to be able to successfully address the challenges of modern world. The graduates will possess strong analytic, computational, and problem-solving skills. The program is developed in partnership with the Department of Economics and School of Business.

2011/9

Co-developer, Computer Science and Mathematics, Nipissing University

Program Title: Science and Technology

Course Level: Undergraduate

Program Description: Science and Technology

Unique / innovative characteristics: This is a multidisciplinary program that utilizes strengths of the department in Mathematics and Computer Science and other science programs to prepare graduates with strong analytic, program solving, and computational skills, as well as familiar with applications. The graduate can find employment in finance and industry.

2008/9

Co-developer, Nipissing University

Program Title: Certificate in Game design and development

Co-developers: Wachowiak, Mark

Student/Postdoctoral Supervision

Bachelor's Honours [n=46]

2018/5 - 2018/8 Principal Supervisor	Luke Cooper (In Progress) , Nipissing University Degree Name: Bachelor of Science - Mathematics Student Degree Start Date: 2016/9 Student Degree Expected Date: 2020/5 Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Polyhedra with homogeneous-type properties Project Description: Being "building blocks" for more complicated topological spaces, polyhedra play important role in topology. However, "exotic" properties can be found among polyhedra themselves. Vertex-transitive polyhedra are interesting in connection with at least two unsolved questions, related to homogeneous compacta. One of them, due to Borsuk, asks whether there exists a non-trivial finite-dimensional metrizable homogeneous compactum, which is also an absolute retract. Another long-standing open question is of whether there exists an indecomposable homogeneous continuum of dimension greater than one. The standard procedure to obtain various (counter)examples in topology is to construct them as limits of inverse spectra, in which the approximating spaces are polyhedra with some desirable properties and with subsequently smaller triangulations. Unfortunately, the existing examples are not "scalable". A goal is to find analogous examples with smaller triangulations and controlled dimensions. Present Position: Student, Nipissing University Project Funding Sources: Nipissing University Amount - 4,500 (Canadian dollar) Amount - 3,763 (Canadian dollar) Areas of Research: Topology Research Disciplines: Pure Mathematics
2018/1 - 2018/4 Principal Supervisor	John Tsafations (Completed) , Nipissing University Degree Name: BSc Specialization: Education Student Degree Start Date: 2014/9 Student Degree Received Date: 2018/5 Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Banach-Tarski paradox and amenability of groups Present Position: BEd Candidate, Nipissing University
2017/9 - 2017/12 Principal Supervisor	Jessica Stephenson (Completed) , Nipissing University Degree Name: BSc Specialization: Education Student Degree Start Date: 2013/9 Student Degree Received Date: 2017/5 Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Quasicrystals and geometry Present Position: BEd Candidate, Nipissing University
2016/5 - 2016/8 Principal Supervisor	Braden Leonard (Completed) , Nipissing University Degree Name: BSc Specialization: Education Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Applications of probability theory in finance Present Position: BEd Candidate, Nipissing University

- 2015/5 - 2015/8
Principal Supervisor Mitchell Haslehurst (Completed) , Nipissing University
Degree Name: MSc
Specialization: Mathematics
Student Canadian Residency Status: Canadian Citizen
Thesis/Project Title: Vertex-transitive contractible polyhedra
Project Description: One of the hardest problems in geometric topology is the following question of Borsuk: does there exist a non-trivial finite-dimensional metrizable homogeneous AR-compactum? An interesting direction to search for a counterexample is suggested by the following question: does there exist a combinatorially homogeneous (i.e. vertex-transitive) contractible n -dimensional compact polyhedron, different from the n -simplex? We say here that a polyhedron is combinatorially homogeneous (vertex-transitive) with respect to a given triangulation if for every pair of its vertices there exists a combinatorial isomorphism taking one vertex to the other. A paper "One-point suspensions and wreath products of polytopes and spheres" by Michael Joswig and Frank H. Lutz outlines a method of constructing vertex-transitive simplicial complexes.
Present Position: Ph.D. Candidate, University of Victoria

Project Funding Sources: Natural Sciences and Engineering Research Council of Canada (NSERC)
Amount - 6,000 (Canadian dollar)

Areas of Research: Geometry
Research Disciplines: Pure Mathematics
- 2015/1 - 2015/4
Principal Supervisor Mitchell Haslehurst (Completed) , Nipissing University
Degree Name: MSc
Specialization: Mathematics
Student Canadian Residency Status: Canadian Citizen
Thesis/Project Title: Fourier Analysis
Present Position: Ph.D. Candidate, University of Victoria
- 2014/5 - 2014/8
Principal Supervisor Mitchell Haslehurst (Completed) , Nipissing University
Degree Name: MSc
Specialization: Mathematics
Thesis/Project Title: Are weakly infinite-dimensional spaces C-spaces?
Project Description: The classes of weakly infinite-dimension spaces and C-spaces can be viewed as occupying intermediate position between finite-dimensional spaces and "truly" infinite-dimensional spaces. Both classes are important in general and geometric topology. A number of results, in particular, selection and approximation theorems, have been obtained for C-spaces by various authors, in particular, by Ancel, Uspenskij, Gutev and Valov, Brodskiy and Chigogidze. I obtained a partial answer to verison of G-delta problem of Michael, formualated by Repovs and Semenov. One of the most intriguing questions about C-spaces is whether the class of C-spaces coincides with the class of infinite-dimensional spaces. A closely related problem is whether the product of two weakly infinite-dimensional spaces is weakly infinite-dimensional (the answer is "yes" in the case of C-spaces).
Present Position: Ph.D. Candidate, University of Victoria

Project Funding Sources: Natural Sciences and Engineering Research Council of Canada (NSERC)
Amount - 6,000 (Canadian dollar)

Areas of Research: Topology
Research Disciplines: Pure Mathematics

2013/12 - 2014/4 Principal Supervisor	Erika Crozier (Completed) , Nipissing University Thesis/Project Title: Advanced linear algebra and applications Present Position: BEd student, Nipissing University
2013/9 - 2014/4 Principal Supervisor	Daniel Blanchard (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: "Symmetry of Things" and "Mathematical Puzzles"
2013/9 - 2014/4 Principal Supervisor	Jordan Shoesmith (Completed) , Nipissing University Thesis/Project Title: Geometric group theory Present Position: BEd student, Nipissing University
2013/5 - 2013/8 Principal Supervisor	Mitchell Haslehurst (Completed) , Nipissing University Degree Name: MSc Specialization: Mathematics Thesis/Project Title: Reconstruction of Homogeneous Spaces From Automorphism Groups Project Description: Homogeneous spaces have been subject of close attention of topologists for decades. Recently, this area experienced active development, in particular in directions related to groups of homeomorphisms of given homogeneous space. One of interesting questions here is whether a group of homeomorphisms completely describes the underling (metrizable separable) space. More precisely, if automorphism groups of two homogeneous spaces are isomorphic, is it true that the spaces are homeomorphic? Recently, a positive answer was obtained by Ben-Ami for the case of strongly locally homogeneous spaces. His proof is based on Rubin's reconstruction theorem. General question, however, is still open, even for metric compacta. One may try to look for possible counterexamples in the realm of non-locally connected or even hereditarily indecomposable continua, such as solenoids or spaces construction of which rely on pseudo-arc. Present Position: Ph.D. Candidate, University of Victoria Project Funding Sources: Natural Sciences and Engineering Research Council of Canada (NSERC) Amount - 6,000 (Canadian dollar) Areas of Research: Topology Research Disciplines: Pure Mathematics
2012/9 - 2012/12 Principal Supervisor	Alyssa McIntee (Completed) , Nipissing University Thesis/Project Title: Quaternions and applications
2012/1 - 2012/4 Principal Supervisor	Stephanie Lamb (Completed) , Nipissing University Thesis/Project Title: Math modeling with Maple Present Position: Change Control Operator, Hydro One, Barrie, Ontario
2012/1 - 2012/4 Principal Supervisor	Alyssa McIntee (Completed) , Nipissing University Thesis/Project Title: Linear Algebra
2012/1 - 2012/4 Principal Supervisor	Donna Keranen (Completed) , Nipissing University Thesis/Project Title: Chemical Graph Theory Present Position: Director, Carlson & Keranen Inc., Sudbury, Ontario
2011/9 - 2011/12 Principal Supervisor	Donna Keranen (Completed) , Nipissing University Thesis/Project Title: Crystallography Present Position: Director, Carlson & Keranen Inc., Sudbury, Ontario
2011/5 - 2011/8 Principal Supervisor	Jon Heindl (Completed) , Nipissing University Thesis/Project Title: Aperiodic Tilings and Tiling Spaces

2011/1 - 2011/4 Principal Supervisor	Jessica Bushell (Completed) , Nipissing University Thesis/Project Title: Number Theory Present Position: Senior Math teacher, Town Centre Private High School, Markham, Ontario
2011/1 - 2011/4 Principal Supervisor	Steve Lauzon (Completed) , Nipissing University Thesis/Project Title: Game Theory Present Position: Graduate student, Brigham Young University, Provo, Utah, United States
2011/1 - 2011/4 Principal Supervisor	Jon Heindl (Completed) , Nipissing University Thesis/Project Title: Hilbert Cube Manifolds
2010/9 - 2010/12 Principal Supervisor	Jon Heindl (Completed) , Nipissing University Thesis/Project Title: Algebraic Topology
2010/9 - 2010/12 Principal Supervisor	Steve Lauzon (Completed) , Nipissing University Thesis/Project Title: Cryptography Present Position: Graduate student, Brigham Young University, Provo, Utah, United States
2010/9 - 2010/12 Principal Supervisor	Jessica Bushell (Completed) , Nipissing University Thesis/Project Title: Around Kuratowski's Theorem Present Position: Senior Math teacher, Town Centre Private High School, Markham, Ontario
2010/5 - 2010/8 Principal Supervisor	Jon Heindl (Completed) , Nipissing University Thesis/Project Title: Z-sets in the Hilbert Cube
2010/1 - 2010/4 Principal Supervisor	Stephanie Hicks (Completed) , Nipissing University Thesis/Project Title: When Astronomy and Math collide Present Position: Professor of Sciences and Mathematics, Sir Sandford Fleming College, Peterborough, Ontario
2010/1 - 2010/4 Principal Supervisor	Alain Baxter (Completed) , Nipissing University Thesis/Project Title: Hyperbolic geometry
2009/9 - 2009/12 Principal Supervisor	Alain Baxter (Completed) , Nipissing University Thesis/Project Title: Fary's Theorem and Kuratowski's Theorem
2009/5 - 2009/8 Principal Supervisor	Jon Heindl (Completed) , Nipissing University Thesis/Project Title: Algebraic methods for distinguishing extension types
2009/1 - 2009/4 Principal Supervisor	Rob Alkins (Completed) , Nipissing University Thesis/Project Title: Potentially visible set Present Position: Research Associate, Stroma Service Consulting, North Bay, Ontario, Canada
2009/1 - 2009/4 Principal Supervisor	Breanne King (Completed) , Nipissing University Thesis/Project Title: Hyperbolic geometry and M.C. Escher Present Position: Financial advisor, TD
2009/1 - 2009/4 Principal Supervisor	Krista Morrow (Completed) , Nipissing University Thesis/Project Title: Information retrieval Present Position: Technical Threat Analyst, Government of Canada, Ottawa
2009/1 - 2009/4 Principal Supervisor	Richard Smith (Completed) , Nipissing University Thesis/Project Title: The prime counting function Present Position: Mathematician, GTECH, Moncton, New Brunswick

2008/9 - 2008/12 Principal Supervisor	Krista Morrow (Completed) , Nipissing University Thesis/Project Title: Markov chains Present Position: Technical Threat Analyst, Government of Canada, Ottawa
2008/5 - 2008/8 Principal Supervisor	Jonathan Zimmerling (Completed) , Nipissing University Degree Name: MSc Specialization: Mathematics Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Homogeneous continua Present Position: Delivery Manager, Inforica, Arnprior, Ontario Project Funding Sources: Natural Sciences and Engineering Research Council of Canada (NSERC) Amount - 6,000 (Canadian dollar)
2008/5 - 2008/8 Principal Supervisor	Jonathan Zimmerling (Completed) , Nipissing University Degree Name: MSc Specialization: Software development Thesis/Project Title: Homogeneous continua Present Position: Senior Developer, Stroma Service Consulting, North Bay, Ontario, Canada
2008/1 - 2008/4 Principal Supervisor	Jason Grandy (Completed) , Nipissing University Thesis/Project Title: Knot Theory Present Position: Manager, Product Control at Scotiabank, Toronto, Ontario
2007/5 - 2007/8 Principal Supervisor	Jonathan Zimmerling (Completed) , Nipissing University Degree Name: MSc Specialization: Mathematics Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Spans of continua Present Position: Delivery Manager, Inforica, Arnprior, Ontario
2007/1 - 2007/4 Principal Supervisor	Cameron Hodgins (Completed) , Nipissing University Student Degree Start Date: 2003/9 Student Degree Received Date: 2007/5 Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Algebraic graph theory
2006/9 - 2007/4 Principal Supervisor	Christopher Phillips (Completed) , Nipissing University Degree Name: BEd Specialization: Education Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: "Cryptography" and "Coding theory" Present Position: Teacher, Near North District School Board
2006/9 - 2007/4 Principal Supervisor	Brandon Brown (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: "Applications of topology in chemistry" and "Non-standard analysis"
2006/9 - 2007/4 Principal Supervisor	Nick Mailloux (Completed) , Nipissing University Degree Name: MSc Specialization: Software development Student Degree Start Date: 2003/9 Student Degree Received Date: 2007/5 Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: "Cryptography" and "Rigorous probability theory and mathematics of finance" Present Position: Senior Software Engineer, Rockwell Collins, Kanata, Ontario

2006/5 - 2006/8 Principal Supervisor	Brandon Brown (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Lipschitz extensors Project Funding Sources: Natural Sciences and Engineering Research Council of Canada (NSERC) Amount - 6,000 (Canadian dollar)
2006/1 - 2006/4 Principal Supervisor	Kaitlyn Church (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Algebraic Topology
2005/9 - 2006/1 Principal Supervisor	Jill Lazarus (Completed) , Nipissing University Degree Name: MEd Specialization: Education Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: "Hyperbolic geometry" and "Computational geometry" Present Position: Teacher, Renfrew County District School Board
2005/5 - 2005/8 Principal Supervisor	Natasha May (Completed) , Nipissing University Degree Name: PhD Specialization: Mathematics Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Asymptotic Topology Present Position: Educational Developer, York University Project Funding Sources: Natural Sciences and Engineering Research Council of Canada (NSERC) Amount - 6,000 (Canadian dollar)
2004/9 - 2005/4 Principal Supervisor	Natasha May (Completed) , Nipissing University Degree Name: PhD Specialization: Mathematics Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: "Set theory" and "The history of non-Euclidean geometry" Present Position: Educational Developer, York University

Master's non-Thesis [n=3]

2013/1 - 2014/1 Principal Supervisor	Emily Tian (Completed) , Nipissing University Degree Name: MSc Specialization: Mathematics Thesis/Project Title: Expander Families and their Applications Present Position: Learning Skills Advisor, Durham College, Oshawa, Ontario Areas of Research: Algebra, Geometry, Topology Research Disciplines: Pure Mathematics Fields of Application: Communication and Information Technologies
2011/9 - 2012/10 Principal Supervisor	Jon Heindl (Completed) , Nipissing University Degree Name: MSc Specialization: Mathematics Thesis/Project Title: Around the Bing-Borsuk Conjecture Present Position: Instructor, Canadore College, North Bay, Ontario Areas of Research: Topology Research Disciplines: Pure Mathematics

2009/9 - 2010/8 Jason Grandy (Completed) , Nipissing University
Principal Supervisor Degree Name: MSc
Specialization: Mathematics
Thesis/Project Title: The Additivity of Crossing Number with Respect to the Composition of Knots
Present Position: Fixed income analyst, Scotiabank, Toronto, Ontario
Areas of Research: Topology
Research Disciplines: Pure Mathematics

Master's Thesis [n=1]

2018/10 Timothy Sibbald (In Progress) , Nipissing University
Principal Supervisor Student Degree Start Date: 2017/9
Student Degree Expected Date: 2020/5
Student Canadian Residency Status: Canadian Citizen
Thesis/Project Title: Tilings and Patterns
Areas of Research: Geometry
Research Disciplines: Pure Mathematics

Post-doctorate [n=1]

2010/9 - 2013/4 Ihor Stasyuk (Completed) , Nipissing University
Co-Supervisor Thesis/Project Title: Extensions and continuous selections
Present Position: Assistant Professor, Nipissing University

Staff Supervision

Event Administration

2017/9 - 2018/5 Co-organizer, 15th Annual Workshop on Topology and Dynamical Systems, Workshop, Department of Computer Science and Mathematics, 2018/5 - 2018/5
2016/9 - 2017/5 Co-organizer, 14th Annual Workshop on Topology and Dynamical Systems, Workshop, Department of Computer Science and Mathematics, 2017/5 - 2017/5
2015/9 - 2016/5 Co-organizer, 13th Annual Workshop on Topology and Dynamical Systems, Workshop, Department of Computer Science and Mathematics, 2016/5 - 2016/5
2015/1 - 2015/5 Co-organizer, 12th Annual Workshop on Topology and Dynamical Systems, Workshop, Department of Computer Science and Mathematics, 2015/5 - 2015/5
2008/9 - 2014/6 Co-organizer, Mathematical Circles, Nipissing University, North Bay, Ontario, Club, 2008/9 - 2014/6
2014/1 - 2014/5 Co-organizer, 11th Annual Workshop on Topology and Applications, Nipissing University, North Bay, Canada, Workshop, 2014/5 - 2014/5
2012/9 - 2014/5 Coordinator, Nipissing University Undergraduate research seminar, Seminar, 2012/9 - 2014/5
2012/9 - 2013/7 Co-organizer, 28th Summer Conference on Topology and its Applications, Nipissing University, North Bay, Canada, Conference, 2013/7 - 2013/7
2008/9 - 2012/9 Coordinator, Topology Seminar, Nipissing University, North Bay, Canada, Seminar, 2008/9 - 2012/9

2011/9 - 2012/5	Co-organizer, Workshop on Recent Advances in General Topology, Dimension Theory, Continuum Theory and Dynamical Systems, Nipissing University, North Bay, Canada, Workshop, 2012/5 - 2012/5
2012/3 - 2012/3	Panel chair, Nipissing University Undergraduate Research Conference, Conference, 2012/3 - 2012/3
2011/1 - 2011/5	Co-organizer, 9th Annual Workshop, Nipissing University, North Bay, Canada, Workshop, 2011/5 - 2011/5
2009/9 - 2010/5	Co-organizer, Workshops on Recent Advances in Topological and Measure-Theoretic Methods in Dynamical Systems, Nipissing University, North Bay, Canada, Workshop, 2010/5 - 2010/5
2009/1 - 2009/6	Co-organizer, Canadian Mathematical Society Summer 2009 meeting, Special session on Topological Algebra, Topology, and Functional Analysis, Memorial University of Newfoundland, St. John's, Canada, Conference, 2009/6 - 2009/6
2009/1 - 2009/5	Co-organizer, 7th Annual Workshop, Nipissing University, North Bay, Canada, Workshop, 2009/5 - 2009/5
2006/8 - 2008/8	Coordinator, Pre-Calculus Camp, Course, Alexandre Karassev Coordinated the annual Pre-calculus camp in the month of August, 2006-2008
2007/9 - 2008/5	Co-organizer, Fields Institute Workshop on Topological Methods in Algebra, Analysis and Dynamical Systems, Nipissing University, North Bay, Canada, Workshop, 2008/5 - 2008/5

Journal Review Activities

2017/12 - 2018/6	Referee, Fundamenta Mathematicae, Polish Academy of Science Number of Works Reviewed / Refereed: 1
2006/1 - 2018/6	Referee, Topology Proceedings Number of Works Reviewed / Refereed: 7
2004/1 - 2017/12	Referee, Topology and Its Applications, Elsevier Number of Works Reviewed / Refereed: 14
2017/1 - 2017/4	Referee, Houston Journal of Mathematics, University of Houston Number of Works Reviewed / Refereed: 1
2007/1 - 2010/4	Referee, Colloquium Mathematicum, Polish Academy of Science Number of Works Reviewed / Refereed: 3
2008/1 - 2008/12	Referee, JP Journal of Geometry and Topology, Pushpa Publishing House Number of Works Reviewed / Refereed: 1
2006/1 - 2006/12	Referee, Proceedings of the American Mathematical Society, American Mathematical Society Number of Works Reviewed / Refereed: 1
2004/9 - 2004/12	Referee, Rocky Mountain Journal of Mathematics, Rocky Mountain Mathematics Consortium Number of Works Reviewed / Refereed: 1

Promotion Tenure Assessment Activities

2010/9 - 2011/4 Committee member, Faculty of Arts and Science, Nipissing University
 Number of Assessments: 10
 Review of applications for tenure and promotion and recommendations on these applications on the level of the Faculty of Arts and Science

Organizational Review Activities

2013/9 - 2013/9 Reviewer, Algoma University
 Served as an external IQAP reviewer for the undergraduate program in Mathematics at Algoma University; participated in preparation of final report

Event Participation

2015/5 - 2018/5 Presenter, 45th OAME Conference, Conference
 Represented the Department of Computer Science and Mathematics at the annual conferences of Ontario Association of Mathematics Educators (organized in May of each year). Prepared numerous posters, handouts, and other materials.

International Collaboration Activities

2018/10 Co-investigator, Sweden
 We studied g-reversible topological groups. Two major questions under considerations were as follows. Is a product of two connected g-reversible groups g-reversible? Is the Euclidean n-dimensional space, considered as additive group, hereditarily g-reversible? The investigation is ongoing.

2017/12 - 2018/12 Co-author, United States
 We studied dimension-like properties in large-scale geometry and asymptotic topology, such as asymptotic dimension, C-property, and finite decomposition complexity. We proved that in the case of tree-graded spaces behaviour of these properties for the whole space can be determined by the analysis of its pieces. The paper is in preparation.

2014/6 - 2014/7 Co-author, Russian Federation
 We studied the properties of a dimension-like invariant - large inductive dimension with respect to normal base, and applied it to compute large inductive dimension of some products. The results have been published. Further, we investigated the properties of this invariant in the case of cubes. The paper is published

2014/4 - 2014/4 Co-author, Sweden
 We studied bijectively related and reversible spaces. In particular, we are interested in behaviour of this properties in products with the focus on manifolds. The paper containing the results of the investigations was published in 2017.

2012/10 - 2012/10 Co-author, Sweden
 We investigated the properties of metrizable reminders of locally compact spaces. The papers that resulted from this collaboration have been published in 2013.

2011/3 - 2011/3 Co-investigator, United States
 We studied the properties of aperiodic tilings and tiling spaces.

2009/7 - 2009/8	Co-investigator, Russian Federation We investigated the properties of infinite-dimensional spaces. In particular, we looked at classification of C-spaces and at the problem of whether classes of C-spaces and weakly infinite-dimensional spaces coincide. New dimension-like invariants based on extension theory have also been studied.

Committee Memberships

2018/9 - 2019/5	Committee Member, Tenure and Promotion University Committee, Nipissing University
2018/5 - 2018/8	Committee Member, IQAP Protocol review committee, Nipissing University
2016/9 - 2018/5	Committee Member, Planning and priorities committee, Nipissing University
2015/9 - 2018/5	Committee Member, Academic Senate, Nipissing University
2011/9 - 2015/4	Committee Member, Arts and Science Executive, Nipissing University Being the Chair of the department, I participate in this committee. Arts & Science Chairs meet regularly with the Dean and Associate Dean. At these meetings, each chair represents the interests of the department members, and can bring concerns or proposals on their behalf. Similarly, Chairs are responsible for conveying relevant information from these meetings
2009/9 - 2015/4	Committee Member, Graduate Studies Council, Nipissing University
2011/9 - 2014/6	Committee Member, Nipissing University Academic Senate, Nipissing University
2014/1 - 2014/4	Committee Member, Limited-term appointment search committee, Physics, Nipissing University
2012/9 - 2013/5	Committee Member, Undergraduate Studies Committee, Nipissing University Participated in discussion and implementation of substantial changes to the undergraduate curriculum
2012/1 - 2012/4	Committee Member, Tenure-track search committee, Faculty of Education, Nipissing University
2012/1 - 2012/4	Committee Member, Tenure-track search committee, Mathematics, Nipissing University
2009/9 - 2011/4	Committee Member, Research Achievement Award Selection Committee, Nipissing University
2009/9 - 2010/4	Committee Member, Faculty Review Committee, Nipissing University Participated in discussion of applications for tenure and promotion, and in decision-making process regarding tenure and promotion in the Faculty of Arts & Science

Presentations

- (2018). Decomposition complexity and Tree-graded spaces. The Mathematical Colloquium, Linköping University, Linköping, Sweden
Main Audience: Researcher
Invited?: Yes, Keynote?: No
- (2017). The Bing-Borsuk conjecture: search for a counterexample. Topology/Geometry Seminar, Department of Mathematics, University of Tennessee, Knoxville, United States
Main Audience: Researcher
Invited?: Yes, Keynote?: No

3. (2016). Inductive dimension with respect to normal base. 31st Summer Conference on Topology and its Applications, Leicesterr, United Kingdom
Main Audience: Researcher
Invited?: Yes, Keynote?: No
4. (2016). Aperiodic tilings. Department of Mathematics and Computer Science public lecture series (Nipissing University), North Bay, Canada
Main Audience: General Public
5. (2016). Inductive dimension with respect to normal base. The Mathematical Colloquium, Linkoping University, Linkoping, Sweden
Main Audience: Researcher
Invited?: Yes, Keynote?: No
6. (2014). (Non)connectedness and (non)homogeneity. 48th Spring Topology and Dynamics Conference, Richmond, United States
Main Audience: Researcher
Invited?: No, Keynote?: No
7. (2014). Homogeneous compacta and the Bing-Borsuk conjecture. 2014 International Conference on Topology and its Applications, Nafpaktos, Greece
Main Audience: Researcher
Invited?: Yes, Keynote?: No
8. (2014). Homogeneous compacta and the Bing-Borsuk conjecture. Mathematical Colloquium, Likoping University, Linkoping, Sweden
Main Audience: Researcher
Invited?: Yes, Keynote?: No
9. (2013). Metrizable remainders of locally compact spaces. International Conference dedicated to P.S. Aleksandroff ("Alexandroff Readings"), Moscow State Univeristy, Moscow, Russian Federation
Main Audience: Researcher
Invited?: Yes, Keynote?: No
10. (2013). Graphs and surfaces. Computer Science and Mathematics Lecture Series, Nipissing University, North Bay, Canada
Main Audience: General Public
Invited?: No, Keynote?: No
11. (2013). Metrizable remainders of locally compact spaces. International Conference on Topology and Geometry, Shimane University, Matsue, Japan
Main Audience: Researcher
Invited?: No, Keynote?: No
12. (2012). Metrizable remainders of locally compact spaces. Geometric Topology conference in honor of Evgeny Shchepin, UNAM, Oaxaca, Mexico
Main Audience: Researcher
Invited?: Yes, Keynote?: No
13. (2012). Spans of continua. Mathematical Colloquium, Likoping University, Linkoping, Sweden
Main Audience: Researcher
Invited?: Yes, Keynote?: No
14. (2011). Spans of continua. Topology Seminar at the University of Tennessee, Knoxville, United States
Main Audience: Researcher
Invited?: Yes, Keynote?: No

15. (2010). Equivalent metrics and the spans of graphs. International Conference "Analysis, Topology and Applications", Vrnjačka Banja, Serbia
Main Audience: Researcher
Invited?: Yes, Keynote?: No
16. (2010). Finite-to-one maps into Euclidean manifolds and spaces with disjoint disks properties. International Conference on Topology and its Applications, Nafpaktos, Greece
Main Audience: Researcher
Invited?: Yes, Keynote?: No
17. (2009). Finite-to-one maps into Euclidean manifolds and spaces with disjoint disks properties. 7th Annual Workshop on Topology, Analysis, and Math Education, Nipissing University, North Bay, Canada
Main Audience: Researcher
Invited?: No, Keynote?: No
18. (2008). Quantum computing. Mathematics Lecture Series (NUMERIC), North Bay, Canada
Main Audience: General Public
Invited?: Yes, Keynote?: Yes
19. (2008). Michael's problem and weakly infinite-dimensional spaces. Spring Topology and Dynamics Conference, Milwaukee, United States
Main Audience: Researcher
Invited?: No, Keynote?: No
20. (2008). Michael's problem and weakly infinite-dimensional spaces. International Conference "Analysis and Topology", Ivan Franko National University of Lviv, Lviv, Ukraine
Main Audience: Researcher
Invited?: Yes, Keynote?: Yes
21. (2006). Root closed function algebras on compacta of large dimension. Spring topology and dynamics conference, Greensboro, United States
Main Audience: Researcher
Invited?: Yes, Keynote?: Yes
22. (2004). On two problems in extension theory. Topology Seminar, University of Tennessee, Knoxville, United States
Main Audience: Researcher
Invited?: Yes, Keynote?: No
23. (2004). Quasi-finite complexes and universal absolute extensors. International conference dedicated to P.S. Aleksandrov, Moscow, Russian Federation
Main Audience: Researcher
Invited?: Yes, Keynote?: No
24. (2001). Approximations and selections of multivalued mappings. Summer meeting of the Canadian Mathematical Society, Saskatoon, Canada
Main Audience: Researcher
Invited?: No, Keynote?: No
25. (2000). On L-homotopy groups. International conference dedicated to P.S. Aleksandrov, Moscow, Russian Federation
Main Audience: Researcher
Invited?: No, Keynote?: No

Publications

Journal Articles

1. Brodskiy N, Krashev A. Dimension and decomposition complexity properties of tree-graded spaces. preprint.
Co-Author,
Number of Contributors: 2
2. Krashev K, Kozlov K. Topological groups that realize homogeneity of topological spaces. preprint.
Co-Author,
Number of Contributors: 2
3. Chatyrko V, Krashev A. (2017). Reversible spaces and products. Topology Proceedings. 49: 317-320.
Co-Author
Published,
Refereed?: Yes, Open Access?: No
Number of Contributors: 2
4. Krashev A, Kozlov K. (2015). Computation of inductive dimensions of product of compacta. Topology and Its Applications. 179: 131-147.
Published,
Refereed?: Yes, Open Access?: No
5. Krashev A, Kozlov K. (2015). Base normal inductive dimension of cubes. Fundamental and Applied Mathematics. 20(2): 113-124.
Co-Author
Published, Center of New Information Technologies, Russian Federation
Refereed?: Yes, Open Access?: No
Number of Contributors: 2
6. Chatyrko V, Krashev A. (2014). (Non)connectedness and (non)homogeneity. Topology and Its Applications.
In Press,
Refereed?: Yes, Open Access?: No
7. Krashev A, Todorov V, Valov V. (2014). Alexandroff manifolds and homogeneous continua. Canadian Mathematical Bulletin. 57(2): 335–343.
Published,
Refereed?: Yes, Open Access?: No
8. Chatyrko V, Krashev A. (2013). On metrizable remainders of locally compact separable metrizable spaces. Houston Journal of Mathematics. 39(3): 1067–1081.
Published,
Refereed?: Yes, Open Access?: No
9. Chatyrko V, Krashev A. (2013). Maximal metrizable remainders of locally compact spaces. Topology and Its Applications. 160(11): 1292–1297.
Published,
Refereed?: Yes, Open Access?: No
10. Chatyrko V, Krashev A. (2013). The (dis)connectedness of products in the box topology. Questions and Answers in General Topology. 31(1): 11–21.
Published,
Refereed?: Yes, Open Access?: No

11. Karashev A, Krupski P, Todorov V, Valov V. (2012). Generalized Cantor manifolds and homogeneity. Houston Journal of Mathematics. 38(2): 583–609.
Published,
Refereed?: Yes, Open Access?: No
12. Banakh T, Cauty R, Karashev A. (2011). On homotopical and homological Zn-sets. Topology Proceedings. 38: 29-82.
Published,
Refereed?: Yes, Open Access?: No
13. Karashev A, Tuncali M, Valov V. (2010). Finite-to-one maps into Euclidean manifolds and spaces with disjoint disks properties. Topology and Its Applications. 157(4): 779–788.
Published,
Refereed?: Yes, Open Access?: No
14. Hoehn L, Karashev A. (2009). Equivalent metrics and the spans of graphs. Colloquium Mathematicum. 114(1): 135-153.
Published,
Refereed?: Yes, Open Access?: No
15. Karashev A, Valov V. (2008). Dimension of maps, universal spaces, and homotopy. Journal of Mathematical Sciences. 155(4): 571–623.
Published,
Refereed?: Yes, Open Access?: No
16. Karashev A. (2008). Michael's problem and weakly infinite-dimensional spaces. Topology and Its Applications. 155(15): 1694–1698.
Published,
Refereed?: Yes, Open Access?: No
17. Brodskiy N, Dydak J, Karashev A, Kawamura K. (2007). Root closed functions on compacta of large dimension. Proceedings of the American Mathematical Society. (135): 587-596.
Co-Author
Published, American Mathematical Society, United States
Refereed?: Yes, Open Access?: No
Number of Contributors: 4
18. Karashev A, Valov V. (2006). Universal absolute extensors in extension theory. Proceeding of American Mathematical Society. 134(8): 2473-2478.
Co-Author
Published, American Mathematical Society, United States
Refereed?: Yes, Open Access?: No
Number of Contributors: 2
19. Karashev A. (2006). On two problems in extension theory. Topology and its Applications. 153(10): 1609-1613.
First Listed Author
Published, Elsevier, Netherlands
Refereed?: Yes, Open Access?: No
Number of Contributors: 1
20. Karashev A, Valov V. (2006). Extension dimension and quasi-finite CW complexes. Topology and its Applications. 153(17): 3241-3254.
Co-Author
Published, Elsevier, Netherlands
Refereed?: Yes, Open Access?: No
Number of Contributors: 2

21. Chigogidze A, Karashev A, Kawamura K, Valov V. (2005). On commutative and non-commutative C^* -algebras with the approximate n -th root property. Bulletin of Australian Mathematical Society. 72: 197-212.
Co-Author
Published, Australian Mathematical Society, Australia
Refereed?: Yes, Open Access?: No
Number of Contributors: 4
22. Karashev A. (2004). The Urysohn identity for closed subsets of some nonmetrizable manifolds. Topology Proceedings. 28(2): 579-585.
First Listed Author
Published,
Refereed?: Yes, Open Access?: No
Number of Contributors: 1
23. Chigogidze A, Karashev A, Rordam M. (2004). Real rank and squaring mapping for unital C^* -algebras. Proceedings of American Mathematical Society. 132: 783-788.
Co-Author
Published, American Mathematical Society, United States
Refereed?: Yes, Open Access?: No
Number of Contributors: 3
24. Chigogidze A, Karashev A. (2003). Topological model categories generated by finite complexes. Monatshefte für Mathematik. 139(2): 129-150.
Co-Author
Published, Springer, Germany
Refereed?: Yes, Open Access?: No
Number of Contributors: 2
25. Brodskiy N, Chigogidze A, Karashev A. (2002). Approximations and selections of multivalued mappings of finite-dimensional spaces. JP Journal of Geometry and Topology. 2(1): 29-73.
Co-Author
Published, Pushpa Publishing House, India
Refereed?: Yes, Open Access?: No
Number of Contributors: 3
26. Chigogidze A, Karashev A, Zarichnyi M. (2001). Topological semigroups and universal spaces related to extension dimension. Matematychni Studii. 16(2): 195-198.
Co-Author
Published, Lviv Mathematical Society, Ukraine
Refereed?: Yes, Open Access?: No
Number of Contributors: 3
27. Karashev A. (2001). On L -homotopy groups. JP Journal of Geometry and Topology. (3): 301-310.
First Listed Author
Published, Pushpa Publishing House, India
Refereed?: Yes, Open Access?: No
Number of Contributors: 1
28. Karashev A. (1999). An infinite-dimensional 4-manifold of finite cohomological dimension with continuum hypothesis. Mathematical Notes. 66(5): 664-670.
First Listed Author
Published, Russian Academy of Science, Russian Federation
Refereed?: Yes, Open Access?: No
Number of Contributors: 1

29. Karassev A. (1996). On the inductive dimension of subsets of some nonmetrizable manifolds. Moscow University Mathematics Bulletin. (5): 11-14.
First Listed Author
Published, Moscow State University, Russian Federation
Refereed?: Yes, Open Access?: No
Number of Contributors: 1

Journal Issues

1. (2017). Special issue in memory of Alex Chigogidze. Topology and its Applications. 227(1-2)
Co-Editor
Published, Elsevier, Netherlands
Refereed?: Yes, Open Access?: No
Number of Contributors: 4
Editors: Antonyan S, Dranishnikov A, Karassev A, Valov V

Book Chapters

1. Karassev A, Tuncali M, Valov V. (2007). Topology in North Bay: some problems in continuum theory, dimension theory, and selections. Elliott Pearl. Open Problems in Topology II. : 697-710.
Co-Author
Published, Elsevier, Amsterdam, Netherlands
Refereed?: No
Number of Contributors: 3

Online Resources

- [1.](#) Nipissing Topology Research Group website. (2008).
[2.](#) Nipissing University Calculus help site. (2008).

Dr. Boguslaw J. Schreyer, Ph.D.
Associate Professor, Computer Science/Math.
Nipissing University, North Bay, Ontario, Canada

Academic Qualifications:

1977	Ph.D. (With honorable mention)	Warsaw University of Technology Poland, Electrical Engineering Department
1969-1974	M.Sc. Absolutorium	Warsaw University, Faculty of Mathematics, Informatics and Mechanics Option: Informatics
1964-1967	M.Sc. in Electrical Eng.	Warsaw University of Technology
1961-64	B.Sc. in Electrical Eng.	Warsaw University of Technology

Academic Appointments:

1998	Associate Professor	Nipissing University, Mathematics and Computer Science
1987-1988	Assistant Professor	PEI University, Charlottetown, PEI, Department of Computer Science and Mathematics
1987	Research Associate	Waterloo University (with Prof.K.Piekarski)
1981-1986	Visiting Professor	Université Houari Boumediene and École Nationale Polytechnique d'Alger. Teaching several courses at a master of Science level.
1967-1981	Asst. Prof., Adiunkt	Warsaw University of Technology Teaching several courses at the Master of Science level.

**Academic, University and
Professional Awards:**

2008	Congratulation Letter for “.. the work done with students, conference presentation in Italy...”	Dean of Arts and Science, Nipissing University
1977-1979	For outstanding achievements in research and teaching.	From President of the Warsaw University of Science and Technology

Other Awards

2018	Best presentation Award, ICERME 2018. International Conference on Electronics, Robotics and [Mechatronics Engineering, July 12-134, 2018, Stockholm, Sweden	

Courses Prepared and Taught
at Nipissing University:

4th year courses

Topics in Computing Science	COSC 4206
Seminars in Computer Science	COSC 4207
Honors Research	COSC 4896
Honors Practicum	COSC 4997

3rd year courses

Introduction to Robotics	COSC 3017 (in 2011)
Senior Practicum	COSC 3997
Numerical Methods	COSC 3006
Artificial Intelligence and Robotics	COSC 3007
Ordinary Differential Equations	MATH 3066

2nd year courses

Data Structures I	COSC 2006
Machine Structures I	COSC 2106
Machine Structures II	COSC 2107
Artificial Neural Networks	COSC 2116
Digital Systems	COSC 2307
C++ Programming	COSC 2557
Discrete Mathematics II	MATH 2056

1st year courses

Computer Science Practicum	COSC 0997
Introduction to Computer Science	COSC 1557
Programming in C++	COSC 1567
Introductory Computing for Business	COSC 1605
Data Base Applications	COSC 1606
Spreadsheet Applications	COSC 1607
Operating Systems I	COSC 1657
Introductory Computing for Arts	COSC 1900
Introduction to Computer Applications	COSC 1901
Introduction to Computer Applications	COSC 1902
Discrete Mathematics I (1979+)	MATH 1056
Introduction to Linear Algebra	MATH 1057
Algebraic Foundations (1991+)	MATH 1056

Scholarly activities:

1. Scholarly and/or Professional Works:

(a)Published or in press

- 2018 “Enquiry into Torque Slope and Delay in Wheeled Robot Braking Process”, ICERME 2018 Stockholm, Sweden, 12-13 July 2018
- 2017 “Efficient Control of Some Dynamic States of Wheeled Robot”, MMAR Conference, Poland, Miedzyzdroje, August 28-31, 2017.
- 2016 “2-Wheel, mobile robot dynamics”, ICMARE Conference, Barcelona, Spain, August 11-12, 2016.
- 2015 “MCDA- inspired object recognition”, CAINE 2015 Conference, San Diego CAL, Oct12-14, 2015
- 2014 “Finite automata for software modelling with deadlock potential. *Generalization*”, Research Bulletin of Warsaw School of Information Technology, Polish Academy of Science, Nr 1/2014, pp. 45-55
- 2014, May “Finite automata for software modelling with deadlock potential. *An introduction*”, WCCCE 2014 Conference, May 02-May 03, Kwantlen Polytechnic University, Vancouver BC
- 2014, July Workshop on a “MCDA method for image recognition” Summer 2014 Warsaw School of Information Technology, Polish Academy of Science, Warsaw, Poland,
- 2012, July, MCDA methods for image recognition, Presentation on International Workshops on 3-D Imaging and Image Recognition, School (University) of Informatics and Management (under auspices of Polish Academy of Science), Warsaw, Poland.
- 2011, July MCDA methods for image recognition, Presentation on International Workshops on 3-D Imaging and Image Recognition, School (University) of Informatics and Management (under auspices of Polish Academy of Science), Warsaw, Poland.
- 2010, Nov. *Critical resources software and control modeling with finite automata*. Theoretical and applied Informatics, K. Kosinski, vol. 22-No.3/2010, 155-163, PL ISSN 1896-5334
- 2008 *Finite automata for traffic control in transportation systems with critical resources*. Polish Academy of Science. The Archives of Transport.
- 2007, June *Deterministic and non-deterministic automata in T.S. modelling*. Transportation Institute Seminar, Warsaw, Poland
- 2006, June *Finite Automata Models for CS problem with Binary Semaphores*. Dr. W. Wawrzynski (co-author). ITiCSE06, 11-th Annual SIGCSE Conference, Bologna, Italy
- 2005, Dec. *Deterministic finite automata for Critical Section modelling in OS*. Vladan Bozic (student) co-author. KBN (Ministry of Scientific Research and Information Technology). Grant Reports. Grant # T12C 06625.
- 2005, Nov. *Non-deterministic finite automata for Binary Semaphores modelling in OS*. KBN (Ministry of Scientific Research and Information Technology). Grant Reports. Grant # T12C 06625.
- 2005, January *Adaptation of critical section algorithms to traffic control modelling in T.S*. Polish Academy of Science. The archives of Transport. January 2005, volume 17, issue 1, pp.53-63.

- 1996-2003 Presentations on the International Summer Workshops on AI Technology in Automotive Industry, Warsaw Technological University, Faculty of Electrical Eng. /Faculty of Transport
- 1996 *Formulations for the computer modeling of an AGV robot*
(Invited paper). Journal of American Society of Applied Mechanics and Robotics. March 1996, vol.2.
- 1994 *Trainable Artificial Neural Network for adaptive control.*(Presentation on a International seminar on Neural networks)
International Seminar on Neural Networks. University of Puebla. January '94. Mexico
- 1993 *Formulations for the computer modeling of an AGV Robot.*
Proceedings, National Conference on Applied Mechanics and Robotics, Nov. 1993, University of Kentucky, Cincinnati.
- 1991 *Neuromorphic adaptive controller for nonlinear [robotics]systems (co-author)*
International Conference on Neural Networks in systems, control and vision. San Diego
- 1989 *The microcomputer [robotic] control system with non negligible computation time.*
International Conference on Computing and Information. Toronto, May 1989
- 1988 *The optimization of a vehicle braking process.*
Proceedings, 9th Symposium. on Engineering Applications of Mechanics, University of Western Ontario
- 1986 *Analyse de la qualité du réglage numérique.*
Electrical Engineering Department. ENP, Algiers. Refereed.
- 1986 *Logiciel pour la commande numérique [d'un robot] par calculateur (co-author).*
Electrical Engineering Department ENP, Algiers. Refereed.
- 1986 *Command d'un chargeur automatique par microordinateur.*
(co-author). Electrical Engineering Department. ENP, Algies. Refereed.
- 1985 *Command numérique d'un moteur a courant continu par microordinateur. (co-author).*
Electrical Engineering Department. ENP, Algiers. Non-refereed.
- 1975 *3-mass model of a dynamics of a construction crane* (co-author).
(In Polish). Pomiar, Automatyka, Kontrola, p. 45-47
- 1973 *Analysis of the overshoots in a 4th-degree system.*
Zeszyty Naukowe Politechniki Kieleckiej (in Polish) p. 78-80
- 1967-1981 Several applied research team projects for a variety of important industrial and research institutions. Area of my research: automatic control systems, digital/computer control, computer models for dynamic systems, computer software.

All those research and prototypes have been applied to the production:

A short list of some of them follows:

1967-1968	A computer controlled drive system for sky-scraper elevators. Applied research for ZUD, The biggest producer of elevators in Poland.
1968-1970	A water conditioning system for town Jaslo (10000 hab).
1970-1972	A computer controlled drive system for construction cranes. Applied research for concern BUMAR , the biggest producer of construction cranes in Poland.
1972-1974	A computer controlled system for agricultural tractors. Applied research for concern URSUS, the biggest producer of tractors in Poland.
1976-1979	Design and implementation supervision of a Automatic Control Laboratory for Electrical Eng. Dept. Project manager.
1979-1980	A computer-controlled simulator of a locomotive cabin. A project for a Research Institute of Transport.
1980- 1982	Design and implementation of a computer controlled fast charger for accumulators. A project for a biggest producer of electrical automotive equipment in Poland: WSK in Swidnik

Some Robotics Research with graduating students :

Optical flow for Robotics,
Feature tracking in Robotics,
Object tracking using a mobile robot HeROBOT,
Introducing a new technology based on cRIO controllers.
Creative Artificial Neural Networks, song creation software..
A novel method of an MCDA application to image recognition (2010/2011, resulted with a working software),
Strategies for the Robot Soccer Team (2010/2011, resulted with practical applications to the lab),
SLAM algorithms analysis:
Pmap, Vasco, GridSLAM, FastSLAM, GMapping (using Rao-Blackwellized particle Filter.
The Open CV applications to research:
Optical flow problems.
Feature tracking.
Edge Detection
Face Tracking

2005	Vlad Bozic, my graduate student has obtained a First Price for a Best Student Poster on an ITiCSE06, 11-th Annual SIGCSE (ACM') Conference, Bologna, Italy

Scholarly Research in Progress:

Computer Asisted Creativity
-Creative Artificial Neural Networks. Music and poetry generation using Kohonen's SOM.
-Using the MCDA methods for image recognition.

Recent Research Grants

2004/2006	State Committee of Scientific Research, Poland AI in Intelligent Highways.
1998	Nipissing University Artificial Neural Networks applications to the image recognition
1996	Nipissing University Artificial Neural Networks applications to the image recognition
1994	Nipissing University. Artificial Neural Networks applications to the image recognition
1988-1990	Nipissing University Research Institute grant,: Computer software and hardware for systems control.
1987	University of Prince Edward Island Senate Grant: Computer control for multidimensional, nonlinear systems.
1977-1979	2 year, full time professor salary grant from Institute of Automatic Measurement Systems, Warsaw Technical Military Academy:

Some Conferences and Workshops

2017, August	MMAR Conference , West Pomeranian University, Szczecin, Poland An Inquiry on 2-Mass and Wheeled Mobile Robot Dynamics”, ICMARE-2016, Barcelona, August 11-12, 2016
2016, August ”,	ICMARE-2016, Barcelona, Spain
2014, May	WCCCE 2014 Conference, Kwantlen Polytechnic University, Vancouver BC
2014, July	Workshop on “MCDA application to image recognition”, Warsaw School of Information Technology, Polish Academy of Science, Summer 2014
2009-2010	International Workshops on 3-D Imaging and Image Recognition, School (University) of Informatics and Management (under auspices of Polish Academy of Science), Warsaw, Poland.
1998-2003	International Summer Workshops on ANN technology in Automotive Industry, Warsaw Technological University, Faculty of Electrical Eng./Faculty of Transport
1998	International Topology Conference Member of the Organizing Committee
1994	International Conference on Motion Control. Member of the Organizing Committee Electrical Engineering Department, Warsaw University of Science and Technology
1991	International Conference on Electric Drive, Member of the Organizing Committee Electrical Engineering Department, Warsaw University of Science and Technology.
1989	International Conference on Computing and Information Toronto.

Chairman of the Session: Applications,

1980 International Conference on Transportation Chairman of the Session: Computer Control
Warsaw University of Science. and Technology

1979 International Conference on Transportation Co-organizer
Warsaw University of Science and Technology

Other Relevant Scholarly Activities:

Significant amount of time spent on robots repairs. The repair problem are difficult,
As the three robot producer companies ceased to exist: HEATHKIT, Merlin Systems Corp.
and iROBOT) :

-HeROBOT hardware problems (solved),

- Mini-ATRV controllers repair/replacement and software update (partially solved, still
working on it),

-Miabot Seccer Robots- software update after several attempts - not solved.

In a Robotics Lab a new technology has been introduced, based on National Instrument
cRIO controllers

ii) Workshops, Special Training

Training the graduate students on robot hardware and software repairs and introducing
students to the AI in robot control.

2011 Organizing a new Robotics Lab, design of the new labs, including iRobot, Interfacing Robot
Hardware, Robot Soccer Team, ATRV Mini,

2010-2011 Design and implementation of a Manual on Linux OS (monitoring a student' project)

2010-2011 Design of the two CSc streams: Robotics and Artificial Intelligence. Design of the three new
COSC courses: Introduction to Robotics, Artificial Intelligence, Systems Control,
Proposal and scheduling for a COOP program.

2010 Participation in design of a new Mathematics stream: Industrial Mathematics and a new pre
-engineering CSc stream

2005- 2010 Design of a Robotics Lab and student manuals (monitoring students), including:
ATRV Robot Networking, Pmap, Vasco ,CARMEN (Carnegie Mellon Robot Navigation
Toolkit), GridSLAM, FastSLAM, GMapping, The Open CV applications: Optical flow
Problems, Feature tracking, Edge Detection, Face Tracking

1996 Design and implementation of an Application Lab for MATH for COSC1056 students.

1993-1996 Nipissing University. Computer Workshop for the beginners.
The Workshop starts at the beginning of academic year and has been
extended to the whole year for all students.

1993-1996 Nipissing University. Co-instructor in Math Drop-In Center.

1992 dBASE programs for "Poverty in Canada "by Christopher Sarlo

- 1992 Pattern recognition based controllers.
Presentation on International Neural Network Seminar,
Warsaw University of Science and Technology
- 1988-1996 Student handouts for Computer Science Courses:
MSDOS, BASIC, SPSSPC, MSWORD, LOTUS 123, dBASE III
dBASE IV, Using Batch files, Customizing a (DOS) system, Configuring a (DOS)
system, Managing memory, Using File Manager, Using Program Manager and
many other handouts
- 1987 Presentation at Prof. Andrew's seminar for graduate students,
Waterloo University
- 1981-1986 Member of the inter-departmental Flexible Manufacturing Research Group.
l'Ecole Nationale Polytechnique d'Alger.
Area of activity: seminars and research projects on computer control.
Supervising several graduate thesis/research
Service on graduate examination committees:
Université Houari Boumediene (@ Ecole Nationale Polytechnique
- 1970-1978 Seminars at a Department of Mathematics at Warsaw University and
at the Electrical Engineering Department at Warsaw University of Technology (WUT)
-Numerical, self-tuning regulators.
-Parallel programming, Petri's concept.
-Program Monitor using Algol.
- 1967-1981 Supervising several M.Sc. thesis and Ph.D. thesis
Service on graduate examination committees: WUT, ENP
- 1977 Co-author of an academic textbook on automatic control. WUT
- 1976-1981 A director of an Automatic Control Laboratory.
WUT, Electrical Engineering Department.

Service to the University other than Teaching

- 2014 Lecture and student project presentations on a FIRST Robotics competition
- 2013-2014 Volunteering in teaching COSC courses
- 2014 3-day participation in the NSO events
- 2013-2014 In charge of Robotics Lab
- 2011-2012 Member of the Arts and Science' Faculty Review Committee
- 1999 Master of Education Degree Committee/Computer Science, Member
- 1996/1999 Design and implementation of a new Computer Science Program at Nipissing University

1998-2001	Academic Computing Committee Founder and a Member
1996-1997	Presidential Task Force on Technology Member
1987-1995	Several Search Committees for Math/Comp Science position for Arts and Education
1989	President's Computer Advisory Committee Member
1989-1995	Nipissing University, Cultural Committee Member
1994	Research Ethics Senate Committee Member
1993	Alumni Association Senate Representative

Service to the Community at large

2014	FIRST Robotics Competition, VIP and a Judge
2013-2014	FIRST team 1035 Mentor
2012-2013,	FIRST Robotics Competition. A NNDSB team Mentor.
2011	Canada Wide Science Fair Judge
2010	Junior Congregated Gifted Program. Nipissing Public School Board Tech. Advisor
2003	First Meeting with Business Community of North Bay Arts and Science Rep.

Institute of Electrical and Electronic Engineers (IEEE) Member

Association for Computing Machinery (ACM) Member

International Society for Mini and Microcomputers Member

Dr. Ihor Stasyuk

Correspondence language: English

Sex: Male

Date of Birth: 10/20

Canadian Residency Status: Canadian Citizen

Contact Information

The primary information is denoted by (*)

Address

Primary Affiliation (*)

100 College Drive

PO Box 5002

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Nipissing University

North Bay Ontario P1B8L7

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Telephone

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Email

Work (*) ihors@nipissingu.ca

Website

Corporate <https://www.nipissingu.ca/about-us/people/Pages/Ihor-Stasyuk.aspx>

Corporate <http://faculty.nipissingu.ca/ihors/>

Social Media https://www.researchgate.net/profile/Ihor_Stasyuk

This is a draft version only. Do not submit to any funding organization. Only the final version from the History page can be submitted.



Protected when completed

Dr. Ihor Stasyuk

Language Skills

Language	Read	Write	Speak	Understand	Peer Review
English	Yes	Yes	Yes	Yes	Yes
Russian	Yes	Yes	Yes	Yes	Yes
Ukrainian	Yes	Yes	Yes	Yes	Yes

Degrees

2002/11 - 2007/6	Doctorate, Ph.D., Mathematics, Lviv State Ivan Franko University Degree Status: Completed Thesis Title: Extension of metric structures Supervisors: Mykhailo Zarichnyi
1997/9 - 2002/6	Master's Equivalent, M.Sc., Mathematics and Statistics, Lviv State Ivan Franko University Degree Status: Completed

Recognitions

2010/4 - 2012/4	Ontario MRI Postdoctoral fellowship at Nipissing University for advanced study and research in Mathematics Distinction
2007/9 - 2008/8	Postdoctoral fellowship with the Department of Mathematics and Statistics at the University of Saskatchewan Distinction

User Profile

Researcher Status: Researcher

Research Interests: General topology, functional analysis, extension of maps, continuum theory, special metrics, continuous selections, hyperspace theory, Hausdorff measures.

Employment

2013/7	Assistant professor Nipissing University Full-time, Assistant Professor
2010/4 - 2013/6	Postdoctoral fellow Nipissing University Full-time

2008/9 - 2010/4	Research Assistant and Sessional Lecturer University of Saskatchewan Full-time
2007/9 - 2008/8	Postdoctoral fellow Full-time
2005/9 - 2007/8	Assistant professor Full-time

Affiliations

The primary affiliation is denoted by (*)

(*) Assistant professor, Nipissing University

Courses Taught

Teaching assistant, Lviv State Ivan Franko University

Course Title: Topology

Course Level: Undergraduate

Instructor, Nipissing University

Course Title: History of Mathematics

Course Code: MATH 2306

Course Level: Undergraduate

Number of Credits: 3

Instructor, Nipissing University

Course Title: Complex Analysis I

Course Code: MATH 3146

Course Level: Undergraduate

Number of Credits: 3

Teaching assistant, Lviv State Ivan Franko University

Course Title: Algebra and Geometry

Course Level: Undergraduate

Instructor, Nipissing University

Course Title: Technical Statistics

Course Code: MATH 1257

Course Level: Undergraduate

Number of Credits: 3

Instructor, Nipissing University

Course Title: Measure Theory

Course Code: MATH 4036

Course Level: Undergraduate

Number of Credits: 3

Instructor, Nipissing University

Course Title: Graph Theory and Combinatorics

Course Code: MATH 3127

Course Level: Undergraduate

Number of Credits: 3

Teaching assistant, Lviv State Ivan Franko University
Course Title: Analytic Geometry
Course Level: Undergraduate

Instructor, Nipissing University
Course Title: Selected Topics I
Course Code: MATH 3396
Course Level: Undergraduate
Number of Credits: 3

Instructor, Nipissing University
Course Title: Probability and Statistics I
Course Code: MATH 2076
Course Level: Undergraduate
Number of Credits: 3

Teaching assistant, Lviv State Ivan Franko University
Course Title: Mathematics for Economists
Number of Credits: 3

Instructor, Nipissing University
Course Title: Calculus I
Course Code: MATH 1036
Course Level: Undergraduate
Number of Credits: 3

Instructor, Nipissing University
Course Title: Number Theory
Course Code: MATH 3126
Course Level: Undergraduate
Number of Credits: 3

Instructor, Nipissing University
Course Title: Advanced Linear Algebra
Course Code: MATH 2046
Course Level: Undergraduate
Number of Credits: 3

Instructor, University of Saskatchewan
Course Title: Calculus I
Course Code: MATH 110
Course Level: Undergraduate
Number of Credits: 3

Instructor, University of Saskatchewan
Course Title: Euclidean Geometry
Course Code: MATH 258
Course Level: Undergraduate
Number of Credits: 3

Instructor, Nipissing University
Course Title: Problem Solving
Course Code: MATH 2386
Course Level: Undergraduate
Number of Credits: 3

Instructor, Nipissing University
Course Title: Selected Topics II
Course Code: MATH 3397
Course Level: Undergraduate
Number of Credits: 3

Instructor, Nipissing University
Course Title: Real Analysis I
Course Code: MATH 3136
Course Level: Undergraduate
Number of Credits: 3

Instructor, Nipissing University
Course Title: Functional Analysis
Course Code: MATH 4086
Course Level: Undergraduate
Number of Credits: 3

Instructor, Nipissing University
Course Title: Functional Analysis
Course Code: MATH 5086
Course Level: Graduate
Number of Credits: 3

Instructor, Nipissing University
Course Title: Real Analysis II
Course Code: MATH 3137
Course Level: Undergraduate
Number of Credits: 3

Instructor, Nipissing University
Course Title: Discrete Mathematics II
Course Code: MATH 2056
Course Level: Undergraduate
Number of Credits: 3

Instructor, Nipissing University
Course Title: Geometry
Course Code: MATH 2116
Course Level: Undergraduate
Number of Credits: 3

Instructor, Nipissing University
Course Title: Differential Equations I
Course Code: MATH 3266
Course Level: Undergraduate
Number of Credits: 3

Instructor, Nipissing University
Course Title: Topology
Course Code: MATH 3166
Course Level: Undergraduate
Number of Credits: 3

Instructor, Lviv State Ivan Franko University
Course Title: Metric Spaces
Course Level: Undergraduate

Teaching assistant, Lviv State Ivan Franko University

Course Title: Differential geometry

Course Level: Undergraduate

Lab assistant, University of Saskatchewan

Course Title: Calculus II

Course Code: MATH 116

Course Level: Undergraduate

Number of Credits: 3

Instructor, Nipissing University

Course Title: Advanced Calculus I

Course Code: MATH 2036

Course Level: Undergraduate

Number of Credits: 3

Course Development

Developer, Nipissing University

Course Title: Technical Statistics

Course Level: Undergraduate

Student/Postdoctoral Supervision

Bachelor's [n=13]

2014/1 - 2014/4 Principal Supervisor	Christopher Simmonds (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Spherical Geometry
2014/1 - 2014/4 Principal Supervisor	Meghan Best (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Exploring the Theory of Special Relativity
2014/1 - 2014/4 Principal Supervisor	Connor Mulvale (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Metric Spaces
2013/9 - 2013/12 Principal Supervisor	Meghan Best (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: An Introduction to Topology
2013/9 - 2013/12 Principal Supervisor	Christopher Simmonds (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Projective Geometry
2013/9 - 2013/12 Principal Supervisor	Connor Mulvale (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Curves
2013/1 - 2013/4 Principal Supervisor	Michelle Navgiri (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Properties of Metric Spaces
2012/9 - 2012/12 Principal Supervisor	Michelle Navgiri (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Uniform Convergence Topology

2012/1 - 2012/4 Principal Supervisor	Shawna Kunkel (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Project Description: Projective Geometry
2011/9 - 2011/12 Principal Supervisor	Jennifer Black (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Differential Equations : Models and Applications
2011/9 - 2011/12 Principal Supervisor	Shawna Kunkel (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Spherical Geometry
2011/1 - 2011/4 Principal Supervisor	Shawn Pedersen (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: A Generalization of the Banach Contraction Mapping Principle
2010/9 - 2010/12 Principal Supervisor	Shawn Pedersen (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Two-Person Zero-Sum Games

Journal Review Activities

Referee, Topology and its Applications
 Referee, Missouri Journal of Mathematical Sciences
 Referee, Mathematika
 Referee, Proceedings of the American Mathematical Society
 Referee, Topology Proceedings
 Referee, Tsukuba Journal of Mathematics
 Reviewer, Mathematical Reviews
 Referee, Applicable Analysis

Community and Volunteer Activities

2015/9 - 2018/7	Speaker, Nipissing University Presentations for high school students
2013/9 - 2017/4	Co-organizer, Nipissing University Math Circles

International Collaboration Activities

2018/5 - 2018/5	Co-organizer, Canada The 15th Annual Workshop "Topology and Dynamical Systems", May 21-25, 2018, Nipissing University
2017/5 - 2017/5	Co-organizer, Canada The 14th Annual Workshop "Topology and Dynamical Systems", May 15-19, 2017, Nipissing University
2016/5 - 2016/5	Co-organizer, Canada The 13th Annual Workshop "Topology and Dynamical Systems", May 16-20, 2016, Nipissing University

2015/5 - 2015/5	Co-organizer, Canada The 12th Annual Workshop "Topology and Dynamical Systems", May 25-29, 2015, Nipissing University
2014/5 - 2014/5	Co-organizer, Canada The 11th Annual Workshop "Continuum Theory, Dynamical Systems, Large Scale and Geometric Topology", May 26-30, 2014, Nipissing University
2013/7 - 2013/7	Co-organizer, Canada The 28th Summer Conference on Topology and Its Applications, July 23-26, 2013, Nipissing University
2012/5 - 2012/5	Co-organizer, Canada The 10th Annual Workshop "Recent Advances in General Topology, Dimension Theory, Continuum Theory and Dynamical Systems", May 14-18, 2012, Nipissing University
2011/5 - 2011/5	Co-organizer, Canada The 9th Annual Workshop "Topology, Analysis and Math Education", May 16-20, 2011, Nipissing University
2004/5 - 2004/5	Co-organizer, Ukraine Conference "Geometric Topology, Infinite-Dimensional Topology, Absolute Extensors, Applications", May 26-29, 2004, Ivan Franko National University of Lviv

Presentations

1. I. Stasyuk (with T. Banakh, E.D. Tymchatyn and M. Zarichnyi). (2018). Simultaneous extension of functions and metrics. Spring Topology and Dynamical Systems, Auburn, United States
Main Audience: Researcher
Invited?: Yes
2. I. Stasyuk (with E.D. Tymchatyn). (2017). Convex metrics on non-compact spaces. Spring Topology and Dynamical Systems Conference, Jersey City, United States
Main Audience: Researcher
Invited?: Yes
3. I. Stasyuk (with E.D. Tymchatyn). (2016). Simultaneous brick partitionings of Peano continua. Spring Topology and Dynamical Systems, Waco, United States
Main Audience: Researcher
Invited?: Yes
4. I. Stasyuk (with E.D. Tymchatyn). (2015). Extensions of convex metrics. Spring Topology and Dynamical Systems, Bowling Green, United States
Main Audience: Researcher
Invited?: Yes
5. I. Stasyuk (with E.D. Tymchatyn). (2014). Uniformly continuous selections for multi-valued maps. Spring Topology and Dynamical Systems Conference, Richmond, United States
Main Audience: Researcher
Invited?: Yes
6. I. Stasyuk (with J. Nikiel, M. Tuncali and E.D. Tymchatyn). (2013). Convex metrics on non-compact spaces. Spring Topology and Dynamical Systems, New Britain, United States
Main Audience: Researcher
Invited?: Yes

7. I. Stasyuk (with T. Banach N. Brodskiy and E.D. Tymchatyn). (2012). Extensions of uniformly continuous and Lipschitz functions and metrics. Spring Topology and Dynamical Systems, Mexico City, Mexico
Main Audience: Researcher
Invited?: Yes
8. I. Stasyuk (with M. Tuncali and E.D. Tymchatyn). (2011). Spaces of finite Hausdorff measure. Dubrovnik VII, Geometric Topology, Dubrovnik, Croatia
Main Audience: Researcher
Invited?: Yes
9. I. Stasyuk (with E.D. Tymchatyn). (2011). A continuous operator extending fuzzy ultrametrics. Spring Topology and Dynamical Systems, Tyler, United States
Main Audience: Researcher
Invited?: Yes
10. I. Stasyuk (with E.D. Tymchatyn). (2010). On continuous linear operators extending metrics. Spring Topology and Dynamical Systems, Starkville, United States
Main Audience: Researcher
Invited?: Yes
11. I. Stasyuk (with E.D. Tymchatyn). (2009). Uniformly continuous selections for multi-valued maps. Spring Topology and Dynamical Systems, Gainesville, United States
Invited?: Yes
12. I. Stasyuk. (2008). Extension of uniformly disconnected metrics and ultrametrics. Spring Topology and Dynamical Systems, Milwaukee, United States
Main Audience: Researcher
13. I. Stasyuk. (2005). Simultaneous extension of partial ultrametrics. Analysis and Related Topics, Ukraine
Main Audience: Researcher
14. I. Stasyuk. (2005). Extending partial pseudometrics in the Euclidean space. Conference devoted to modern problems of Mathematics and Mechanics, Lviv, Ukraine
Main Audience: Researcher
15. I. Stasyuk. (2004). Extending pseudometrics defined on closed convex subsets of R^n . Geometric Topology, Infinite-Dimensional Topology, Absolute Extensors, Applications, Lviv, Ukraine
Main Audience: Researcher
16. I. Stasyuk. (2004). Extending partial ultrametrics. Conference devoted to modern problems of Mathematics and Mechanics, Lviv, Ukraine
Main Audience: Researcher

Publications

Journal Articles

1. J. Nikiel, I. Stasyuk, M. Tuncali, E.D. Tymchatyn. (2018). Convex metrics on non-compact spaces. Fund. Math.
Revision Requested, Poland
Refereed?: Yes
Number of Contributors: 4
2. T. Banach, I. Stasyuk, E.D. Tymchatyn, M. Zarichnyi. (2017). Extension of functions and metrics with variable domains. Topology Appl. 231: 353-372.
Published, Netherlands
Refereed?: Yes
Number of Contributors: 4

3. I. Stasyuk, E.D. Tymchatyn. (2013). On continuous linear operators extending metrics. Proc. Amer. Math. Soc.141: 2913-2921.
Published, United States
Refereed?: Yes
Number of Contributors: 2
4. I. Stasyuk, E.D. Tymchatyn. (2013). Spaces of sigma-finite linear measure. Colloq. Math.133: 245-252.
Published, Poland
Refereed?: Yes
Number of Contributors: 2
5. I. Stasyuk, E.D. Tymchatyn. (2012). A note on uniformly continuous selections for multi-valued maps. Topology Proc.39: 41-44.
Published, Canada
Refereed?: Yes
Number of Contributors: 2
6. I. Stasyuk, E.D. Tymchatyn. (2011). A continuous operator extending fuzzy ultrametrics. Comment. Math. Univ. Carolin.52(4): 611-622.
Published, Czech Republic
Refereed?: Yes
Number of Contributors: 2
7. I. Stasyuk, E.D. Tymchatyn. (2011). Extending pairs of metrics. Mat. Stud.35(2): 215-224.
Published, Ukraine
Refereed?: Yes
Number of Contributors: 2
8. I. Stasyuk, E.D. Tymchatyn. (2010). A continuous extension operator for convex metrics. Canad. Math. Bull.53: 719-729.
Published, Canada
Refereed?: Yes
Number of Contributors: 2
9. A. Koyama, I. Stasyuk, E.D. Tymchatyn, A. Zagorodnyuk. (2010). Continuous linear extension of functions. Proc. Amer. Math. Soc.38: 4149-4155.
Published, United States
Refereed?: Yes
Number of Contributors: 4
10. T. Banakh, N. Brodskiy, I. Stasyuk, E.D. Tymchatyn. (2009). On continuous extension of uniformly continuous functions and metrics. Colloq. Math.116: 191-202.
Published, Poland
Refereed?: Yes
Number of Contributors: 4
11. I. Stasyuk, E.D. Tymchatyn. (2009). A continuous operator extending ultrametrics. Comment. Math. Univ. Carolin.50(1): 141-151.
Published, Czech Republic
Refereed?: Yes
Number of Contributors: 2
12. I. Stasyuk. (2006). On operators simultaneously extending partial ultrametrics. Math. Methods and Phys.-Mech. Fields. 49(2): 27-32.
Published, Ukraine
Refereed?: Yes
Number of Contributors: 1

13. I. Stasyuk. (2006). On operators extending uniformly disconnected metrics. Mat. Stud.26(1): 101-104.
Published, Ukraine
Refereed?: Yes
Number of Contributors: 1
14. I. Stasyuk. (2006). Operators extending pseudometrics defined on convex bodies in Euclidean space. Visnyk of Chernivtsi University, Math.314-315: 173-180.
Published, Ukraine
Refereed?: Yes
Number of Contributors: 1
15. I. Stasyuk. (2005). Operators extending partial ultrametrics continuous in the topology of pointwise convergence. Visnyk of Lviv University, Series Mech. and Math.64: 273-279.
Published, Ukraine
Refereed?: Yes
Number of Contributors: 1
16. I. Stasyuk. (2004). On a homogeneous operator extending partial ultrametrics. Mat. Stud.22(1): 73-78.
Published, Ukraine
Refereed?: Yes
Number of Contributors: 1
17. I. Stasyuk. (2004). Extension of semicontinuous pseudometrics. App. Problems of Mech. and Math.2: 88-95.
Published, Ukraine
Refereed?: Yes
Number of Contributors: 1

Dissertations

1. Extension of Metric Structures. (2007). Lviv State Ivan Franko University. Doctorate.
Number of Pages: 137 Supervisor: Mykhailo Zarichnyi

Working Papers

1. (I. Stasyuk, M. Tuncali, E.D. Tymchatyn). Convex metrics on partitionable spaces.
Number of Contributors: 3
2. (I. Stasyuk, M. Tuncali, E.D. Tymchatyn). Spaces of finite Hausdorff measure.
Number of Contributors: 3
3. (T. Banach, I. Stasyuk, M. Zarichnyi, E.D. Tymchatyn). Extension of Metrics: A Survey of Results.
Number of Contributors: 4
Description / Contribution Value: Intended book: in preparation
4. (I. Stasyuk, E.D. Tymchatyn). (2016). Simultaneous brick partitionings of Peano continua.
Number of Contributors: 2

A CURRICULUM VITAE
for
H. MURAT TUNCALI

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Home Address: 630 Bell St.
North Bay, Ontario
CANADA, P1B4J6

e-mail: muratt@nipissingu.ca or gould-tuncali@fibreop.ca

Current Position: Professor of Mathematics

Research Area: Topology-Continuum Theory and Dynamical Systems

EDUCATION

- 1989 Ph.D. Department of Mathematics, University of Saskatchewan, Saskatoon
- 1986 M.Sc. Department of Mathematics, University of Saskatchewan, Saskatoon
- 1983 Graduate Work Department of Mathematics, Bogazici University Istanbul, Turkey
- 1982 B.Sc. Department of Mathematics, Bogazici University, Istanbul, Turkey

Other Training

- 2016 Senior University Administrators Course, U. of Manitoba

EMPLOYMENT HISTORY

Nipissing University, North Bay, Ontario

- 2015- 2018 Dean of Arts and Science
- 2014 - 2015 Interim Dean of Arts and Science
- 2011 - 2014 Assistant Vice-President Research and Graduate Studies
- 2008 – 2011 Chair, Department of Computer Science and Mathematics
- 2005-2006 Chair, Department of Computer Science and Mathematics

TUNCALI

2002-present Full Professor

1997-2002 Associate Professor

1994-1997 Assistant Professor

1991-1993 Assistant Professor (Limited term)

University of Saskatchewan, Saskatoon, Saskatchewan

1990 -1991 Sessional Lecturer

1989 -1990 Sessional Lecturer

1989 Summer Sessional Lecturer

1984 Summer Sessional Lecturer

Boğaziçi University, İstanbul, Turkey

1982-1983 Graduate Teaching/Research Assistant

1980-1982 Undergraduate Mathematics Teaching Assistant

Other

1979-1983 Private tutoring for High School Math

1979-1980 Group Transfer Personnel, Summer job, 7 Tur Tourism, Istanbul

Courses Prepared and Taught:

Nipissing University, North Bay, Ontario

COURSE TITLE	COURSE LEVEL	COURSE CODE	NUMBER OF TIMES TAUGHT
Calculus	1 st year	Math1035	9 times
Discrete Mathematics I	1 st year	Math1056	7 times
Introductory Linear Algebra	1 st Year	Math1046	12 times
Advanced Calculus I	2 nd year	Math2036	6 times
Advanced Calculus II	2 nd year	Math2037	7 times

TUNCALI

Discrete Mathematics II	2 nd year	Math2056	13 times
Advanced Linear Algebra I	2 nd year	Math2046	8 times
Algebra I	3 rd year	Math3056	4 times
Real Analysis	3 rd year	Math3036	6 times
Ordinary Differential Eqs.	3 rd year	Math3066	4 times
Complex Analysis	3 rd year	Math3046	4 times
Selected Topics I Set Theory	3 rd year	Math3396	once
Topology	3 rd year	Math 3166	once
Combinatorics and Graph Theory	3 rd year	Math 3126	once
Contemporary Physical Science	1 st year	GSCI1010	2 times
Fundamentals of Arithmetic for Teachers	1 st year	Math1070	once
Problem Solving (team taught)	2 nd year	Math2386	twice

University of Saskatchewan, Saskatoon, Saskatchewan

COURSE TITLE	COURSE LEVEL	COURSE CODE	NUMBER OF TIMES TAUGHT
General Intro. Mathematics	1 st year (Education)	Math102.6	4 times
Introductory Calculus I	1 st year (Engineering)	Math123.3	once
Introductory Calculus II	1 st year (Engineering)	Math124.4	once

Intermediate Calculus I	2 nd year (Engineering)	Math225.3	3 times
Intermediate Calculus II	2 nd year(Engineering)	Math226.3	3 times
Linear Algebra	2 nd year(Comp. Sci.)	Math266.3	2 times

Extra-University Teaching and Related Experience:

1992-2012	Organizing Math Drop-In Centre, Nipissing University
1992-1998	Organizing Remedial Mathematics Workshops, Nipissing University
1990-1991	Tutor, Division of Extension and Independent Studies, University of Saskatchewan
1989-1990	Tutor, Saskatchewan Urban Native Teacher Education Program, University of Saskatchewan
1983-1991	Lab Assistant, Department of Mathematics and Statistics, University of Saskatchewan
1982-1983	Research and Teaching Assistant, Department of Mathematics Bogazici University, Istanbul, Turkey
1980-1982	Undergraduate Teaching Assistant, Department of Mathematics Bogazici University, Istanbul, Turkey

UNIVERSITY RELATED APPOINTMENTS and SERVICE

2017-2018	Member. Priorities and Planning Committee. Member. Undergraduate Studies Committee. Member. Nipissing University Research Council. Member. Graduate Studies Council. Chair. Tenure and Promotion Committee for the Schulich School of Education Chair. Selection committee for Native Studies Tenure-position Member. University Tenure and Promotion Committee. Member. Honorary Degrees Committee. Member. Committee on Retention Efforts Member. Nipissing University Indigenization Committee Member. Aboriginal Advantage Program Advisory Committee NSERC Leader.
2016-2017	Member. Priorities and Planning Committee. Member. Program Prioritization and Planning Steering Committee. Vice-Chair and Member. Undergraduate Studies Committee.

	Chair. Undergraduate Services and Awards Committee. Member. Nipissing University Research Council. Member. Graduate Studies Council. Chair. Tenure and Promotion Committee for Faculty of Applied and Professional Studies Member. University Tenure and Promotion Committee. Member. Honorary Degrees Committee. Member. Search Committee for VP-Finance and Administration. Member. Reappointment Committee for the position of President and Vice-Chancellor. NSERC Leader.
2015-2016	Member. Priorities and Planning Committee. Member. Program Prioritization and Planning Steering Committee. Vice-Chair and Member. Undergraduate Studies Committee. Chair. Undergraduate Services and Awards Committee. Member. Nipissing University Research Council. Member. Graduate Studies Council. Chair. Tenure and Promotion Committee for Schulich School of Education Member. University Tenure and Promotion Committee. Member. Honorary Degrees Committee. NSERC Leader.
2014-present	Member. CODAS, CCDS and CCDHASS.
2014-2015	Member. Priorities and Planning Committee. Member. Program Prioritization and Planning Steering Committee. Vice-Chair. Undergraduate Studies Committee. Chair. Undergraduate Services and Awards Committee. Member. Nipissing University Research Council. Member. Graduate Studies Council. Chair. Tenure and Promotion Committee for the Faculty of Applied and Professional Schools. Member. University Tenure and Promotion Committee.
2013-present	Member. Executive Advisory Committee.
2013-2014	Ex-officio. Biosafety Committee.
2011-2014	Chair. Graduate Studies Council. Chair. Nipissing University Research Council. Ex-officio. Animal Care Committee.
2011-Present	Member. University Management Group.
2011-2014	Representing Nipissing University in OCUR, OCGS, CAGS, and NAGS.
2011-2013	Member of provincial committees working on College University Consortium Council Innovation Fund Transfer Pathways projects in Information

	Technology, Mechanical Engineering Technology, Electrical Engineering Technology.
2011-2013	Member. President's Advisory Committee.
2011-2012	Member. NU Strategic Plan Action Plan Teams on Research and Scholarship, STEM Skills Development.
2008-2011	Member. Faculty of Arts and Science Executive Committee.
2008-2010	Senator. Senate Representative to the Board of Governors.
2008-2009	Member at-large. Nipissing U. Faculty Association Executive. Member. President Search Committee. Member. The search committees for a tenure-track position in Mathematics, a limited-term position in Mathematics/Physics, and tenure-track position in Computer Science. Member. The search committee for a limited-term position in Mathematics Education. Member. University Review Appeals Committee (URAC) for Promotion and Tenure
2008-present	Member. SHARCNET Board.
2007-2008	Member. The Special Joint Committee on Tenure and Promotion. Revising Nipissing University Tenure and Promotion Guidelines.
2006-2010	NSERC Representative.
2005-2006	Member. University Curriculum Committee. Chair. The search committee for a limited-term position in Computer Science.
2005-present	Co-organizer. Nipissing University High School Mathematics Competitions.
2003-2004	Member. The search committee for a limited-term position in Mathematics.
2002-present	Representing Nipissing University at the annual Ontario University Fair.
2002-2008	Chair. Appointments, Promotion and Tenure Committee.
2002-2003	Member. The search committee for tenure-track position in Mathematics.
2001-2002	Member. The Task Force on Retention.
2001 June-Dec.	Member. The Honorary Degrees Committee.
2000-2001	Member. The search committee for tenure-track position in Computer Science.

1999	Member. The Council of Ontario Universities Grade 11-12 Mathematics Curriculum Review Committee, 1999.
1999-Jan.2000	Member. The University Research Council.
1998-2001	Member. The Appointments, Promotions Committee. Chair of two tenure and promotion subcommittees, and member of three others.
1997-1998	Member. The President's Research Task Force.
1996-1997	Member. The Cultural Affairs Committee.
1995-1996 1993-1995	Member. The search committee for tenure-track position in English. Member. The Cultural Affairs Committee.
1994-1995	Member. The Associate Dean Selection Committee for Arts and Science. Member. The search committee for a tenure-track position in Physical Health and Education.
1992-1993	Member. The search committee for Mathematics Education Primary/Junior position.
1991-1992	Member. The search committee for two tenure-track positions in Primary/Junior and Junior/ Intermediate/ Senior Mathematics Education. Member. The search committee for one-year limited-term position in Social Welfare.

RESEARCH ACTIVITIES

Refereed Publications

Monograph

J.Nikiel, **H.M. Tuncali** and E.D. Tymchatyn, Continuous Images of Arcs and Inverse Limits. *Memoirs of the American Mathematical Society*, **104**(1993), no.498, viii+80pp.

Papers In Refereed Journals

- 1) B. D. Daniel and **Murat Tuncali**, A Co-Lifting Theorem for Images of Arcs, *Top. Proc.* 52 (2018) pp. 347-354.
- 2) D.Daniel, J. Nikiel, L.B. Treybig, **H. M. Tuncali** and E.D. Tymchatyn, Continuous Images of arcs: Extensions of Cornette's theorem, *Topology and Its Applications* 195(2015), 63-69.
- 3) D. Daniel and **M. Tuncali**. Embeddings of non-metric products in images of ordered compacta. *Houston Journal of Mathematics* **41**(2015), no.3, 1087-1096

- 4) P. Koscielniak, P. Oprocha and **M. Tuncali**. Hereditary indecomposable inverse limits of graphs: shadowing, mixing and entropy. *Proc. Amer. Math. Soc.*, **142** (2014), no. 2, 681-694.
- 5) D. Daniel and **M. Tuncali**. Hereditary separability in Hausdorff continua. *Applied General Topology* **13** (2012), no.1, 51-60.
- 6) J. van Mill and **M. Tuncali**, Plane continua and totally disconnected sets of buried points. *Proc. Amer. Math. Soc.* **140** (2012), no. 1, 351-356.
- 7) D. Daniel, J. Nikiel, L.B. Treybig, **H.M. Tuncali** and E.D. Tymchatyn. Homogeneous Suslinian continua. *Canadian Mathematical Bulletin*, **54** (2011), no. 2, 244-248.
- 8) P. Krupski and **M. Tuncali**. Rank $\leq m$ maps. *The Houston Journal of Mathematics*. **37** (2011), no. 2, 653-675.
- 9) T. Banakh, V.V. Fedorchuk, J. Nikiel and **M. Tuncali**. The Suslinian number and the other cardinal invariants. *Fundamenta Mathematica* , **209** (2010), no. 1, 43-57.
- 10) A. Karashev, **M. Tuncali** and V. Valov. Finite-to-one maps into Euclidean manifolds and spaces with disjoint disks property. *Topology and Its Applications*. **157** (2010), no. 4, 779-788.
- 11) D. Daniel, J. Nikiel, L.B. Treybig, **M. Tuncali** and E.D. Tymchatyn. Lifting paths on quotient spaces. *Topology and Its Applications*. **156** (2009), no. 9, 1739-1745.
- 12) T. Banakh and **M. Tuncali**. Controlled Hahn-Mazurkiewicz theorem and some new dimension functions of Peano continua. *Topology and Its Applications*. **154** (2007), no. 7, 1286--1297.
- 13) D.K. Childers, J. C. Mayer, **H.M. Tuncali**, and E.D. Tymchatyn. Indecomposable continua and the Julia Sets of rational maps. *Complex Dynamics: Twenty-Five Years after the Appearance of the Mandelbrot Set*. Edited by: Robert L. Devaney, *Boston University, MA*, and Linda Keen, *Herbert H. Lehman College (CUNY), Bronx, NY*. Contemporary Mathematics Series of AMS, Vol. **396**(2006), 1-20.
- 14) D. Daniel, J. Nikiel, L.B. Treybig, **H.M. Tuncali** and E.D. Tymchatyn. On Suslinian continua. *Canadian Mathematical Bulletin*, **48** (2005), no. 2, 195-202.
- 15) D. Daniel, J. Nikiel, L.B. Treybig, **H.M. Tuncali** and E.D. Tymchatyn. On perfectly normal compacta. *Questions Answers Gen. Topology*. **23** (2005), no. 1, 1-14.
- 16) K. Kawamura, **H.M. Tuncali** and E.D. Tymchatyn. Hereditarily indecomposable inverse limits of graphs. *Fundamenta Mathematica*. **185** (2005), no. 3, 195-210.
- 17) **M. Tuncali** and V. Valov. On Regularly Branched Maps. *Topology and Its Applications*. **150** (2005), no. 1-3, 213-221.
- 18) **H.M. Tuncali**, E.D. Tymchatyn and V. Valov. Extensional Dimension and Completion of Maps. *Topology Proc.* **29** (2005), no. 1, 377-384.

- 19) H.M. Tuncali** and V. Valov. On Finite-to-One maps. *Canadian Mathematical Bulletin*. **48** (2005), No. 4, 614--621.
- 20) D. Daniel, J. Nikiel, L.B. Treybig, H.M. Tuncali** and E.D. Tymchatyn. Concerning continua that contain no metric subcontinua. *Houston. J. Math.* **30**(2004), No. 3, 745--750.
- 21) H.M. Tuncali** and V. Valov. On Finite Dimensional Maps. *Tsukuba Journal of Mathematics*. **28**(2004), no 1, 155--167.
- 22) H.M. Tuncali** and Vesko Valov. Finite-dimensional maps II. *Topology and Its Applications*. **132** (2003), no. 1, 81--87.
- 23) H.M. Tuncali** and Vesko Valov. On Dimensionally Restricted Maps. *Fundamenta Mathematica*. **175** (2002), no. 1, 35-52.
- 24) D. Daniel, J. Nikiel, L.B. Treybig, H.M. Tuncali** and E.D. Tymchatyn. On Rim-Properties of Continua (Survey), *Questions and Answers in Topology*, Vol. **19**. no. 2, (2001), 187-193.
- 25) H. Kato, K.Kawamura, H.M Tuncali** and E.D. Tymchatyn, Measures and Topological Dynamics on Menger Manifolds. *Topology and its Applications*, **103** (2000), no. 3, 249-282.
- 26) J.Nikiel, L.B. Treybig** and **H.M. Tuncali**, Local Connectivity and Maps onto Non-Metric Arcs. *International Journal of Mathematics and Mathematical Sciences*, **20** (1997), 681-688.
- 27) K.Kawamura, H.M. Tuncali** and E.D. Tymchatyn, Expansive Homeomorphisms on Peano Curves. *Houston Journal of Mathematics*, **21** (3), 1995, 573-583.
- 28) J.Nikiel, L.B. Treybig** and **H.M. Tuncali**, A Rim-metrizable continuum. *Proc. Amer. Math. Soc.*, **123** (1995), no. 1, 281-286.
- 29) J.Nikiel, H.M. Tuncali** and E.D. Tymchatyn, Dense Embeddings into Cubes and Manifolds. Continuum Theory and Dynamical Systems, *Lecture Notes In Pure and Applied Mathematics*, Vol. **149**, 1993, 243-260, Marcel Dekker Inc.
- 30) W. Bula, J.Nikiel, H.M. Tuncali** and E.D. Tymchatyn, Continuous Images of Ordered Compacta are Regular Supercompact. *Topology and Its Applications*, **45** (1992), 203-221.
- 31) J.Nikiel, H.M. Tuncali** and E.D. Tymchatyn, On the Rim-structure of Continuous Images of Ordered Compacta. *Pacific J.of Math.*, **149** (1991), 145-155.
- 32) J. Nikiel, H.M. Tuncali** and E.D. Tymchatyn, A Locally Connected Rim-Countable Continuum which is a Continuous Image of No Arc. *Topology and Its Applications*, **42** (1991), 83-93.
- 33) H.M. Tuncali**. Concerning continuous images of rim-metrizable Continua. *Proc. Amer.Math. Soc.*, **113** (1991), 461-470.
- 34) H.M. Tuncali**. Analogues of Treybig's Product Theorem. *Proc. Amer. Math. Soc*, **108** (1990), 855-858.

Invited Publications

35) H.M. Tuncali. Rim(P)-spaces. *Encyclopaedia of General Topology*. Edited by: K. P. Hart, J.Nagata and J.E. Vaughan. 2004, Elsevier Inc., Amsterdam .

36) A. Karashev, M. Tuncali and V. Valov. Topology in North Bay: Some problems in Continuum Theory, Dimension Theory and Continuous Selections. *Open Problems in Topology II*. Edited by: Elliot Pearl. 2007, Elsevier Inc., Amsterdam.

Preprints/Submitted

37) Jacek Nikiel, I. Stasyuk, M. Tuncali and E.D. Tymchatyn. Convex Metrics on Separable Metric Spaces. Submitted for publication.

In Progress

38) D. Daniel, J. Nikiel, M. Tuncali and E.D. Tymchatyn. Local Connectivity and Hereditary Separability in Suslinian Continua.

39) J. van Mill, M. Tuncali, E.D. Tymchatyn and K. Valkenburg. Buried points of Peano continua in the plane.

40) I. Stasyuk, M. Tuncali and E.D. Tymchatyn. Spaces of Finite Hausdorff Measure.

41) D. Daniel and M. Tuncali. Metrizability of Products in Compacta in which Each Continuum of Convergence is Metrizable.

42) D. Daniel, J. Nikiel and M. Tuncali. Finite Oscillations in Images of Arcs.

43) D. Daniel and M. Tuncali. Lifting Theorems in Continua in which Each Continuum of Convergence is Metrizable.

44) D. Daniel and M. Tuncali. Mappings of Arcs Satisfying Zero-dimensional Lifting Property.

Invited Presentations

1) M.Tuncali , 2013. (Joint work with J. van Mill, E.D. Tymchatyn , K. Valkenburg). Buried Points and Plane Continua , Waseda University Geometric Topology Meeting, Japan, Tokyo, September.

2) M.Tuncali, 2013. (Joint work with J. Nikiel, I. Stasyuk, E.D. Tymchatyn). Convex Metrics on Non-Compact Spaces, International Conference on Topology and Geometry 2013 Joint with 6th Japan-Mexico Topology Symposium, Japan, Matsue, September.

3) M.Tuncali, 2013. Hereditarily Indecomposable Inverse Limits of Graphs, 7 Taller de Investigacion En Continuos e Hiperespacios, Workshop- Mini Course, 5 lectures., Mexico, Queretaro, July.

- 4)** M. Tuncali, 2013. (Joint work with J. van Mill, E.D. Tymchatyn, and K. Valkenburg). Buried points of plane continua. The 47th Spring Topology and Dynamics Conference. New Britain, Connecticut, March.
- 5)** M. Tuncali, 2012. (Joint work with P. Koscielniak and P. Oprocha). Hereditary indecomposable inverse limits of graphs: shadowing, mixing and entropy. 27th Summer Conference on Topology and Its Applications, Mankato, Minnesota, July.
- 6)** M. Tuncali, 2011 (Joint work with J. van Mill). Plane continua and Totally disconnected sets of buried points. Spring Topology and Dynamics Conference. Semi-plenary lecture. University of Texas at Tyler. March.
- 7)** M. Tuncali, 2010. (Joint work with A. Karashev and V. Valov). Finite-to-one maps into Euclidean Manifolds and Spaces with Disjoint Disks Property. 2010 AMS Spring Sectional Meeting, Macalester College, St. Paul, MN. April
- 8)** M. Tuncali, 2010. (Joint work with D. Daniel). Hereditary Separability in Hausdorff Continua. International Conference on Topology and Its Applications. Nafpaktos, Greece, June.
- 9)** M. Tuncali (Joint work with P. Krupski), 2009. Remarks on Countable Rank Maps. 24th Summer Conference on Topology and Its Applications, Special Session on Topology and Dynamics. Brno University of Technology, Brno, Czech Republic. July
- 10)** M. Tuncali, 2009. Continuous Images of Arcs, Suslinian Continua, Rim-metrizability and Perfect Normality. International Conference on Topology and its Applications, Hacettepe University Ankara, Turkey, July.
- 11)** M. Tuncali (Joint work with P. Krupski), 2009. Remarks on Countable Rank Maps. CMS Summer Meeting, Special Session on Topological Algebra, Topology and Functional Analysis. Memorial University of Newfoundland, St. John's, NL. June.
- 12)** M. Tuncali, 2008. Inverse limits and Trees. AMS Fall Southeastern Meeting. Special Session on Inverse Limits. University of Alabama-Huntsville, October.
- 13)** M. Tuncali, 2008. Suslinian Continua. Advances in Set-Theoretic Topology: Conference in Honour of Tsugunori Nogura on his 60th Birthday. Erice, Sicily, Italy, June.
- 14)** M. Tuncali, 2008. (Joint work with P. Krupski). Remarks on Maps of Rank $\leq m$. Spring Topology and Dynamics Conference, Special Session on Continuum Theory. U. of Wisconsin-Milwaukee, March.
- 15)** M. Tuncali, 2007. (Joint work with D. Daniel, J. Nikiel, L.B. Treybig, E.D. Tymchatyn). Lifting Maps of Quotient Spaces. Special Session on Combinatorial Methods in Continuum Theory, AMS Fall Southeastern Meeting. Middle Tennessee State University, Tennessee, October.
- 16)** M. Tuncali, 2007. (Joint work with P. Krupski). Maps of Rank $\leq m$. Spring Topology and Dynamics Conference, Special Session on Continuum Theory. U. of Missouri-Rolla, March.
- 17)** M. Tuncali, 2007. On Suslinian Continua. Continuum Theory Seminar. Auburn University, Alabama, February.

- 18)** M. Tuncali, 2006. (Joint work with D. Daniel, L.B.Treybig, J. Nikiel and E.D. Tymchatyn). Concerning Local Connectivity in Suslinian Continua. Conference in Topology and Theoretical Computer Science in honour of Peter Collins and Mike Reed. Mathematical Institute, University of Oxford, Oxford, UK, August.
- 19)** M. Tuncali, 2006. Suslinian Continua. 2006 International Conference on Topology and its Applications. U. of Patras, Aegion, Greece, June.
- 20)** M. Tuncali, 2006. (Joint work with T. Banakh). Controlled Hahn-Mazurkiewicz Theorem and Some New Dimension Functions of Peano Continua. Spring Topology and Dynamics Conference, Special Session on Geometric Topology. U. of North Carolina, Greensboro, March.
- 21)** M. Tuncali, 2005. (Joint work with T. Banakh). Controlled Hahn-Mazurkiewicz Theorem and Some New Dimension Functions of Peano Continua. AMS Spring Central Section Meeting, Special Session on Topological Dynamics. Texas Tech University, Lubbock, TX , April.
- 22)** M. Tuncali, 2004. (Joint work with D. Daniel, L.B.Treybig, J. Nikiel and E.D. Tymchatyn). On Suslinian Continua. CMS Summer Conference, Special Session on General Topology and Topological Algebras. Halifax, Nova Scotia, June.
- 23)** M. Tuncali, 2004. (Joint work with D. Daniel, L.B.Treybig, J. Nikiel and E.D. Tymchatyn). Lifting Paths on Quotient Sets. Spring Topology and Dynamics Conference, Special Session on Continuum Theory. U. of Alabama-Birmingham, Alabama, March.
- 24)** M. Tuncali, 2002. Topological Dynamics on Menger Manifolds. Summer Conference on General Topology and Its Applications, Special session on Topological Dynamics. Auckland, New Zealand, July.
- 25)** M. Tuncali, 2002. On Perfectly Normal Compacta. Summer Conference on General Topology and Its Applications, Special session on Set-Theoretic Topology. Auckland, New Zealand, July.
- 26)** M. Tuncali, 2002. (Joint work with V. Valov). On Finite Dimensional Maps II. Eastern Section Meeting of the American Mathematical Society, Montreal, Quebec, Canada, May.
- 27)** M. Tuncali, 2002. Rim-Properties. Colloquium Talk. Department of Mathematics, Istanbul University, Turkey, March.
- 28)** M. Tuncali, 2001.(Joint work with V. Valov). On Dimensionally Restricted Maps, CMS Summer Conference, Special Session on Geometric Topology, Saskatoon, Saskatchewan, May.
- 29)** M. Tuncali, 2000.(Joint work with K. Kawamura and E.D. Tymchatyn) Maps .of Graphs With Hereditarily Indecomposable Inverse Limits. AMS Sectional Meeting, Special Session on Continuum Theory and Dynamics, Birmingham, Alabama, November.
- 30)** M. Tuncali, 1999. Locally Connected Continua and Images of Arcs. AMS Sectional Meeting, Special Session on Topology of Continua, Austin, Texas, October.

- 31)** M.Tuncali, 1998. On Generalizations of the Hahn-Mazurkiewicz Theorem. CMS Winter Meeting, Special Session on Set-Theoretic Topology, Kingston, Ontario, December.
- 32)** M Tuncali, 1998. What is a topological space? The 25th Annual Conference of the Ontario Association for Mathematics Education, North Bay, Ontario, May.
- 33)** M Tuncali, 1998. A survey on Continuous Images of Compact Ordered Spaces. Topology Seminars, Department of Mathematics, Auburn University, Alabama, May.
- 34)** M. Tuncali, 1998. Distance, Geometry and Topology. Mathematics Club, St. Joseph Scollard Hall Secondary School, North Bay, Ontario, January.
- 35)** J.Nikiel, 1997. (Joint work with H.M. Tuncali and E.D. Tymchatyn.). Inverse Limit Spaces. The 12th Summer Conference on General Topology and Its Applications, August, North Bay, Ontario, August.
- 36)** H. M. Tuncali, 1996. Hereditarily Indecomposable Continua and Inverse Limits. Colloquium Talk. Department of Mathematics and Computer Science, Laurentian University, Ontario, February.
- 37)** K. Kawamura, 1994. (Joint work with H.M. Tuncali). Maps of Graphs with Hereditarily Indecomposable Limits. Topology Seminars, Department of Mathematics, Auburn University, Alabama, April.
- 38)** H.M. Tuncali, 1993. (Joint Work with J.Nikiel and E.D. Tymchatyn). Continuous Images of Arcs. Topology Seminars, Department of Mathematics and Statistics, York University, Ontario, November.
- 39)** E.D. Tymchatyn, 1991. (Joint Work with J. Nikiel and H.M. Tuncali). Convex Metrics for Separable Metric Spaces. Special Session Continuum Theory and Dynamics, MAA-AMS Math Fest, Orono, Maine, August.
- 40)** J. Nikiel, 1991. (Joint Work with H.M. Tuncali and E.D. Tymchatyn). Continuous Images of Ordered Compacta. Monotone Mappings and Inverse Limits. Spring Topology Conference, Sacramento, California, April.
- 41)** E.D. Tymchatyn, 1990. (Joint work with J. Nikiel and H.M. Tuncali). Dense Embeddings into Cubes. International Conference on Geometric Topology, University of Tsukuba, August, Tsukuba, Japan.
- 42)** H. M. Tuncali, 1987. Some Generalizations of the Hahn-Mazurkiewicz Theorem. Seminar, Department of Mathematics, Bogazici University, Istanbul, Turkey. May.
- 43)** H. M. Tuncali, 1986. Continuous Images of Compact Ordered Spaces. Seminar, University of Alabama-Birmingham, Alabama, April.

Presentations at Conferences:

- 1)** H.M. Tuncali, 2003. (Joint work with D. Daniel, J. Nikiel, L.B. Treybig and E.D. Tymchatyn). Suslinian Continua. Conference in Honor of Prof. E.D. Tymchatyn on the Occasion of his 60th Birthday, Birmingham, Alabama, February.
- 2)** H.M. Tuncali, 2001.(Joint work with V. Valov). On Dimensionally Restricted Maps, 9th Prague Topology Symposium, Czech Republic, August.
- 3)** H.M. Tuncali, 1998. (Joint work with H.Kato, K.Kawamura and E.D. Tymchatyn). Measures and Topological Dynamics on Menger Manifolds, The 13th Summer Conference on General Topology and Its Applications, UNAM, Mexico City, Mexico, June.
- 4)** H.M. Tuncali, 1996. (Joint work with J. Nikiel and L.B. Treybig). Local Connectivity and Maps onto Non-metric Arcs. Eighth Prague Topology Symposium, Prague, Czech Republic, August.
- 5)** J.Nikiel, 1996. (Joint work with H.M. Tuncali and E.D. Tymchatyn). Inverse Limit Spaces. Spring Topology Conference, Muncie, Indiana, March.
- 6)** H.M. Tuncali, 1994. (Joint Work with K. Kawamura). Maps of Graphs with Hereditarily Indecomposable Limits. Summer Conference on General Topology and Applications, Amsterdam, Netherlands, August.
- 7)** E.D. Tymchatyn, 1994. (Joint work with K. Kawamura and H.M. Tuncali). Expansive Homeomorphisms on Peano Continua. Spring Topology Conference, Auburn, Alabama, April.
- 8)** H.M. Tuncali, 1993. (Joint work with K. Kawamura and E.D.Tymchatyn). Expansive Homeomorphisms on Peano Continua. Canadian Mathematical Society Winter Meeting, Ottawa, December.
- 9)** H.M. Tuncali, 1993. (Joint work with J.Nikiel and L.B. Treybig). A Rim-metrizable continuum. Spring Topology Conference, March, Columbia, South Carolina, March.
- 10)** H.M. Tuncali, 1992. (Joint Work with J. Nikiel and E.D. Tymchatyn). Convex Metrics for Separable Metric Spaces. Spring Topology Conference, April, Charlotte, North Carolina.
- 11)** H.M. Tuncali, 1991. (Joint work with J.Nikiel and E.D. Tymchatyn). Dense Embeddings into Cubes. Spring Topology Conference, April, Sacramento, California, April.
- 12)** H.M. Tuncali, 1991. (Joint work with J. Nikiel and E.D. Tymchatyn). Continuous Images of Arcs and Inverse Limits. AMS Annual Meeting, San Francisco, California, January.
- 13)** H.M. Tuncali, 1990. (Joint work with J. Nikiel and E.D. Tymchatyn). On the Rim-Structure of Continuous Images of Ordered Compacta. Spring Topology Conference, San Marcos, Texas, April.
- 14)** J. Nikiel, 1990. (Joint work with H.M. Tuncali and E.D. Tymchatyn). Continuous Images of Ordered Compacta are Regular Supercompact. Spring Topology Conference, San Marcos, Texas, April.

15) H.M. Tuncali, 1988. Concerning Continuous Images of Rim-metrizable Continua. Spring Topology Conference, Gainesville, Florida, March.

16) H.M. Tuncali, 1987. Analogues of Treybig's Product Theorem. Spring Topology Conference, Birmingham, Alabama, March.

Other Scholarly Contributions

Andrew Dean and **Murat Tuncali**. Undergraduate Students Experience Research Firsthand at Nipissing University. *CMS Notes*, **42**(2008), No: 2, 8-9.

Douglas Franks and **H.Murat Tuncali**. Building a Relationship Between Undergraduate Mathematics and Mathematics Teacher Education: Innovation in Teacher Education. The Mathematics Education into the 21st Century Project, Seventh International Conference "The Future of Mathematics Education", June, 2004, Ciechocinek, Poland.

Art Show "Pseudoarc for the people". November 2004. Joint work with artist Dermot Wilson. (<http://www.pseudoarc.org>).

Research Grants:

NSERC Grants

- 2014-2019 Discovery Grant for five years. (\$11,000/year).
- 2009-2014 Discovery Grant for five years. (\$18,000/year).
- 2004-2009 Discovery Grant for five years. (\$9,000/year).
- 2000-2004 Four-year individual grant (\$9,000/ year).
- 1996-2000 Four-year individual grant (\$8,000/ year).
- 1993-1996 Three-year individual grant (\$8,000 per year).

Nipissing University Internal Research Grants

- 2004 Mathematics and Children's Literature. Joint with Ted Chase, Doug Franks, Ann-Barbara Graff, John Kooistra, Laura Robinson. Funding: \$4,995
- 2004 Communicating Mathematics in the Ontario Mathematics Curriculum. Joint with Doug Franks. Funding: \$4,367
- 2003 Envisioning Interactive Pseudo-Arc: Multi-Media Art Project. Joint with Dermot Wilson. Funding: \$4,995

Other Grants

- 2000-2011 Nipissing University Teaching Release for Research.
- 1998-2002 For publishing the journal Topology Proceedings. Nipissing University. Funding: \$15,000

Organizing Conferences and Workshops

Since 1993, I have been organizing Topology Workshops at Nipissing each year. I list below those that received external funding.

- 2018 Workshop on Topology and Dynamical Systems. Organized by Logan Hoehn, A. Karashev, J. Mayer, I. Stasyuk, L. Oversteegen, M. Tuncali, and V. Valov. Fields Institute Funding: \$10,000

TUNCALI

- 2016 Workshop on Recent Advances in General Topology, Dimension Theory, Continuum Theory and Dynamical Systems. Organized by Logan Hoehn, A. Karashev, J. Mayer, I. Stasyuk, L. Oversteegen, M. Tuncali, and V. Valov. Fields Institute Funding: \$20,000
- 2013 28th Summer Conference on Topology and Its Applications. Organized by Logan Hoehn, A. Karashev, I. Stasyuk, M. Tuncali and V. Valov.
Fields Institute Funding: \$8,000
National Science Foundation of United States Funding: US \$24,520
- 2012 Workshop on Recent Advances in General Topology, Dimension Theory, Continuum Theory and Dynamical Systems. Organized by A. Karashev, V. Valov, J. Mayer, and M. Tuncali. Fields Institute Funding: \$6,000
National Science Foundation of United States Funding: US \$23,140
- 2010 Workshop on Topological and Measure Theoretic Methods in Dynamical Systems. Organized by A. Karashev, V. Valov, J. Mayer, L. Oversteegen, and M. Tuncali.
Fields Institute Funding: \$16,000
National Science Foundation of United States: US \$22,560
- 2008 Workshop on Topological Methods in Analysis, Algebra and Dynamical Systems. Organized by A. Karashev, V. Valov, J. Mayer and M. Tuncali.
The Fields Institute Funding: \$17,000
National Science Foundation of United States Funding: US \$14,638
- 2005 The special session on General Topology and Its Applications, Canadian Mathematical Society Summer meeting. Waterloo, Ontario, Canada. Organized by A. Karashev, V. Valov and M. Tuncali.
- 2000 Member of the organizing committee for the 1st Turkish International Conference on General Topology and Its Applications, which was held in Istanbul, Turkey, August. Organized by Nurettin Erdogan, M. Tuncali and S. Watson.
- 1998 25th Annual Conference of the Ontario Association for Mathematics Education which was held at Nipissing University. Member of the local organizing committee.
- 1997 12th Summer Conference on General Topology and Its Applications, co-organizer.
Centre de Recherches Mathématiques \$5,000
The Fields Institute \$8,000
U.S. Office of Naval Research \$10,000
Tembec Inc. \$5,000
Nipissing University \$4,500

Awards/Nominations

- 2002 Nipissing University Research Achievement Award. (\$5,000)
- 2000 Nipissing University Chancellor's Award for Excellence in Research. (\$1,500)
- 1996 & 2005 Nomination, Nipissing University Chancellor's Award for Excellence in Teaching.
- 1983-1989 Graduate Scholarships and Teaching Fellowships, University of Saskatchewan

Sabbaticals:

- 2007 Jan-Jul Visited Auburn U., U. of Alabama-Birmingham, U. of Saskatchewan.
- 2002 Jan.-Jul. Visited Auburn U., U. of Alabama-Birmingham and Istanbul University.
- 1998 Jan.-Jul. Stayed in North Bay.

Other Scholarly Activities

- 2014-2015 Member. Scientific Advisory Committee, 30th Summer Conference on Topology and Its Applications, Galway, Ireland, June 2015.
- 1997-present Managing Editor. Topology Proceedings. Joint publication Nipissing University and Auburn University, Alabama.
- 2008-2011 Hacettepe Journal of Mathematics and Statistics Editorial Board Member.
- 2007-present Member. NUMERIC (Nipissing University Mathematics Education Research and Information Council). Co-organized various Mathematics outreach activities, Mathematics Competitions, Math Fair and Math Talks.
- 2009-2010 Guest Editor. Special Issue of Topology and Its Applications for the proceedings of International Conference on Topology and Its Applications, Ankara, July 2009.
- 2010-2011 Member of the Scientific Committee, International Conference on Topology and Its Applications, Islamabad, Pakistan, June 2011.
- 2000–Present Member of the Advisory Committee for the Summer Conf. series on Topology and Its Applications
- 1998-Present Member of the Spring Topology and Dynamics Conf. Series Advisory Committee.
- 1995-2005 Member. Topology Atlas Team.

Contributions to Training of Highly Qualified Personnel –Supervising

Undergraduate Honors Research Projects

2013-2014	Nicole Andersen Lynsey Bialkowski Chelsey Schryer	A study in Cryptography. Modelling Women 100m Dash. Fourier Series and Music.
2012-2013	Amanda Lambkin	Dynamical Systems.
2010-2011	Jason Bramburger Jay Shannon	Chaotic Dynamics. Euler Phi Function and Mobius Inversion.
2009-2010	Cindy Lynn-Harper Jennifer Marengere Andrew Sukhai	Catastrophe Theory. Continuum Hypothesis and Suslin Hypothesis. Chaos Theory.
2008-2009	Emily Azevedo Stephanie Hicks Shawn McClure.	Graph Colorings, Scheduling Problems. Tilings. Mathematics and Geomagnetism.
2007-2008	Claudio Roy Caitlyn Robinson	Projective Geometry. Linear Algebra and Search Engines, Image Compression.
2006-2007	Kirsten Baldwin Matthew Boyd	Generalized Fibonacci Sequences. Chaotic Dynamics.

	Benjamin Folber	Finite State Automata and Chaos.
	Michelle Gates	Area Preserving Maps and Map Making.
	Shannon Twitchin	Geometry and Art.
2003-2004	Jennifer E. Rowden	Fractals and Iterated Function Systems.
	Leslie van Ousten	Fractal Dimension and Hausdorff Dimension.
2002-2003	Alan Warren	Sarkovskii's Theorem.

NSERC Undergraduate Student Research Award Students

Summer 2014 Heather-Lynn Topping.
 Summer 2013 Heather-Lynn Topping.
 Summer 2012 Heather-Lynn Topping.
 Summer 2010 Stephen Lauzon.
 Summer 2009 Andrew Sukhai.
 Summer 2008 Andrew Sukhai and Breanne King.
 Summer 2007 Haig Sarkisian.
 Summer 2006 Nick Mailoux.
 Summer 2005 Mel McKay.
 Summer 2004 Natasha May.
 Summer 2003 Mary Overholt.
 Summer 2002 Alan Warren.
 Fall 2001 Sharon Minor.
 Summer 2000 Sharon Minor.

Nipissing Undergraduate Student Research Award Student

Summer 2011 Benjamin Fraser.

Graduate Student Supervision

2012 Jordan Doucette Spaces of Finite Hausdorff Measure (Major Research Paper).

Post-doctoral fellow

2010-2013 Ihor Stasyuk (co-supervisor).

Other Supervision

Summer 2004 Jill Lazarus (co-supervised) Analysis of Ontario Math Curriculum.
 Summer 2004 Mary Overholt (co-supervised) Mathematics and Children's Literature Project.
 Summer 2000 Trevor Vanderlinden. Research Assistant.

Visitors

T. Banakh, Ivan Franko National University, L'viv, Ukraine.
 D. Childers, University of Alabama-Birmingham, Alabama.
 D. Daniel, Lamar University, Texas.
 V. V. Fedorchuk, Moscow State University, Russia.
 K. Kawamura, University of Tsukuba, Japan.
 P. Krupski, University of Wroclaw, Poland.
 J. C. Mayer, University of Alabama-Birmingham, Alabama.
 J. Nikiel, University of Opole, Poland.

P. Oprocha, AGH-University, Krakow, and Inst. of Mathematics, Academy of Sciences, Warsaw.
L.B. Treybig, Texas A&M University, Texas.
E.D. Tymchatyn, University of Saskatchewan, Saskatoon.
J. van Mill, University of Amsterdam.
K. Valkenburg, Netherlands.
G. Gruenhage, Auburn University, Alabama.
K. Kuperberg, Auburn University, Alabama.
J. Kennedy, University of Delaware and Lamar University.
W. Lewis, Texas Tech University.
L. Oversteegen, University of Alabama-Birmingham, Alabama.
D. Repovs, University of Ljubljana, Slovenia.
J. Steprans, York University, Ontario.
A. Sostaks, University of Latvia, Riga.
A. Zahorodnyuk, Prykarpatian National University, Ukraine.
C. Mournon, Rhodes College, Memphis.
J. Yorke, University of Maryland, College Station.
V. Pestov, U. of Ottawa

Other

2013-2014 FIRST North Bay Regional Competition (Robotics competition) Steering
Committee Member.

Other Affiliations:

1993-1999 Adjunct Professor of Mathematics, Laurentian University, Sudbury.

Membership in Professional Associations

Member of Canadian Mathematical Society, American Mathematical Society.

This is a draft version only. Do not submit to any funding organization. Only the final version from the History page can be submitted.

Professor Vesko Valov

Correspondence language: English

Sex: Male

Date of Birth: 5/14

Canadian Residency Status: Canadian Citizen

Country of Citizenship: Canada

Contact Information

The primary information is denoted by (*)

Address

Mailing (*)

Nipissing University
100 College Drive, P.O. Box 5002
North Bay Ontario P1B 8L7
Canada

Telephone

Work (*) 705-474-3450 extension: 4389

Email

Work (*) veskov@nipissingu.ca

Website

Personal <http://faculty.nipissingu.ca/veskov/>

This is a draft version only. Do not submit to any funding organization. Only the final version from the History page can be submitted.



Protected when completed

Professor Vesko Valov

Language Skills

Language	Read	Write	Speak	Understand	Peer Review
Bulgarian	Yes	Yes	Yes	Yes	Yes
English	Yes	Yes	Yes	Yes	Yes
Russian	Yes	Yes	Yes	Yes	Yes

Degrees

- 1976/6 - 1980/4 Doctorate, PhD, Mathematics, University of Sofia
Degree Status: Completed
Thesis Title: Lattices of open maps
Transferred to PhD without completing Masters?: No
Areas of Research: Topology
Research Disciplines: Pure Mathematics
Supervisors: G. Skerdev and St. Nedev, 1976/6 - 1980/4
Fields of Application: Foundations and Knowledge Acquisition
- 1972/9 - 1974/6 Master's Thesis, Master of Science, Mathematics, University of Sofia
Degree Status: Completed
Thesis Title: Selection theorems
Supervisors: St. Nedev, 1972/9 - 1974/6

Credentials

- 2014/7 - 2016/7 External Examiner in Mathematics, University of Malta
This is a traditional position for a person from another university to ensure to objectivity of the examination process
- 2012/3 - 2012/3 Leader of Mathematics Review Team, University of the West Indies, Cave Hill Campus
The team was reviewing Mathematics Program in University of West Indies, Cave Hill Campus.

Recognitions

- 2010/6 Nipissing University Chancellor's Award for Excellence in Research - 5,000 (Canadian dollar)
Nipissing University
Prize / Award
I was awarded the 2010 Chancellor's Award for Excellence in Research

2004/6	Nipissing University research Achievement Award - 1,500 (Canadian dollar) Nipissing University Prize / Award
1998/7	Third World Academy of Sciences for Travel and Research Third World Academy of Sciences Distinction I was granted a support from TWAS to visit the Mathematical Institute of the National University of Mexico during the period June-July 1998.
1990/11	British Council Research Support British Council Distinction I was granted a financial support to visit Oxford University during the period November 1990.
1979/11	Young Researcher Award University of Sofia Distinction

User Profile

Researcher Status: Researcher

Engaged in Clinical Research?: No

Key Theory / Methodology: Pure Mathematics

Research Interests: Pure Mathematics - Topology, Functional Analysis, Group Theory

Research Experience Summary: I have been doing research research in Mathematics for more that 40 years and have published more than 100 research articles

Fields of Application: Foundations and Knowledge Acquisition

Disciplines Trained In: Pure Mathematics

Areas of Research: Topology

Research Specialization Keywords: Topology, Functional Analysis, Topological Groups

Research Disciplines: Pure Mathematics

Employment

2005/7	Professor Computer Science and Mathematics, Nipissing University Full-time, Professor Tenure Status: Tenure, 2004/7 - Teaching and Research Position Research Disciplines:
2004/7 - 2005/6	Associate Professor Computer Science and Mathematics, Nipissing University Full-time Tenure Status: Tenure Teaching and Research Position

2000/7 - 2004/6	Assistant Professor Computer Science and Mathematics, Nipissing University Full-time Tenure Status: Non Tenure Track Teaching and Research Position
1994/12 - 2000/6	Associate Professor Mathematics, University of Swaziland Full-time Tenure Status: Non Tenure Track Teaching and Research Position
1992/10 - 1994/12	Associate Professor Mathematics, University of Zimbabwe Full-time Tenure Status: Non Tenure Track Teaching and Research Position
1988/5 - 1992/9	Associate Professor Faculty of Mathematics, University of Sofia Full-time Tenure Status: Tenure Teaching and Research Position
1989/9 - 1992/6	Associate Professor Mathematics, University of Veliko Tarnovo Part-time Tenure Status: Non Tenure Track Teaching Position
1984/2 - 1988/4	Assistant Professor Faculty of Mathematics, University of Sofia Full-time Tenure Status: Tenure Teaching and Research Position
1980/10 - 1984/1	Research Fellow Institute of Mathematics, Bulgarian Academy of Sciences Full-time Tenure Status: Tenure Research and Teaching Position

Affiliations

The primary affiliation is denoted by (*)

(*) 2005/7	Professor, Computer Science and Mathematics, Nipissing University Teaching and Research
2004/7 - 2005/6	Associated Professor, Computer Science and Mathematics, Nipissing University Teaching and Research
2000/7 - 2004/6	Assistant Professor, Computer Science and Mathematics, Nipissing University Teaching and Research
1994/12 - 2000/6	Associate Professor, Mathemaics, University of Swaziland Teaching and Research
1992/10 - 1994/12	Associate Professor, Mathematics, University of Zimbabwe Teaching and Research

1988/5 - 1992/9	Associate Professor, Faculty of Mathematics, University of Sofia Teaching and Research
1984/2 - 1988/4	Assistant Professor, Faculty of Mathematics, University of Sofia Teaching and Research
1980/10 - 1984/1	Research Fellow, Institute of Mathematics, Bulgarian Academy of Sciences Research and Teaching

Leaves of Absence and Impact on Research

2016/1 - 2016/6	Sabbatical, Nipissing University During my sabbatical leave I visited Ehime University, Shimane University and Waseda University in Japan for a total period of one month. As a result of these visits I produced three research papers with my Japanese colleagues.
2009/1 - 2009/6	Sabbatical, Nipissing University During that leave I visited University of Sofia and the Mathematical Institute of the Bulgarian Academy of Sciences. As a result, I was able to use the good mathematical libraries of the two institutions and have useful discussions with my colleagues.

Research Funding History

Completed [n=3]

2013/5 - 2018/4 Principal Applicant	NSERC five-years discovery grant, Grant, Operating Clinical Research Project?: No Project Description: This project supported my research in Dimension Theory, Continuous Selections and related areas in Topology Research Uptake: Doing extensive research, publishing papers in well established journals and supervising research students Funding by Year: 2013/5 - 2018/4 Total Funding - 55,000 (Canadian dollar) Portion of Funding Received - 55,000 (Canadian dollar) Time Commitment: 40 Funding Sources: 2008/5 - 2013/4 Natural Sciences and Engineering Research Council of Canada (NSERC) Discovery grant Total Funding - 55,000 (Canadian dollar) Portion of Funding Received - 55,000 Funding Competitive?: Yes
2003/5 - 2008/4 Principal Applicant	NSERC five-years discovery grant Funding Sources: 2003/5 - 2008/4 Natural Sciences and Engineering Research Council of Canada (NSERC) Discovery grant Total Funding - 42,500 (Canadian dollar) Portion of Funding Received - 42,500 Funding Competitive?: Yes
2003/5 - 2008/4 Principal Applicant	NSERC five-year discovery grant, Grant, Operating Clinical Research Project?: No

Project Description: Research in Pure Mathematics: Dimension Theory and Continuous Selections

Research Uptake: Doing extensive research, publishing papers in well established journals and supervising research students

Funding by Year:

2003/5 - 2008/4 Total Funding - 60,000 (Canadian dollar)
 Portion of Funding Received - 60,000 (Canadian dollar)
 Time Commitment: 40

Funding Sources:

2013/5 - 2018/4 Natural Sciences and Engineering Research Council of Canada (NSERC)
 Discovery grant
 Total Funding - 55,000 (Canadian dollar)
 Funding Competitive?: Yes

Courses Taught

Lecturer, Computer Science and Mathematics, Nipissing University

Course Title: Advanced Calculus I

Course Code: Math 2036

Course Topic: Mathematics

Course Level: Undergraduate

Academic Session: Fall

Number of Students: 15

Number of Credits: 3

Lecture Hours Per Week: 3

Guest Lecture?: No

Lecturer, Computer Science and Mathematics, Nipissing University

Course Title: Advanced Linear Algebra I

Course Code: Math 2046

Course Topic: Linear Algebra

Course Level: Undergraduate

Academic Session: Fall

Number of Students: 15

Number of Credits: 3

Lecture Hours Per Week: 3

Guest Lecture?: No

Lecturer, Computer Science and Mathematics, Nipissing University

Course Title: Algebra II

Course Code: Math 3157

Course Topic: Algebra

Course Level: Undergraduate

Academic Session: Winter

Number of Students: 12

Number of Credits: 3

Lecture Hours Per Week: 3

Guest Lecture?: No

Lecturer, Computer Science and Mathematics, Nipissing University
Course Title: Real Analysis II
Course Code: Math 3137
Course Topic: Analysis
Course Level: Undergraduate
Academic Session: Winter
Number of Students: 12
Number of Credits: 3
Lecture Hours Per Week: 3
Guest Lecture?: No

Lecturer, Computer Science and Mathematics, Nipissing University
Course Title: Real Analysis I
Course Code: Math 3136
Course Topic: Analysis
Course Level: Undergraduate
Academic Session: Fall
Number of Students: 13
Number of Credits: 3
Lecture Hours Per Week: 3
Guest Lecture?: No

Lecturer, Computer Science and Mathematics, Nipissing University
Course Title: Advanced Calculus II
Course Code: Math 2037
Course Topic: Multivariable Calculus
Course Level: Undergraduate
Academic Session: Spring
Number of Students: 15
Number of Credits: 3
Lecture Hours Per Week: 3
Guest Lecture?: No

Lecturer, Computer Science and Mathematics, Nipissing University
Course Title: Geometry
Course Code: Math 2116
Course Topic: Foundation of Geometry
Course Level: Undergraduate
Academic Session: Fall
Number of Students: 12
Number of Credits: 3
Lecture Hours Per Week: 3
Guest Lecture?: No

Lecturer, Computer Science and Mathematics, Nipissing University
Course Title: Functional Analysis
Course Code: Math 4086/5086
Course Topic: Functional Analysis
Course Level: Graduate
Academic Session: Winter
Number of Students: 4
Number of Credits: 3
Lecture Hours Per Week: 3
Guest Lecture?: No

Lecturer, Computer Science and Mathematics, Nipissing University
 Course Title: Measure Theory and Integration
 Course Code: Math 4036/5036
 Course Topic: Measure theory
 Course Level: Graduate
 Academic Session: Winter
 Number of Students: 5
 Number of Credits: 3
 Lecture Hours Per Week: 3
 Guest Lecture?: No

Lecturer, Computer Science and Mathematics, Nipissing University
 Course Title: Differential Equations II
 Course Code: Math 3267
 Course Topic: Differential equations
 Academic Session: Spring
 Number of Students: 6
 Number of Credits: 3
 Lecture Hours Per Week: 3
 Guest Lecture?: No

Lecturer, Computer Science and Mathematics, Nipissing University
 Course Title: Algebra
 Course Code: Math 5056
 Course Topic: Abstract Algebra
 Course Level: Graduate
 Academic Session: Winter
 Number of Students: 5
 Number of Credits: 3
 Lecture Hours Per Week: 3
 Guest Lecture?: No

Course Development

Developer and lecturer, Computer Science and Mathematics, Nipissing University
 Course Title: Measure Theory
 Course Level: Undergraduate
 This course was developed as a joint course for graduate and undergraduate students.
 the main topics is Lebesgue Measure and integration.

Developer and lecturer, Computer Science and Mathematics, Nipissing University
 Course Title: Functional Analysis
 Course Level: Graduate
 The course includes the topics: Topological vector spaces, Freshet spaces, the Banach-Steinhaus theorem, the open mapping and closed graph theorems, convexity, the Hahn-Banach theorems, Banach spaces and duality in Banach spaces, adjoints and compact operators, Hilbert spaces.

Developer and lecturer, Computer Science and Mathematics, Nipissing University
 Course Title: Measure Theory and Integration
 Course Level: Graduate
 The course includes the following topics: Sigma-algebras and measures, Borel and Lebesgue measures on Euclidean spaces, measurable functions and integration, convergence theorems, signed measures and the Randon-Nikodym theorem, product measure and Fubini theorem.

Developer and lecturer, Computer science and Mathematics, Nipissing University

Course Title: Algebra

Course Level: Graduate

The course includes standard topics from groups, rings and modules.

Student/Postdoctoral Supervision

Bachelor's Honours [n=18]

2017/9 - 2017/12 Principal Supervisor	Paulson, Katherine (Completed) , Nipissing University Degree Name: Bachelor Honours Specialization: Mathematics Student Degree Start Date: 2017/9 Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: The Kolmogorov-Riez compactness theorem Project Description: The aim of the project is to consider the paper "The Kolmogorov-Riez compactness theorem" by H. Hanche-Olsen and H. Holden showing that the Arzelà–Ascoli theorem and Kolmogorov compactness theorem both are consequences of a simple lemma on compactness in metric spaces. Present Position: Just graduated from Nipissing University
2017/5 - 2017/8 Principal Supervisor	Primeau, Victoria (Completed) , Nipissing University Student Degree Start Date: 2017/5 Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Large Scale geometry Project Description: The project was supported by NSERC Undergraduate Student Research Award Program. The project was to study large scale Geometry following the monograph "Large scale Geometry" by P. Nowak and G. Yu. Present Position: Graduate student at Nipissing University
2017/5 - 2017/8 Principal Supervisor	Gansekoele, Trevor (Completed) , Nipissing University Student Degree Start Date: 2017/5 Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Universal Maps Project Description: The project was supported by NSERC Undergraduate Student research Award Program. It was devoted to the study and application of universal maps. Present Position: Student at Nipissing University Project Funding Sources: Natural Sciences and Engineering Research Council of Canada (NSERC) (Canadian dollar)
2016/9 - 2016/12 Principal Supervisor	Fleming, Lindsay (Completed) , Nipissing University Student Degree Start Date: 2016/9 Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: The Mathematics of Games and Gambling Project Description: This senior research project was devoted to application of Mathematics and statistics in games and gambling. Present Position: Just graduated from Education Faculty of NU

- 2016/5 - 2016/8
Principal Supervisor Primeau, Victoria (Completed) , Nipissing University
Student Degree Start Date: 2016/5
Student Canadian Residency Status: Canadian Citizen
Thesis/Project Title: Fibers of Generic Continuous Maps
Project Description: The project was supported by NSERC Undergraduate Student Research Award Program. It was devoted to the study the description of the level sets of generic continuous maps on compact metric spaces.
Present Position: Graduate student at Nipissing University
- 2016/5 - 2016/8
Principal Supervisor Gansekoele, Trevor (Completed) , Nipissing University
Student Degree Start Date: 2016/5
Student Degree Received Date: 2016/8
Student Canadian Residency Status: Canadian Citizen
Thesis/Project Title: Introduction to Topology
Project Description: The project was supported by NSERC Undergraduate Student Research Award Program. The aim was to introduce Trevor to the basic notions and techniques in Topology.
Present Position: Student at Nipissing University
- 2015/5 - 2015/8
Principal Supervisor Primeau, Victoria (Completed) , Nipissing University
Student Degree Start Date: 2015/5
Student Canadian Residency Status: Canadian Citizen
Thesis/Project Title: Introduction to Topology
Project Description: The project was supported by NSERC Undergraduate Student Research Award Program. The aim of the project was Victoria to become familiar with the main topological notions and techniques
Present Position: Graduate student at Nipissing University
- 2015/5 - 2015/8
Principal Supervisor Lalonde, Bradley (Completed) , Nipissing University
Student Degree Start Date: 2015/5
Student Canadian Residency Status: Canadian Citizen
Thesis/Project Title: Homogeneous Metric ANR compacta
Project Description: This was a third year research project with Bradley devoted to homogeneous compacta. During the time of the project Bradley was able to write a research paper published in the journal Topology and its Applications.
Present Position: Emergency Supply Teacher at St. Lawrence Secondary School in Cornwall, Ontario
- 2014/5 - 2014/8
Principal Supervisor Lalonde, Bradley (Completed) , Nipissing University
Student Degree Start Date: 2014/5
Student Canadian Residency Status: Canadian Citizen
Thesis/Project Title: Homogeneous Compacta
Project Description: The project was supported by NSERC Undergraduate Student Research Award Program. It was a second year project with Bradley devoted to homogeneous compacta
Present Position: Emergency Supply Teacher at St. Lawrence Secondary School in Cornwall, Ontario
- 2014/1 - 2014/4
Principal Supervisor Tassone, Natasha (Completed) , Nipissing University
Student Degree Start Date: 2014/1
Student Canadian Residency Status: Canadian Citizen
Thesis/Project Title: Topology of finite-dimensional Euclidean spaces
Project Description: The aim was Natasha to become familiar with the topology of finite-dimensional Euclidean spaces
Present Position: Mathematics teacher

2014/1 - 2014/4 Principal Supervisor	Wheatstone, Miranda (Completed) , Nipissing University Student Degree Start Date: 2014/1 Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Numerical Solutions of Differential Equations Project Description: Studying of numerical solutions of differential equations. Present Position: Mathematics teacher
2013/9 - 2013/12 Principal Supervisor	Tassone, Natasha (Completed) , Nipissing University Student Degree Start Date: 2013/9 Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Matrices: Theory and Applications Project Description: Studying matrices and more interesting applications of matrices Present Position: Mathematics teacher
2013/9 - 2013/12 Principal Supervisor	Wheatstone, Miranda (Completed) , Nipissing University Student Degree Start Date: 2013/9 Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: The Laplace Transform Project Description: Becoming familiar with the application of the Laplace transform for solving differential equations Present Position: Mathematics teacher
2013/5 - 2013/8 Principal Supervisor	Lalonde, Bradley (Completed) , Nipissing University Student Degree Start Date: 2013/5 Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Introduction to Homogeneous Compacta Project Description: The project was supported by NSERC Undergraduate Student Research Award Program. That was the first project with Bradley devoted to homogeneous compacta. Present Position: Emergency Supply Teacher at St. Lawrence Secondary School in Cornwall, Ontario
2013/1 - 2013/4 Principal Supervisor	Lund, Jessica (Completed) , Nipissing University Student Degree Start Date: 2013/1 Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Approximations of Functions by Polynomials Project Description: Studying different methods of approximating continuous functions by polynomials Present Position: Mathematics teacher
2012/9 - 2012/12 Principal Supervisor	Lund, Jessica (Completed) , Nipissing University Student Degree Start Date: 2012/9 Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Differential Equations Project Description: Studying different types of differential equations and methods for their solutions. Present Position: Mathematics teacher
2012/5 - 2012/8 Principal Supervisor	Wheatstone, Miranda (Completed) , Nipissing University Student Degree Start Date: 2012/5 Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Introduction to General Topology Project Description: The project was supported by NSERC Undergraduate Student Research Award Program Present Position: Mathematics teacher

2012/1 - 2012/4 Kelly, Jan (Completed) , Nipissing University
 Principal Supervisor Student Degree Start Date: 2012/1
 Student Canadian Residency Status: Canadian Citizen
 Thesis/Project Title: Optimizing Non-differentiable Convex Functions
 Project Description: Studying of optimizations of convex functions
 Present Position: Mathematics teacher

Master's Thesis [n=1]

2012/1 - 2012/9 Hicks, Stephanie (Completed) , Nipissing University
 Principal Supervisor Student Degree Start Date: 2012/1
 Student Canadian Residency Status: Canadian Citizen
 Thesis/Project Title: Selection Theorems
 Project Description: This was a Master's Thesis devoted to the main theorems for existence of selection theorem for set-valued maps.
 Present Position: Teaching Mathematics at Canadore College

Doctorate [n=1]

2012/9 - 2018/6 Bajmak, Zenafer (Completed) , University of Skopie
 Principal Supervisor Degree Name: PhD
 Specialization: Mathematics
 Student Degree Start Date: 2012/9
 Student Canadian Residency Status: Not Applicable
 Thesis/Project Title: Selections of Multi-valued Maps
 Project Description: This was a PhD study on selections and dimension
 Present Position: Teacher, Hight school in Skopie, Macedonia

Post-doctorate [n=1]

2012/1 - 2012/6 Tonic, Vera (Completed) , Oklahoma University
 Principal Supervisor Student Degree Start Date: 2012/1
 Student Canadian Residency Status: Visitor Visa
 Thesis/Project Title: Resolution Theorems and Cohomological Dimension
 Present Position: Assistant Professor, Rijeka University, Croatia

Event Administration

2012/3 - 2018/5 Co-organizer, Annual Workshop on Topology, Workshop, 2012/5 - 2018/5
 A member of the annual workshop on Topology hosted every year by the Topology group at Nipissing University

2017/7 - 2017/7 Member of Program Committee, Conference "Mathematics days in Sofia" 2017, July 10-14., Conference, Institute of Mathematics, Bulg. Akad. Scien., 2017/1 - 2017/7
 I was a member of the Program Committee of that conference

2017/1 - 2017/7 Organizer, Mini-symposium on Topology, Conference, 2017/7 - 2017/7
 Together with E. Mihaylova I was the a co-organizer of mini-symposium on Topology in the frame of the conference "Mathematical days in Sofia", July 10-14.

2013/1 - 2013/7 Co-organizer, 28th Summer Conference on Topology, Conference, 2013/7 - 2013/7
 I was one of the organizers of the 2013 Summer Conference on Topology hosted by the topology group from Nipissing University

2013/1 - 2013/7	Co-organizer, Workshop on Homogeneous Compact Spaces, Workshop, 2013/7 - 2013/7 Together with Jan van Mill we organized a workshop on Homogeneous compact spaces during the 28th Summer Conference on Topology
2006/1 - 2006/7	Co-organizer, Conference "Pioneers of Bulgarian Mathematics", Conference, Faculty of Mathematics, Sofia University, 2006/7 - 2006/7 I was a co-organizer of the Topology session of the conference "Pioneers of Bulgarian Mathematics", Sofia, July 8-10.
2005/4 - 2005/6	Co-organizer, General Topology Session of the 2005 CMS summer meeting, Conference, Canadian Mathematical Society, 2005/6 - 2005/6 Co-organizer of the general Topology session of the Summer meeting of CMS, June 4-6, 2005, Waterloo

Editorial Activities

2018/5 - 2018/10	Member editorial board, International Journal of Surveys in Computation and Technology, Journal Member of the editorial board https://sites.google.com/view/kags-ijsc/
2013/1 - 2018/10	Member editorial board, Matematicki Bilten, Journal Member of the editorial board http://im-pmf.weebly.com/matematicchki-bilten.html
2010/1 - 2018/10	Member editorial board, Annals of Functional Analysis, Journal Member of the Editorial Board https://www.emis.de/journals/AFA/
2010/1 - 2018/10	Member editorial board, Advances and Applications in Mathematical Sciences, Journal Member of the editorial board http://www.mililink.com/journals_desc.php?id=59
2016/12 - 2017/12	Co-editor, Special issue of Serdica Mathematical Journal in memory of St. Nedev, Journal Together with my colleague V. Gutev we are editing a special issue of the mathematical journal Serdica devoted to the memory of our advisor Stoyan Nedev
2015/9 - 2017/8	Co-editor, A special issue of "Topology and its Application" in memory of A. Chigogidze, Journal Together with S. Antonyan, A. Dranishnikov and A. Karashev we edited volume 227 of the journal "Topology and its Application", August 2017, devoted to the memory of Alex Chigogidze.
2013/1 - 2014/6	Co-editor, A special issue of "Topology and its Application" devoted to the 60's birthday of M. Choban and St. Nedev, Journal Together with V. Gutev we edited volume 169 of the journal "Topology and its Applications", June 2014, devoted to the 60's birthday of M. Choban and St. Nedev.

Mentoring Activities

2009/9 - 2013/6	Graduate Advisor in Mathematics, Nipissing University
2009/9 - 2013/6	Chair of Graduate Program, Nipissing University Number of Mentorees: 9 I was in charge for the graduate program in Mathematics

Expert Witness Activities

2014/7 - 2016/7	External examiner, Ensuring the objectivity of the Math examination in University of Malta, Malta, Valletta This is a traditional position for a person from another university to ensure the objectivity of the examination process
2012/4 - 2012/4	Leader of Mathematics review team, Reviewing the Mathematics program in University of West Indies, Cave Hill Campus, Barbados, Bridgetown The team was reviewing Mathematics program in University of West Indies, Cave Hill Campus

Journal Review Activities

Referee, Proceedings of the American Mathematical Society, American Mathematical Society

Number of Works Reviewed / Refereed: 1

Referee, Fundamenta Mathematicae, Institute of Mathematics, Polish Academy of Sciences

Number of Works Reviewed / Refereed: 2

Referee, Set-Valued Analysis, Kluwer Academic Publishers

Number of Works Reviewed / Refereed: 2

Referee, Journal of Mathematical Analysis and Applications, Elsevier

Number of Works Reviewed / Refereed: 1

Referee, Topology and its Applications, Elsevier

Number of Works Reviewed / Refereed: 5

Referee, Rocky Mountain Journal of Mathematics, Rocky Mountain Mathematics Consortium

Number of Works Reviewed / Refereed: 1

Referee, Canadian Mathematical bulletin, Canadian Mathematical Society

Number of Works Reviewed / Refereed: 1

Referee, Serdica Mathematical Journal, Institute of Mathematics, Bulgarian Academy of Sciences

Number of Works Reviewed / Refereed: 1

Referee, Transactions of the American Mathematical Society, American Mathematical Society

Number of Works Reviewed / Refereed: 1

Referee, Topology Proceedings

Number of Works Reviewed / Refereed: 4

Graduate Examination Activities

Chair, Macedo, Andrea, Computer Science and Mathematics, Nipissing University

Chair, Heindl, Jonathan, Computer Science and Mathematics, Nipissing University

Chair, Smith, Richard, Computer Science and Mathematics, Nipissing University

Committee Member, Alkins, Robert, Computer Science and Mathematics, Nipissing University

Research Funding Application Assessment Activities

2016/7 - 2016/8	Committee Member, Evaluating the application of Y. Zelenyuk for a gran from South African National Research Foundation, Funder, Academic Reviewer, South African National research Foundation Number of Applications Assessed: 1
2010/7 - 2010/8	Committee Member, Evaluating the application of V. Gutev for a gran from South African National Research Foundation, Funder, Academic Reviewer, National Research Foundation of South Africa Number of Applications Assessed: 1
2010/7 - 2010/8	Committee Member, Evaluating the application of Y. Zelenyuk for a gran from South African National Research Foundation, Funder, Academic Reviewer, South African National Research Foundation Number of Applications Assessed: 1
2008/11 - 2009/2	Committee Member, Evaluating the NSERC application of R. Raphael, Funder, Academic Reviewer, Natural Sciences and Engineering Research Council of Canada (NSERC) Number of Applications Assessed: 1

Promotion Tenure Assessment Activities

2017/5	Referee, Mathematics, University of Lincoping Number of Assessments: 1 Referee of the PhD Thesis of V. Nyagahakwa
2015/6	Referee, Mathematics, University of Ljubljana Number of Assessments: 1 Member of the Full Professor Promotion Committee of M. Cencelj
2015/5	Referee, Mathematics, University of Lincoping Number of Assessments: 1 Referee of the Licentiate Thesis of V. Nyagahakwa
2013/5	Referee, Faculty of Mathematics, University of Sofia Number of Assessments: 1 External member of Doctor of Science Thesis Committee of G. Dimov
2011/5	Referee, Faculty of Mathematics, University of Sofia External member of the Full Professor Promotion Committee of G. Dimov

Organizational Review Activities

2014/7 - 2016/7	Mathematics External Examiner, University of Malta Mathematics External Examiner at the University of Malta
2012/3 - 2012/3	Leader Review Committee, University of the West Indies, Cave Hill Campus The team was reviewing the Mathematics Program in the University of West Indies, Cave Hill Campus

International Collaboration Activities

2016/6 - 2016/6	Invited visitor, Russian Federation Invited visitor to Moskow State Yniversity, Chair of General topology and geometry. Presented talk: Homological selections and fixed point theorems". collaboration with K. Kozlov

2016/4 - 2016/5	Invited visitor, Japan Invited visitor, Matsuyama University, April 27-May 2. Presented talk: Homological selections and fixed point theorems". Collaboration with D. Shakhmatov and T. Yamauchi
2016/4 - 2016/4	Invited visitor, Japan Invited visitor to Matsue University, April 6-27. Talk "Homogeneous metric ANR compacta" Collaboration with E. Matsushashi
2016/4 - 2016/4	Invited visitor, Japan Invited visitor to Waseda University, Tokyo Japan. Talk "Homological properties of homogeneous ANR compacta". Collaboration with A. Koyama

Committee Memberships

2016/9	Committee Member, Research Council, Nipissing University
2018/4 - 2018/5	Committee Member, Chancellor's Research Award Committee, Nipissing University Evaluating the applications for the Chancellor's Research Award
2017/5 - 2017/5	Committee Member, Chancellor's Research Award Committee, Nipissing University Evaluating the applications for Chancellor's Research Award
2009/9 - 2014/6	Committee Member, Graduate Study Council, Nipissing University
2009/9 - 2014/6	Committee Member, Research Council, Nipissing University
2010/9 - 2013/6	Committee Member, Nipissing University Senate, Nipissing University
2012/5 - 2012/5	Committee Member, University Review Appeals Committee, Nipissing University
2011/5 - 2012/5	Committee Member, Chancellor's Research Award Committee, Nipissing University Evaluating the applications for Chancellor's Research Award
2012/2 - 2012/3	Committee Member, Geography Position Selection Committee, Nipissing University
2012/2 - 2012/3	Committee Member, Mathematics Position Selection Committee, Nipissing University
2008/9 - 2009/6	Committee Member, Consolidate Committee, Nipissing University
2009/2 - 2009/3	Committee Member, Physics Position Selection Committee, Nipissing University
2006/10 - 2006/12	Committee Member, Appointment and Promotion Committee, Faculty of Education, Nipissing University

Other Memberships

2015/1	Member, Canadian Mathematical Society
2001/1	Member, American Mathematica Society

Presentations

- (2017). Spectral representations of topological groups. Mathematics Days in Sofia, 2017, Sofia, Bulgaria
Main Audience: Researcher
Invited?: Yes, Keynote?: Yes

2. (2017). Homogeneous finite-dimensional metric compacta. Mathematical Congress of the Americas, Montreal, Canada
Main Audience: Researcher
Invited?: Yes, Keynote?: No
Description / Contribution Value: This is an invited talk in the section "Shape, Homotopy and Attractors"
3. (2016). Homogeneous metric ANR compacta. Topological Conference in memory of St. Nedev, Sofia, Bulgaria
Main Audience: Researcher
Invited?: Yes, Keynote?: No
4. (2016). Homological properties of homogeneous ANR compacta. Invited visit of Waseda University, Tokyo, Japan
Main Audience: Researcher
Invited?: Yes, Keynote?: Yes
5. (2016). Homogeneous metric ANR compacta. Invited visit of Shimane University, Matsue, Japan
Main Audience: Researcher
Invited?: Yes, Keynote?: Yes
6. (2016). Homological selections and fixed point theorems. Invited visit of Matsuyama University, Matsuyama, Japan
Main Audience: Researcher
Invited?: Yes, Keynote?: Yes
7. (2016). Homological selections and fixed point theorems. Invited visit of Moscow State University, Moscow, Russian Federation
Main Audience: Researcher
Invited?: Yes, Keynote?: Yes
8. A. Dranishnikov. (2015). Alex Chigogidze and his mathematical legacy. A Lecture in Honor of Dean Alex Chigogidze at College of Staten Island, New York, United States
Main Audience: General Public
Invited?: Yes, Keynote?: Yes
9. (2014). Separating sub-additive maps. International Conference on Topological Algebras, Playa de Villas, Dominican Republic
Main Audience: Researcher
Invited?: Yes, Keynote?: Yes
10. (2014). Local properties of homogeneous ANR compacta. Mathematics Days in Sofia 2014, Sofia, Bulgaria
Main Audience: Researcher
Invited?: Yes, Keynote?: No
11. (2013). Alexandroff manifolds and homogeneous compacta. Interaction between Logic, Topological structures and Banach space theory, Eilat, Israel
Main Audience: Researcher
Invited?: Yes, Keynote?: Yes
12. (2013). Generalized Cantor manifolds. International Conference on Topology and Geometry, Matsue, Japan
Main Audience: Researcher
Invited?: Yes, Keynote?: No
13. (2013). Homogeneous compacta and manifolds. Waseda Geometric Topology Workshop, Tokyo, Japan
Main Audience: Researcher
Invited?: Yes, Keynote?: Yes

- [14.](#) (2013). Functional Extenders. International Conference on Topological Algebras and Applications, Tartu, Estonia
Main Audience: Researcher
Invited?: Yes, Keynote?: Yes
- [15.](#) (2013). Homogeneous compacta and generalized manifolds. Topological Methods in Analysis and Optimization (conference dedicated to the 70 birth day of P. Kenderov), Sofia, Bulgaria
Main Audience: Researcher
Invited?: Yes, Keynote?: Yes
16. (2012). Bing and Krasinkiewicz maps. International conference "Alexandoff Readings", Moscow, Russian Federation
Main Audience: Researcher
Invited?: Yes, Keynote?: Yes
17. (2012). Homogeneous compacta. International Conference on Applied and Industrial Mathematics dedicated to M. Choban, Chisinau, Moldova, Republic of
Main Audience: Researcher
Invited?: Yes, Keynote?: Yes
- [18.](#) (2012). Homogeneous ANRs and Alexandroff manifolds. Third International Conference on Topology and its Applications, Skopje, Macedonia, The Former Yugoslav Republic of
Main Audience: Researcher
Invited?: Yes, Keynote?: Yes

Publications

Journal Articles

1. K. Kozlov and V. Valov. Spectral representations of topological groups and near-openly generated groups. Canadian Journal of Mathematics.
Co-Author
Submitted, Canadian Mathematical Society, Canada
Refereed?: Yes, Open Access?: No
Number of Contributors: 2
Description / Contribution Value: The class of near-openly generated topological groups is introduced and investigated.
2. Shakhmatov, D.; Valov, V.; Yamauchi, T.(2018). Extension operators of bounded norms. Journal of Mathematical Analysis and Applications.
Co-Author
Accepted, Elsevier, Netherlands
Refereed?: Yes
Number of Contributors: 3
Description / Contribution Value: We show that a compact space X is a Dugundji space if for every embedding of X into a Tychonoff cube there is an extension operator of norm less than two.
- [3.](#) Jan van Mill and Vesko Valov. (2018). Actions of semitopological groups. Canadian Mathematical Bulletin.
Co-Author
Accepted, Canadian Mathematical Society, Canada
Refereed?: Yes, Open Access?: No
Number of Contributors: 2
Description / Contribution Value: We investigate continuous transitive actions of semitopological groups on spaces, as well as separately continuous transitive actions of topological groups.

4. Koyama, A.; Valov, V.(2018). On homologically locally connected spaces. Topology and its Applications. Co-Author
Accepted, Elsevier, Netherlands
Refereed?: Yes, Open Access?: No
Number of Contributors: 2
Description / Contribution Value: We provide some properties and characterizations of homologically UV(n)-maps and lc(n)-spaces.
5. Vesko Valov. (2018). Homological dimension and dimensional full-valuedness. Serdica Mathematical Journal.
Accepted, Institute of Mathematics, Bulgarian Academy of Sciences, Bulgaria
Refereed?: Yes, Open Access?: No
Number of Contributors: 1
Description / Contribution Value: The relations between the existing definitions of homological dimensions with respect to different groups are investigated.
6. Vesko Valov. (2018). Local homological properties and cyclicity of homogeneous ANR compacta. Proceedings of the American Mathematical Society. 146(6): 2697-2705.
<http://dx.doi.org/http://dx.doi.org/10.1090/proc/13484>
Published, American Mathematical Society, United States
Refereed?: Yes, Open Access?: No
Number of Contributors: 1
Description / Contribution Value: We show that if X is an n -dimensional homogeneous metric ANR compactum then every point from X has a local basis of connected open sets U such that the homological properties of U are similar to the properties of the open balls in the n -dimensional Euclidean space.
7. Valov, V.(2018). I-favorable spaces: Revisited. Topology Proceedings. 51: 277-292.
First Listed Author
Published, Auburn University, Alabama, United States
Refereed?: Yes, Open Access?: No
Number of Contributors: 1
Description / Contribution Value: Extending previous characterizations of I-favorable spaces and providing proofs of some author's result announced earlier.
8. van Mill, J.; Valov, V.(2018). Homogeneous continua that are not separated by arcs. Science China Mathematics.
Co-Author
Submitted,
Refereed?: Yes, Open Access?: No
Number of Contributors: 2
9. Valov, V.(2017). Homological dimension and homogeneous ANR spaces. Topology and its Applications. 221: 38-50.
<http://dx.doi.org/http://dx.doi.org/10.1016/j.topol.2017.02.063>
Published, Elsevier, Netherlands
Refereed?: Yes, Open Access?: No
Number of Contributors: 1
Description / Contribution Value: In this paper we provide some general properties of the homological dimension introduced by Alexandroff, mainly with an eye towards describing the dimensional full-valuedness of compact metric spaces.

10. Matsushashi, E; Valov, V.(2017). Parametric set-wise injective maps. *Topology and its Applications*. 231: 337-344.
<http://dx.doi.org/https://doi.org/10.1016/j.topol.2017.09.029>
 Co-Author
 Published, Elsevier, Netherlands
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 2
 Description / Contribution Value: We introduce the notion of set-wise injective maps and provide results about fiber embeddings. Our results improve some previous results in this area.
11. Valov, V.(2017). Homological selections and fixed-point theorems. *Journal of Fixed Point Theory and Applicatins*. 19(3): 1561-1570.
<http://dx.doi.org/DOI 10.1007/s11784-016-0384-y>
 Published, Springer, Germany
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 1
 Description / Contribution Value: A homological selection theorem for C-spaces as well as a finite-dimensional homological selection theorem are established. The finite-dimensional homological selection theorem is applied to obtain fixed point theorems for someusco maps.
12. Kuchraski, A.; Plewilk, S.; Valov, V.(2016). Game theoretic approach to skeletally Dugundji and Dugundji spaces. *Topology and its Applications*. 201: 206-216.
<http://dx.doi.org/http://dx.doi.org/10.1016/j.topol.2015.12.037>
 Co-Author
 Published, Elsevier, Netherlands
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 3
 Description / Contribution Value: Characterizations of skeletally Dugundji spaces and Dugundji spaces are given in terms of club collections consisting of countable families of co-zero sets.
13. Valov, V.(2016). Local cohomological properties of homogeneous ANR compacta. *Fundamenta Mathematicae*. 233: 257-270.
<http://dx.doi.org/DOI: 10.4064/fm93-12-2015>
 Published, Inst. of Mathematics, Polish Academy of Sciences, Poland
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 1
 Description / Contribution Value: It is shown that the local cohomological structure of finite-dimensional homogeneous ANR continua is similar to the local cohomological structure of Euclidean spaces.
14. Valov, V.(2015). Locally n-connected compacta and UV(n)-maps. *Analysis and Geometry in Metric Spaces*. 3: 93-110.
<http://dx.doi.org/DOI 10.1515/agms-2015-0006>
 Published, De Gruyter, Germany
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 1
 Description / Contribution Value: We provide a machinery for transferring some properties of metrizable ANR-spaces to metrizable LC(n)-spaces. As a result, we show that for completely metrizable spaces the properties AL(C)n, LC(n) and WLC(n) coincide to each other.
15. Valov, V.(2015). On separating sub-additive maps. *Turkish Journal of Mathematics*. 39(2): 168-173.
<http://dx.doi.org/doi:10.3906/mat-1401-12>
 Published, TUBITAK, Turkey
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 1
 Description / Contribution Value: We generalize a result of Araujo about a biseparating maps between function spaces.

16. Valov, V.(2015). Skeletally generated spaces and absolutes. *Topology Proceedings*. 45: 63-71.
Published, Auburn University, Alabama, United States
Refereed?: Yes, Open Access?: No
Number of Contributors: 1
Description / Contribution Value: Some properties of skeletally generated spaces are established. In particular, it is shown that any compactum coabsoluteto a k-metrizable compactum is skeletally generated.
17. Karashev, A.; Todorov, V.; Valov, V.(2014). On generalized Alexandroff manifolds and homogeneous continua. *Canadian Mathematical Bulletin*. 57(2): 335-343.
<http://dx.doi.org/http://dx.doi.org/10.4153/CMB-2013-010-8>
Co-Author
Published, Canadian Mathematical Society,
Refereed?: Yes, Open Access?: No
Number of Contributors: 3
Description / Contribution Value: It is established that any homogeneous n-dimensional metric ANRcontinuum is a $V(n)$ -continuum in the sense of Alexandroff.
18. Todorov, V.; Valov, V.(2014). Alexandrov type manifolds and homology manifolds. *Houston Journal of Mathematics*. 40(4): 1325-1346.
Co-Author
Published, University of Houston, United States
Refereed?: Yes, Open Access?: No
Number of Contributors: 2
Description / Contribution Value: We introduce and investigate the notion of (strong) $Kn(G)$ -manifolds, where G is an abelian group. One of the result related to that notion implies a partial answer to the Bing-Borsuk problem whether any partition of a homogeneous metric ANR-space of dimension n is cyclic in dimension $n-1$.
19. Valov, V.(2014). Averaging operators and set-valued maps. *Mathematica Balkanica*. 28(1-2): 49-63.
<http://dx.doi.org/ISSN 0205-3217>
Published, Union of Bulg. Mathematicians, Bulgaria
Refereed?: Yes, Open Access?: No
Number of Contributors: 1
Description / Contribution Value: We investigate maps admitting, in general, non-linear averaging operators. Characterizations of maps admitting a normed, weakly additive averaging operator which preserves max (resp., min) and weakly preserves min (resp., max) are obtained. We also describe set-valued maps into completely metrizable spaces admitting lower semi-continuous selections.
20. Valov, V.(2014). Homogeneous ANR and Alexandroff manifolds. *Topology and its Application*. 173: 227-233.
<http://dx.doi.org/http://dx.doi.org/10.1016/j.topol.2014.06.001>
Published, Elsevier, Netherlands
Refereed?: Yes, Open Access?: No
Number of Contributors: 1
Description / Contribution Value: We provide some properties of homogeneous ANR compacta. In particular, a partial answer of a question of Kallipoliti and Papasoglu is given.

21. Alkins, R.*; Valov, V.(2013). Functional extenders and set-valued retractions. Journal of Mathematical Analysis and Applications. 399: 306-314.
<http://dx.doi.org/http://dx.doi.org/https://doi.org/10.1016/j.jmaa.2012.10.018>
 Co-Author
 Published, Elsevier, Netherlands
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 2
 Description / Contribution Value: We describe the supports of a class of real-valued maps introduced by Radul. Using this description, a characterization of compact-valued retracts of a given space in terms of functional extenders is obtained.

22. Valov, V.(2013). A selection theorem for set-valued maps into normally supercompact spaces. Buletinul Academiei de Stiinte a Republicii Moldova. Matematica. 72-73(2-3): 99-105.
<http://dx.doi.org/ISSN 1024-7696>
 Published, Institute of Mathematics, Moldovian Acad. Sciences, Moldova, Republic of
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 1
 Description / Contribution Value: We prove a selection theorem for set-valued maps having values in normally supercompact spaces. Our results provide some generalizations and specifications of Ivanov's results concerning superextensions of k-metrizable compacta.

23. Banakh, T.; Valov, V.(2013). General position properties in Fiberwise geometric Topology. Dissertaciones Mathematicae. 491: 120 pages.
<http://dx.doi.org/DOI 10.4064/dm491-0-1>
 Co-Author
 Published, Institute of Mathematics, Polish Academy of Sciences, Poland
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 2
 Description / Contribution Value: This is a monograph providing different results concerning spaces having general position properties. Parametric versions of these results are also established.

24. Kucharski, A.; Plewik, S.; Valov, V.(2013). Skeletally Dugundji spaces. Central European Journal of Mathematics. 11: 1949-1959.
<http://dx.doi.org/DOI: 10.2478/s11533-013-0296-7>
 Co-Author
 Published, Springer, Germany
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 3
 Description / Contribution Value: We introduce and investigate the class of skeletally Dugundji spaces as a skeletal analogue of Dugundji space.

25. Valov, V.(2013). On a theorem of Arvanitakis. Mathematika. 59(1): 250-256.
<http://dx.doi.org/doi:10.1112/S0025579312001040>
 Published, Cambridge University Press, United Kingdom
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 1
 Description / Contribution Value: In this note we provide a short proof of a more general version of a result due to Arvanitakis.

26. Todorov, V.; Valov, V.(2012). Generalized Cantor manifolds and indecomposable continua. Questions and Answers in General Topology. 30: 93-102.
Co-Author
Published, Japan
Refereed?: Yes, Open Access?: No
Number of Contributors: 2
Description / Contribution Value: We prove some results about indecomposable continua. A short proof of a Bing's theorem is also provided.
27. Bogataya, S.; Bogaty, S.; Valov, V.(2012). Embedding of finite-dimensional compacta in Euclidean spaces. Topology and its Applications. 159: 1670-1677.
<http://dx.doi.org/http://dx.doi.org/10.1016/j.topol.2011.07.028>
Co-Author
Published, Elsevier, Netherlands
Refereed?: Yes, Open Access?: No
Number of Contributors: 3
Description / Contribution Value: We establish some parametric versions of embedding theorems of finite-dimensional metric compacta in Euclidean spaces. The obtained theorems complement some results of the last two authors.
28. Bogaty, S.; Valov, V.(2012). Special embeddings of finite-dimensional compacta in Euclidean spaces. Topology and its Applications. 159: 2269-2273.
<http://dx.doi.org/doi:10.1016/j.topol.2011.08.029>
Co-Author
Published, Elsevier, Netherlands
Refereed?: Yes, Open Access?: No
Number of Contributors: 2
Description / Contribution Value: Some embedding theorems of finite-dimensional metric compacta in Euclidean spaces are established.
29. Karashev, A.; Krupski, P.; Todorov, V.; Valov, V.(2012). Generalized cantor manifolds and homogeneity. Houston Journal of Mathematics. 38(2): 583-609.
Co-Author
Published, Houston University, United States
Refereed?: Yes, Open Access?: No
Number of Contributors: 4
Description / Contribution Value: A classical theorem of Alexandroff states that every n -dimensional compactum contains an n -dimensional Cantor manifold. This theorem has a number of generalizations obtained by various authors. We consider extension-dimensional and finite-dimensional analogs of strong Cantor manifolds, Mazurkiewicz manifolds, and $V(n)$ -continua, and prove corresponding versions of the above theorem.
30. Kucharski, A.; Plewik, S.; Valov, V.(2011). Very I -favorable spaces. Topology and its Applications. 158: 1453-1459.
<http://dx.doi.org/http://dx.doi.org/10.1016/j.topol.2011.05.017>
Co-Author
Published, Elsevier, Netherlands
Refereed?: Yes, Open Access?: No
Number of Contributors: 3
Description / Contribution Value: We prove that a Hausdorff space X is very I -favorable if and only if X is the almost limit space of a σ -complete inverse system consisting of (not necessarily Hausdorff) second countable spaces and surjective d -open bonding maps. It is also shown that the class of Tychonoff very I -favorable spaces with respect to the co-zero sets coincides with the d -openly generated spaces.

31. Valov, V.(2011). Maps with dimensionally restricted fibers. *Colloquium Mathematicum*. 123(2): 239-248.
<http://dx.doi.org/DOI: 10.4064/cm123-2-8>
 Published, Institute of Mathematics, Polish Academy of Sciences, Poland
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 1
 Description / Contribution Value: We provide some results about closed surjective maps with dimensionally restricted fibers.
32. Valov, V.(2011). External characterization of I-favorable spaces. *Mathematica Balkanica*. 25(1-2): 61-78.
 Published, Union of Bulgarian Mathematicians, Bulgaria
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 1
 Description / Contribution Value: A spectral and an external characterization of I-favorable spaces are provided.
33. Krupski, P.; Valov, V.(2011). Mazurkiewicz manifolds and homogeneity. *Rocky Mountain Journal of Mathematics*. 41(6): 1933-1938.
<http://dx.doi.org/DOI: 10.1216/RMJ-2011-41-6-1933>
 Co-Author
 Published, Rocky Mountain Mathematics Consortium, United States
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 2
 Description / Contribution Value: It is proved that no region of a homogeneous, locally compact and locally connected metric space can be cut by an F-sigma subset of a "smaller" dimension.
34. Valov, V.(2011). Parametric Bing and Krasinkiewicz maps: revisited. *Proceedings of the American Mathematical Society*. 139(2): 747-756.
[http://dx.doi.org/S 0002-9939\(2010\)10724-4](http://dx.doi.org/S 0002-9939(2010)10724-4)
 Published, American Mathematical Society, United States
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 1
 Description / Contribution Value: This is the final version of the previous authors' results about parametric Bing and Krasinkiewicz maps.
35. Valov, V.(2011). Extenders and k -metrizable compacta. *Mathematical Notes*. 89(3-4): 319-327.
<http://dx.doi.org/DOI: 10.1134/S0001434611030023>
 Published, Springer, Germany
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 1
 Description / Contribution Value: A characterization of κ -metrizable compacta in terms of extension of functions and upper semicontinuous compact-valued retractions is established.
36. Valov, V.(2011). Another approach to parametric Bing and Krasinkiewicz maps. *Mathematica Balkanica*. 25(4): 419-423.
 Published, Union of Bulgarian Mathematicians, Bulgaria
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 1
 Description / Contribution Value: Using a factorization theorem due to Pasynkov we provide a short proof of the existence and density of parametric Bing and Krasinkiewicz maps.

37. Banakh, T.; Valov, V.(2010). Approximation by light maps and parametric Lelek maps. *Topology and its Applications*. 157: 2325-2341.
<http://dx.doi.org/http://dx.doi.org/10.1016/j.topol.2010.07.004>
 Co-Author
 Published, Elsevier, Netherlands
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 2
 Description / Contribution Value: We generalize some results of Levin and Kato–Matsushashi concerning the existence of residual sets of n -dimensional Lelek maps.
38. Banakh, T.; Valov, V.(2010). Spaces having fibered approximation property in dimension n . *Central European Journal of Mathematics*. 8(3): 411-420.
<http://dx.doi.org/DOI: 10.2478/s11533-010-0027-2>
 Co-Author
 Published, Springer, Germany
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 2
 Description / Contribution Value: The class of spaces having the FAP(n)-property is investigated in this paper. The main theorems imply generalizations of some results due to Uspenskij and Tuncali-Valov.
39. Matsushashi, E.; Valov, V.(2010). Krasinkiewicz spaces and parametric Krasinkiewicz maps. *Houston Journal of Mathematics*. 36(4): 1207-1220.
 Co-Author
 Published, Houston University, United States
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 2
 Description / Contribution Value: Specific result concerning Krasinkiewicz spaces and parametric Krasinkiewicz maps are established.
40. Karassev, A.; Tuncali, M.; Valov, V.(2010). Finite-to-one maps into Euclidean manifolds and spaces with disjoint disks properties. *Topology and its Applications*. 157(4): 779-788.
<http://dx.doi.org/http://dx.doi.org/10.1016/j.topol.2009.08.008>
 Co-Author
 Published, Elsevier, Netherlands
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 3
 Description / Contribution Value: The existence of residual sets of finite-to-one maps into Euclidean manifolds and spaces having disjoint disks properties is obtained.
41. Valov, V.(2010). Linear operators with compact supports, probability measures and Milyutin maps. *Journal of Mathematical Analysis and Applications*. 370(1): 132-145.
<http://dx.doi.org/http://dx.doi.org/10.1016/j.jmaa.2010.04.045>
 Published, Elsevier, Netherlands
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 1
 Description / Contribution Value: The notion of a regular operator with compact supports between function spaces is introduced. On that base we obtain a characterization of absolute extensors for 0-dimensional spaces in terms of regular extension operators having compact supports.

42. Gutev, V; Valov, V.(2009). Open maps having the Bula property. *Fundamenta Mathematicae*. 205(2): 91-104.
<http://dx.doi.org/DOI: 10.4064/fm205-2-1>
 Co-Author
 Published, Institute of Mathematics, Polish Acad. of Sciences, Poland
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 2
 Description / Contribution Value: Applications are given to the existence of “disjoint” usco multiselections of set-valued l.s.c. mappings defined on paracompact C-spaces, and to special type of factorizations of open continuous maps from metrizable spaces onto paracompact C-spaces.
43. Valov, V.(2009). Probability measures and Milyutin maps. *Journal of Mathematical Analysis and Applications*. 350(2): 723-730.
<http://dx.doi.org/doi:10.1016/j.jmaa.2008.06.003>
 Published, Elsevier, Netherlands
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 1
 Description / Contribution Value: We prove that the functor of Radon probability measures transforms any open map between completely metrizable spaces into a soft map. This result is applied to establish some properties of Milyutin maps between completely metrizable spaces.
44. Nedev, S.; Pelant, J.; Valov, V.(2009). A non-separable Christensen's theorem and set tri-quotient maps. *Topology and its Applications*. 156(7): 1234-1240.
<http://dx.doi.org/http://dx.doi.org/10.1016/j.topol.2008.12.015>
 Co-Author
 Published, Elsevier, Netherlands
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 3
 Description / Contribution Value: In this paper we provide conditions for the validity of a Christensen's result in non-separable metric spaces.
45. Gutev, V.; Valov, V.(2009). Sections, selections and Prohorov's theorem. *Journal of Mathematical Analysis and Applications*. 360(2): 377-379.
<http://dx.doi.org/http://dx.doi.org/10.1016/j.jmaa.2009.06.063>
 Co-Author
 Published, Elsevier, Netherlands
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 2
 Description / Contribution Value: The famous Prohorov theorem for Radon probability measures is generalized in terms of usco mappings. In the case of completely metrizable spaces this is achieved by applying a classical Michael result on the existence of usco selections for l.s.c. mappings. A similar approach works when sieve-complete spaces are considered.
46. Valov, V.(2008). On parametric Bing and Krasinkiewicz maps. *Topology and its Applications*. 155(8): 906-915.
<http://dx.doi.org/doi:10.1016/j.topol.2006.11.011>
 Published, Elsevier, Netherlands
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 1
 Description / Contribution Value: We provide a method for establishing parametric versions of previously known results. On this base we establish parametric theorems about Bing and Krasinkiewicz maps.

47. Skordev, G.; Valov, V.(2008). Dimension-raising theorems for cohomological and extension dimension. *Topology and its Applications*. 155(17-18): 2090-2101.
<http://dx.doi.org/doi:10.1016/j.topol.2007.04.016>
 Co-Author
 Published, Elsevier, Netherlands
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 2
 Description / Contribution Value: We establish cohomological and extension dimension versions of the Hurewicz dimension-raising theorem.

48. Karassev, A.; Valov, V.(2008). Dimension of maps, universal spaces, and homotopy. *Journal of Mathematical Sciences*. 155(4): 571-623.
<http://dx.doi.org/1072-3374/08/1554-0571>
 Co-Author
 Published, Springer, United States
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 2
 Description / Contribution Value: This paper is a survey of some recent results in dimension theory. The main topics under consideration are: dimension of maps in the classical and extension dimension theories, universal spaces (in particular, universal compacta) in extension dimension theory, and [L]-homotopy. A number of theorems included in the survey are accompanied by proofs.

49. Karassev, A.; Tuncali, M.; Valov, V.(2007). *Topology in North Bay: some problems in continuum theory, dimension theory and selections*. Open Problems in Topology II, ed. E. Pearl, Elsevier 2007.
http://dx.doi.org/ISBN_0080475299_9780080475295
 Co-Author
 Published, Elsevier, Netherlands
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 3
 Editors: E. Pearl
 Description / Contribution Value: This article reports on some of the research activities in Topology at Nipissing University. Although our research areas encompass geometric topology, dimension theory, general topology, topological algebras, functional analysis, continuum theory and topological dynamics, in this article we only concentrate on some problems in dimension theory, selections and continuum theory.

50. Tymchatyn, E.; Valov, V.(2006). On intersection of simply connected sets in the plane. *Glasnik Matematički Ser. III*. 41(1): 159-163.
 Co-Author
 Published, Croatia Mathematical Society, Croatia
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 2
 Description / Contribution Value: Several authors have recently attempted to show that the intersection of three simply connected subcontinua of the plane is simply connected provided it is non-empty and the intersection of each two of the continua is path connected. In this note we give a very short complete proof of this fact. We also confirm a related conjecture of Karimov and Repovš.

51. Karassev, A.; Valov, V.(2006). Extension dimension and quasi-finite CW-complexes. Topology and its Applications. 153(17): 3241-3254.
<http://dx.doi.org/doi:10.1016/j.topol.2005.08.014>
 Co-Author
 Published, Elsevier, Netherlands
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 2
 Description / Contribution Value: We extend the definition of quasi-finite complexes from countable complexes to arbitrary ones and provide a characterization of quasi-finite complexes in terms of L-invertible maps and dimensional properties of compactifications. Several results related to the class of quasi-finite complexes are established, such as completion of metrizable spaces, existence of universal spaces and a version of the factorization theorem.
52. Karassev, A.; Valov, V.(2006). Universal absolute extensors in extension theory. Proceedings of the American Mathematical Society. 134(8): 2473-2478.
[http://dx.doi.org/S_0002-9939\(06\)08304-3](http://dx.doi.org/S_0002-9939(06)08304-3)
 Co-Author
 Published, American Mathematical Society, United States
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 2
 Description / Contribution Value: Let L be a countable and locally finite CW complex. Suppose that the class of all metrizable compacta of extension dimension $\leq [L]$ contains a universal element which is an absolute extensor in dimension $[L]$. Our main result shows that L is quasi-finite.
53. Chigogidze, A.; Valov, V.(2006). Extraordinary dimension of maps. Topology and its Applications. 153(10): 1586–1592.
<http://dx.doi.org/doi:10.1016/j.topol.2004.04.012>
 Co-Author
 Published, Elsevier, Netherlands
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 2
 Description / Contribution Value: We provide results about extraordinary dimension introduced by Shchepin.
54. Tuncali, M.; Valov, V.(2005). On finite-to-one maps. Canadian Mathematical Bulletin. 48(4): 614-621.
 Co-Author
 Published, Canadian Mathematical Society, Canada
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 2
 Description / Contribution Value: We prove a theorem about the existence of finite-to-one maps into Euclidean spaces. Our result provides a positive answer to a question raised by Bogatyι-Fedorchuk-van Mill.
55. Bogatyι, S.; Valov, V.(2005). Robert's type theorems on dimension and conversion of the transversal Tverbeg's theorem. Sbornik Mathematics. 196(11-12): 1585-1603.
<http://dx.doi.org/https://doi.org/10.1070/SM2005v196n11ABEH003722>
 Co-Author
 Published, London Mathematical Society, United Kingdom
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 2
 Description / Contribution Value: Central in the paper are two results on the existence of 'economical' embeddings in a Euclidean space. The first result states the existence of embeddings with images intersecting the large-dimensional planes in sets of 'controllable' dimension. The second result proves the existence of maps such that each small-dimensional plane contains 'controllably' many points of the image.

56. Tuncali, M.; Tymchatyn, T.; Valov, V.(2005). Extensional dimension and completion of maps. *Topology Proceedings*. 29(1): 377-384.
Co-Author
Published, Auburn University, United States
Refereed?: Yes, Open Access?: No
Number of Contributors: 3
Description / Contribution Value: We prove a completion theorem for closed maps between metrizable spaces. We also establish a parametric version of a Katetov's theorem characterizing the covering dimension of metrizable spaces in terms of uniformly 0-dimensional maps into finite-dimensional cubes.
57. Chigogidze, A.; Karashev, A.; Kawamura, K; Valov, V.(2005). On C^* -algebras with the approximate n -th root property. *Bulletin of the Australian Mathematical Society*. 72(2): 197-212.
<http://dx.doi.org/0004-9729/05>
Co-Author
Published, Australian Mathematical Society, Australia
Refereed?: Yes, Open Access?: No
Number of Contributors: 4
Description / Contribution Value: We introduce the notion of C^* -algebras having the approximate n -th root property. It is shown that there exists a non-commutative (respectively, commutative) separable unital C^* -algebra A such that any other (commutative) separable unital C^* -algebra B is a quotient of A under a special homomorphism.
58. Tuncali, M.; Valov, V.(2005). On regularly branched maps. *Topology and its Applications*. 150(1-3): 213-221.
<http://dx.doi.org/doi:10.1016/j.topol.2004.11.014>
Co-Author
Published, Elsevier, Netherlands
Refereed?: Yes, Open Access?: No
Number of Contributors: 2
Description / Contribution Value: We introduce the notion of parametric regularly branched maps and provide an analogue of the well know theorem for regularly branched maps.
59. Chigogidze, A.; Valov, V.(2004). Bounded rank of C^* -algebras. *Topology and its Applications*. 140(2-2): 163-180.
<http://dx.doi.org/doi:10.1016/j.topol.2003.07.007>
Co-Author
Published, Elsevier, Netherlands
Refereed?: Yes, Open Access?: No
Number of Contributors: 2
Description / Contribution Value: We introduce a concept of bounded rank (with respect to a positive constant) for unital C^* -algebras as a modification of the usual real rank and present a series of conditions insuring that bounded and real ranks coincide.
60. Tuncali, M.; Valov, V.(2004). On finite-dimensional maps. *Tsukuba Journal of Mathematics*. 28(1): 155-167.
Co-Author
Published, University of Tsukuba, Japan
Refereed?: Yes, Open Access?: No
Number of Contributors: 2
Description / Contribution Value: Some results about finite-dimensional closed maps are provided.

61. Gutev, V.; Valov, V.(2003). Dense families of selections and finite-dimensional spaces. Set-Valued Analysis. 11(4): 373-391.
Co-Author
Published, Kluwer, Netherlands
Refereed?: Yes, Open Access?: No
Number of Contributors: 2
Description / Contribution Value: A characterization of n-dimensional spaces via continuous selections avoiding Zn-sets is given, and a selection theorem for strongly countable-dimensional spaces is established. We apply these results to prove a generalized Ostrand's theorem, and to obtain a new alternative proof of the Hurewicz formula. It is also shown that our selection theorem yields an easy proof of a Michael's result.
62. Tuncali, M.; Valov, V.(2003). On finite-dimensional maps II. Topology and its Applications. 132(1): 81-87.
[http://dx.doi.org/doi:10.1016/S0166-8641\(02\)00365-6](http://dx.doi.org/doi:10.1016/S0166-8641(02)00365-6)
Co-Author
Published, Elsevier, Netherlands
Refereed?: Yes, Open Access?: No
Number of Contributors: 2
Description / Contribution Value: We extend a result of Uspekij about finite-dimensional maps.
63. Chigogidze, A.; Valov, V.(2002). The extension dimension and C-spaces. Bulletin of the London Mathematical Society. 34(6): 708-716.
<http://dx.doi.org/DOI: 10.1112/S0024609302001315>
Co-Author
Published, Cambridge University Press, United Kingdom
Refereed?: Yes, Open Access?: No
Number of Contributors: 2
Description / Contribution Value: Some generalizations of the classical Hurewicz formula are obtained for the extension dimension and C-spaces. A characterization is also given of the class of metrizable spaces that are absolute neighborhood extensors for all metrizable C-spaces.
64. Tuncali, M.; Valov, V.(2002). On dimensionally restricted maps. Fundamenta Mathematicae. 175(1): 35-52.
Co-Author
Published, Institute of Mathematics, Polish Academy of Sciences, Poland
Refereed?: Yes, Open Access?: No
Number of Contributors: 2
Description / Contribution Value: We extend some finitenite-dimensional results of Pasynkov and Toruczyk. A generalization of a result due to Dranishnikov and Uspenskij about extensional dimension is also established.
65. Gutev, V.; Valov, V.(2002). Continuous selections and C-spaces. Proceedings of the American Mathematical Society. 130(1): 233-242.
[http://dx.doi.org/S 0002-9939\(01\)05995-0](http://dx.doi.org/S 0002-9939(01)05995-0)
Co-Author
Published, American Mathematical Society, United States
Refereed?: Yes, Open Access?: No
Number of Contributors: 1
Description / Contribution Value: A characterization of paracompact C-spaces via continuous selections avoiding Z-sets is given. The result is applied to prove a countable sum theorem for paracompact C-spaces, and to obtain a new partial solution of a question raised by E. Michael.

66. Arizmendi, H.; Carrilo-Hoyo, A; Valov, V.(2002). On Q , $Q(M)$ and $Q(M)^\#$ -algebras. *Commentationes Mathematicae*. 42(2): 137-143.
 Co-Author
 Published, Polish Mathematical Society, Poland
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 3
 Description / Contribution Value: Let X be a completely regular space and let T be a topology on the algebra $A = C_b(X)$ of all continuous complex bounded functions on X , which makes A a topological algebra and which is finer than the topology of pointwise convergence and coarser than the topology σ of uniform convergence on X . The main result states that the following are equivalent: (1) A is a Q -algebra, (2) A is a QM -algebra, (3) A is a $QM^\#$ -algebra, (4) $T = \sigma$.
67. Chigogidze, A.; Valov, V.(2002). C^* -algebras of infinite real rank. *Bulletin of the Australian Mathematical Society*. 66(3): 487-496.
 Co-Author
 Published, Australian Mathematical Society, Australia
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 2
 Description / Contribution Value: We introduce the notion of weakly (strongly) infinite real rank for unital C^* -algebras. It is shown that a compact space X is weakly (strongly) infinite-dimensional if and only if $C(X)$ has weakly (strongly) infinite real rank.
68. Valov, V.(2002). Continuous selections and finite C -spaces. *Set-Valued Analysis*. 10(1): 37-51.
 Published, Kluwer, Netherlands
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 1
 Description / Contribution Value: Characterization of paracompact finite C -spaces via continuous selections avoiding Z_σ -sets are given. We apply these results to obtain some properties of finite C -spaces. Factorization theorems and a completion theorem for finite C -spaces are also established.
69. Chigogidze, A.; Valov, V.(2001). Extension dimension and refinable maps. *Acta Mathematica Hungarica*. 92(3): 185-194.
 Co-Author
 Published, Springer, Hungary
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 2
 Description / Contribution Value: Extension dimension is characterized in terms of omega-maps. We apply this result to prove that extension dimension is preserved by refinable maps between metrizable spaces. It is also shown that refinable maps preserve some infinite-dimensional properties.
70. Dube, T.; Valov, V.(2001). Generalized tri-quotient maps and Cech-completeness. *Commentationes Mathematicae Universitatis Carolinae*. 42(1): 187-194.
 Co-Author
 Published, Charles University, Prague, Czech Republic
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 2
 Description / Contribution Value: The purpose of this paper is to characterize Lindelof Cech-complete spaces X by means of the set of all compact subsets of X . Similar characterizations also hold for Lindelof locally compact spaces, as well as for countably K -determined spaces. Our results extend a classical result of Christensen.

71. Chigogidze, A.; Valov, V.(2001). Universal metric spaces and extension dimension. *Topology and its Applications*. 113(1-3): 23-27.
[http://dx.doi.org/doi.org/10.1016/S0166-8641\(00\)00019-5](http://dx.doi.org/doi.org/10.1016/S0166-8641(00)00019-5)
 Co-Author
 Published, Elsevier, Netherlands
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 2
 Description / Contribution Value: We prove the existence of universal spaces for all metrizable spaces of given weight and with a given cohomological or extensional dimension.
72. Donchev, J.; Salbany, S.; Valov, V.(2000). Barreled and bornological function spaces. *Journal of Mathematical Analysis and Applications*. 242(1): 1-17.
<http://dx.doi.org/doi:10.1006/jmaa.1999.6625>
 Co-Author
 Published,
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 3
 Description / Contribution Value: Necessary and sufficient conditions in the terms of the topology of a space X are given in order the function space on X to be barreled, quasi-barreled, bornological, or ultra-bornological space.
73. Vuma, D.; Valov, V.(2000). Lindelof degrees and function spaces. *Papers in honour of Bernhard Banaschewski* (Cape Town, 1996) ISBN 978-90-481-5540-8. : 475-483.
<http://dx.doi.org/doi:/10.1007/978-94-017-2529-3>
 Co-Author
 Published, Kluwer, Belgium
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 2
 Description / Contribution Value: We prove that if X and Y are completely regular perfect spaces and T is a continuous linear homeomorphism between $C_p(X)$ and $C_p(Y)$ then the Lindelof degrees of X and Y are the same. When T is positive the above result remains true for any completely regular X and Y .
74. Vuma, D.; Valov, V.(1999). Function spaces and Dieudonne completeness. *Quaestiones Mathematicae*. 21(3-4): 303-309.
 Co-Author
 Published, South African Mathematical Society, South Africa
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 2
 Description / Contribution Value: It is shown that the set of all F -valued linear continuous maps on $C(X,E)$, where E is a normed space, when equipped with the topology of uniform convergence on the members of some families of bounded subsetsof $C(X, E)$ is a complete uniform space if F is a Banach space and X is Dieudonne complete. This result is applied to prove that Dieudonne completeness is preserved by linear quotient surjections from $C(X,E)$ onto $C(Y,F)$ provided E, F are Banach spaces and Y is a k -space.
75. Arizmendi, H.; Valov, V.(1999). Some characterizations of Q -algebras. *Commentationes Mathematicae*. 39: 11-21.
 Co-Author
 Published, Polish Mathematical Society, Poland
 Refereed?: Yes, Open Access?: No
 Number of Contributors: 2
 Description / Contribution Value: We characterize topological Q -algebras and generalizations of Q -algebras. Some applications of our results are given.

76. Valov, V.(1999). Spaces of bounded functions. Houston Journal of Mathematics. 25(3): 501-521.
Published, Houston University, United States
Refereed?: Yes, Open Access?: No
Number of Contributors: 1
Description / Contribution Value: For a completely regular space X and a Banach space E let $C(X,E)$ be the set of all E -valued bounded continuous maps on X endowed with the compact-open topology. We prove that some topological properties of X are determined by the linear topological structure of $C(X,E)$.
77. Valov, V.(1997). Spaces of bounded functions with the compact open topology. Bulletin of the Polish Academy of Sciences. 45(2): 171-179.
Published, Polish Academy of Sciences, Poland
Refereed?: Yes, Open Access?: No
Number of Contributors: 1
Description / Contribution Value: We answer a question of Yamada and provide a positive solution to a question of J. Baara and J. de Groot.
78. Valov, V.(1997). Function spaces. Topology and its Applications. 81(1): 1-22.
[http://dx.doi.org/doi:SO166-8641\(97\)00017-5](http://dx.doi.org/doi:SO166-8641(97)00017-5)
Published, Elsevier, Netherlands
Refereed?: Yes, Open Access?: No
Number of Contributors: 1
Description / Contribution Value: We prove that some topological properties of spaces X and Y are preserved if the function space on X and Y equipped with the compact-open or the pointwise topology are linearly homeomorphic.
79. Shakhmatov, D.; Valov, V.(1996). A characterization of Dugundji spaces via set-valued maps. Topology and its Applications. 74(1-3): 109-121.
[http://dx.doi.org/https://doi.org/10.1016/S0166-8641\(96\)00049-1](http://dx.doi.org/https://doi.org/10.1016/S0166-8641(96)00049-1)
Co-Author
Published, Elsevier, Netherlands
Refereed?: Yes, Open Access?: No
Number of Contributors: 2
Description / Contribution Value: We prove the following characterization of Dugundji spaces: A compact Hausdorff space X is Dugundji if and only if there exists an upper semi-continuous compact-valued map $r : X \times X \rightarrow X$ such that $r(x, y, y) = r(y, y, x) = x$ for all x, y in X .
80. Gutev, V.; Valov, V.(1994). A classical-type characterizations of non-metrizable ANE(n)-spaces. Fundamenta Mathematicae. 154(3): 243-259.
Co-Author
Published, Institute of Mathematics, Polish Academy of Sciences, Poland
Refereed?: Yes, Open Access?: No
Number of Contributors: 2
Description / Contribution Value: The Kuratowski–Dugundji theorem that a metrizable space is an absolute (neighborhood) extensor in dimension n iff it is $LC(n-1) \& C(n-1)$ (resp., $LC(n-1)$) is extended to a class of non-metrizable absolute (neighborhood) extensors in dimension n . On this base, several facts concerning metrizable extensors are established for non-metrizable ones.
81. Chigogidze, A.; Valov, V.(1994). Set-valued maps and AE(0)-spaces. Topology and its Applications. 55(1): 1-15.
[http://dx.doi.org/https://doi.org/10.1016/0166-8641\(94\)90061-2](http://dx.doi.org/https://doi.org/10.1016/0166-8641(94)90061-2)
Co-Author
Published, Elsevier, Netherlands
Refereed?: Yes, Open Access?: No
Number of Contributors: 2
Description / Contribution Value: Characterizations of noncompact AE(0)- and AE(1)-spaces in terms of set-valued maps are given.

82. Valov, V.(1993). Linear topological classifications of certain function spaces II. *Mathematica Pannonica*. 4(1): 137-144.
Published, University of Pecs, Hungary
Refereed?: Yes, Open Access?: No
Number of Contributors: 1
Description / Contribution Value: We provide linear topological classifications of the function space $C_p(X)$ and $C_p^*(X)$ for specific spaces X .
83. Gutev, V.; Nedev, S.; Pelant, J.; Valov, V.(1992). Cantor set selectors. *Topology and its Applications*. 44(1-3): 163-166.
[http://dx.doi.org/doi-org/10.1016/0166-8641\(92\)90089-I](http://dx.doi.org/doi-org/10.1016/0166-8641(92)90089-I)
Co-Author
Published, Elsevier, Netherlands
Refereed?: Yes, Open Access?: No
Number of Contributors: 4
Description / Contribution Value: The following result is proved: If every l.s.c. mapping from the Cantor set C to the closed subsets of a metric space X admits a u.s.c. selection, then X is a Baire space and either X is scattered or X contains a copy of C .
84. Valov, V.(1991). Linear topological classifications of certain function spaces. *Transaction of the American mathematical Society*. 327(2): 583-600.
Published, American Mathematical Society, United States
Refereed?: Yes, Open Access?: No
Number of Contributors: 1
Description / Contribution Value: We provide some linear topological classoifications of the function spaces $C_p(X)$ and $C_p^*(X)$
85. Valov, V.(1991). Surjective characterizations of metrizable LC-spaces. *Annuaire de l'Université de Sofia, Faculté de Mathématiques et Mécanique*". 85(1-2): 43-47.
Published, Faculty of Mathematics, Sofia University, Bulgaria
Refereed?: Yes, Open Access?: No
Number of Contributors: 1
Description / Contribution Value: A surjective characterization of metrizable $LC(\infty)$ -spaces is obtained. This result provides a positive solution of a question raised by A. Chigogidze.
86. Chigogidze, A.; Valov, V.(1990). Universal maps and surjective characterizations of completely metrizable $LC(n)$ -spaces. *Proceedings of the American Mathematical Society*. 109(4): 1125-1133.
Co-Author
Published, American Mathematical Society, United States
Refereed?: Yes, Open Access?: No
Number of Contributors: 2
Description / Contribution Value: For every infinite kardianl t and every n we construct an n -dimensional completely metrizable $AE(n)$ -space of weight t which is universal for the class of all n -dimensional metrizable spaces with the the same weight. Moreover, this space has some additional properties and it can serves as an analog of the universal n -dimensional Nobelling space in the class of metric spaces with weight t .
87. Chigogidze, A.; Valov, V.(1988). Universal maps and surjectiove characterizations of completely metrizable $LC(n)$ -spaces. *Proceedings of the Bulgarian Academy of Sciences*. 41(5): 9-10.
Co-Author
Published, Bulgarian Academy of Sciences, Bulgaria
Refereed?: Yes, Open Access?: No
Number of Contributors: 2
Description / Contribution Value: In this paper we announced results which were published later in the *Proceedings of the American Mathematical Society*.

88. Chigogidze, A.; Valov, V.(1988). Set-valued maps and $AE(0)$ -spaces. Proceedings of the Bulgarian Academy of Sciences. 41(4): 13-14.
Co-Author
Published, Bulgarian Academy of Sciences, Bulgaria
Refereed?: Yes, Open Access?: No
Number of Contributors: 2
Description / Contribution Value: Two theorems are announced in this note. The first one describes $AE(0)$ -spaces in the class of completely regular spaces. The second one extends a result of Dranishnikov about $AE(1)$ -spaces.
89. Bogaty, S.; Valov, V.(1988). The weight of compact retracts. Moscow University Mathematical Bulletin. 43(4): 100-102.
Co-Author
Published, Moscow State University, Russian Federation
Refereed?: Yes, Open Access?: No
Number of Contributors: 2
Description / Contribution Value: We provide a result generalizing the well known theorem of Shchepin that every finite-dimensional compact absolute neighborhood retract is metrizable.
90. Gutev, V.; Valov, V.(1988). Selection theorem for $AE(n)$ -spaces. Proceedings of the Bulgarian Academy of Sciences. 41(5): 11-12.
Co-Author
Published, Bulgarian Academy of Sciences, Bulgaria
Refereed?: Yes, Open Access?: No
Number of Contributors: 2
Description / Contribution Value: We propose a selection condition of Michael's type which is necessary and sufficient for a completely regular $LC(n-1)$ - and $C(n-1)$ - space to be $AE(n)$.
91. Valov, V.(1988). Yet another characterization of $AE(0)$ -spaces. Proceedings of the 17th Spring Conference of the Union of Bulgarian Mathematicians. : 147-150.
Published, Union of Bulgarian Mathematicians, Bulgaria
Refereed?: Yes, Open Access?: No
Number of Contributors: 1
Description / Contribution Value: It is shown that every absolute $P(\beta)$ -retract is an $AE(0)$. This generalizes a previous result of the author.
92. Valov, V.(1987). Milyutin mappings and $AE(0)$ -spaces. Proceedings of the Bulgarian Academy of Sciences. 40(11): 9-12.
Published, Bulgarian Academy of Sciences, Bulgaria
Refereed?: Yes, Open Access?: No
Number of Contributors: 1
Description / Contribution Value: The paper is an announcement of some result about Milyutin maps and $AE(0)$ -spaces. The results were proved later in the Journal of Mathematical Analysis and Applications.
93. Valov, V.(1987). Another characterization of $AE(0)$ -spaces. Pacific Journal of Mathematics. 127(1): 199-208.
Published, Mathematical Sciences Publishers, United States
Refereed?: Yes, Open Access?: No
Number of Contributors: 1
Description / Contribution Value: We prove that a space X is an absolute extensor for the class of all zero-dimensional spaces if and only if X is an upper semi-continuous compact-valued retract of a power of the real line.

94. Valov, V.(1986). Some characterizations of the spaces with a lattice of d-open mappings. Proceedings of the Bulgarian Academy of Sciences. 39(9): 9-12.
Published, Bulgarian Academy of Sciences, Bulgaria
Refereed?: Yes, Open Access?: No
Number of Contributors: 1
Description / Contribution Value: We provide some characterization of spaces having lattices of d-open mappings.
95. Valov, V.(1986). A note of spaces with lattices of d-open mappings. Proceedings of the Bulgarian academy of Sciences. 39(8): 9-12.
Published, Bulgarian Academy of Sciences, Bulgaria
Refereed?: Yes, Open Access?: No
Number of Contributors: 1
Description / Contribution Value: Some properties of spaces possessing a lattice of d-open mappings are given.
96. Valov, V.(1986). Some properties of $C_p(X)$. Commentationes Mathematicae Universitatis Carolinae. 27(4): 665-672.
Published, Charles University, Prague, Czech Republic
Refereed?: Yes, Open Access?: No
Number of Contributors: 1
Description / Contribution Value: A characterization of spaces X such that the function space $C_p(X)$ has the following property: every family of $G(t)$ -subsets contains a dense subfamily of power t .
97. Nedev, S.; Valov, V.(1985). Some properties of selectors. Proceedings of the Bulgarian Academy of Sciences. 38(12): 1593-1596.
Co-Author
Published, Bulgarian Academy of Sciences, Bulgaria
Refereed?: Yes, Open Access?: No
Number of Contributors: 2
Description / Contribution Value: The authors introduce different classes of selectors and investigate their properties.
98. Nedev, S.; Valov, V.(1984). Normal selectors for the normal spaces. Proceedings of the Bulgarian Academy of Sciences. 37(7): 843-846.
Co-Author
Published, Bulgarian Academy of Sciences, Bulgaria
Refereed?: Yes, Open Access?: No
Number of Contributors: 2
Description / Contribution Value: The main theorem states that if a normal space is a selector for the normal spaces, then it should be a Polish space having some additional properties.
99. Valov, V.(1984). On the spaces which have a tau-lattice of open mappings. Serdica Mathematical Journal. 10(2): 159-164.
Published, Institute of Mathematics, Bulgarian Acad. of Sciences, Bulgaria
Refereed?: Yes, Open Access?: No
Number of Contributors: 1
Description / Contribution Value: Some properties of spaces possessing t -lattices of open mappings are given, where t is an infinite cardinal.

100. Valov, V.(1983). The weight of compacta with lattices of open mappings. Pliska Mathematical Journal. 6: 63-74.
Published, Institute of Mathematics, Bulg. Acad. of Sciences, Bulgaria
Refereed?: Yes, Open Access?: No
Number of Contributors: 1
Description / Contribution Value: It is shown that if $\exp X$ and $\exp_n X$ are continuous images of compact spaces having lattices of open mappings, then X is a metrizable compactum. This extends results of L. Shapiro.
101. Nedev, S.; Valov, V.(1983). On metrizability of selectors. Proceedings of the Bulgarian Academy of Sciences. 36(11): 1363-1366.
Co-Author
Published, Bulgarian Academy of Sciences, Bulgaria
Refereed?: Yes, Open Access?: No
Number of Contributors: 2
Description / Contribution Value: This the first paper where the authors introduced the notion of selectors. It is shown that some type of selectors are metrizable.
102. Pasyukov, B.; Valov, V.(1981). Free groups of topological spaces. Proceedings of the Bulgarian Academy of Sciences. 34(8): 1049-1052.
Co-Author
Published, Bulgarian Academy of Sciences, Bulgaria
Refereed?: Yes, Open Access?: No
Number of Contributors: 2
Description / Contribution Value: The paper consists of two parts. It is shown in the first part that some spaces X and Y have the same dimension if their function spaces $C_p(X)$ and $C_p(Y)$ are linearly homeomorphic. The second part contains the following result: If the free topological groups (in the sense of Graev) of two spaces are isomorphic, then all cohomological groups of these spaces are also isomorphic.
103. Valov, V.(1980). Factorization theorems. Proceedings of the 9th Spring Conference of the Union of Bulgarian Mathematicians. : 21-24.
Published, Union of the Bulgarian Mathematicians, Bulgaria
Refereed?: Yes, Open Access?: No
Number of Contributors: 1
Description / Contribution Value: Factorization theorems are established for spaces having lattices of mappings preserving some topological properties.
104. Valov, V.(1979). The power of bicomacts with lattices of open maps. Proceedings of the Bulgarian Academy of Sciences. 32(8): 1005-1006.
Published, Bulgarian Academy of Sciences, Bulgaria
Refereed?: Yes, Open Access?: No
Number of Contributors: 1
Description / Contribution Value: It is shown that if a compact space X is a continuous image of another compactum with a lattice of open mappings, then some cardinal invariants of X coincide.
105. Choban, M.; Valov, V.(1975). A certain theorem of Michael on selections. Proceedings of the Bulgarian Academy of Sciences. 28(7): 871-873.
Co-Author
Published, Bulgarian Academy of Sciences, Bulgaria
Refereed?: Yes, Open Access?: No
Number of Contributors: 2
Description / Contribution Value: The paper contains a correct proof of a selection theorem of Michael.

Book Reviews

1. Review of the book "Continuity theory" by Nel Louis. Mathematical Reviews. (2017).
Published, American Mathematical Society, United States
Review Year: 2017
Nel Louis. 2016. "Continuity Theory" by Nel Louis, Springer, 2016. xix+460 pp.
Description of Contribution Role: Description of the book
2. Review of the book "Non-metrizable manifolds" by D. Gauld. Mathematical Reviews. (2016).
Published, American Mathematical Society, United States
Review Year: 2016
David Gauld. 2014. Non-metrizable manifolds Springer, Singapore, 2014. xvi+203 pp.
Description of Contribution Role: A book review
3. Review of the book "Geometric aspects of general topology" by K. Sakai. Mathematical Reviews. (2014).
Published, American Mathematical Society, United States
Review Year: 2014
Katsuro Sakai. 2013. "Geometric aspects of general topology" by K. Sakai, Springer, Tokyo, 2013. xvi+521 pp.
Description of Contribution Role: A book review

Supervised Student Publications

1. Bajmak, Zenafer
Another version of Hurewicz theorem for extensional dimension. Proceedings of the Bulgarian Academy of Sciences. (2017). 10(70): 1333-1340.
Published, Bulgarian Academy of Sciences, Bulgaria
Description of Contribution Role: I suggested the idea for generalizing the result of Brosky-Chigogidze using quasi-finite CW complexes instead of finite complexes. I also went through the paper to make sure the proofs are correct.
Description / Contribution Value: A version of the dimension-lowering Hurewicz theorem for extensional dimension is established. The theorem extends a corresponding result of Brodsky-Chigogidze.
2. Lalonde, Bradley
Bases in the product of homogeneous metric ANR continua. Topology and its Applications. (2017). Special issue of TA in memory of A. Chigogidze(227): 165-168.
<http://dx.doi.org/https://doi.org/10.1016/j.topol.2017.01.016>
Published, Elsevier, Netherlands
Student Contribution (%): 70
Contribution Percentage: 21-30
Description of Contribution Role: My role was to formulate the result which was expected to be true and to check and discuss the proof.
Description / Contribution Value: The paper contains a proof that any point of a product of two metric homogeneous ANR continua has a base of Euclidean cube-like neighborhoods
3. Bajmak, Zenafer
Some properties of metrizable LC(n)-spaces. Vol.2(2015), 11-14. Proceedings of the V Congress of Mathematicians of Macedonia. (2015). (2): 11-14.
Published, Union of Macedonian Mathematicians, Macedonia, The Former Yugoslav Republic of
Description of Contribution Role: My role was to provide the idea for that paper and to supervise and check the proofs.
Description / Contribution Value: Some properties of metric LC(n)-spaces are established using the corresponding properties of metric ANR-spaces

4. Alkins, Robert
 Functional extenders and set-valued retractions. Journal of Mathematical Analysis and Applications. (2013). 1(339): 306-314.
<http://dx.doi.org/https://doi.org/10.1016/j.jmaa.2012.10.018>
 Published, Elsevier, Netherlands
 Student Contribution (%): 40
 Description of Contribution Role: My role was to formulate the expected results, and provide some of the proofs.
 Description / Contribution Value: We describe the supports of a class of real-valued maps on introduced by Radul. Using this description, a characterization of compact-valued retracts of a given space in terms of functional extenders is obtained.

Conference Publications

1. Vesko Valov. (2018). Ranks and the approximate n-th root property of C^* -algebras. Topological Algebras and Their Applications. Topological Algebras and their Applications, Santo Domingo, Dominican Republic (285-304). De Gruyter, Germany
<http://dx.doi.org/ISBN-13: 978-3110414332>
 Conference Date: 2014/6
 Paper
 Published
 Refereed?: Yes, Invited?: Yes
 Number of Contributors: 1
 Editors: Alexander Katz
 Description / Contribution Value: The paper provides the complete proofs of some author's results about ranks and approximate n-th root property of C^* -algebras

Dr. Tzvetalin Simeonov Vassilev

Correspondence language: English

Sex: Male

Date of Birth: 5/03

Canadian Residency Status: Canadian Citizen

Contact Information

The primary information is denoted by (*)

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Protected when completed

Dr. Tzvetalin Vassilev

Language Skills

Language	Read	Write	Speak	Understand	Peer Review
Bulgarian	Yes	Yes	Yes	Yes	Yes
English	Yes	Yes	Yes	Yes	Yes
Macedonian	Yes	Yes	Yes	Yes	Yes
Russian	Yes	Yes	Yes	Yes	Yes

Degrees

- 2005/10 Doctorate, Computer Science, University of Saskatchewan
Degree Status: Completed
Thesis Title: Optimal Area Triangulation
Areas of Research: Mathematics of Computing, Algorithms
Research Disciplines: Computer Science
Supervisors: Dr. J. Mark Keil, 2000/1 - 2005/8
Fields of Application: Communication and Information Technologies
- 1994/7 Master's Thesis, Computer Science, Lenin, V.I. Higher Inst. of Mech & Elect Engineering
Degree Status: Completed
Thesis Title: Modelling Digital Systems Using Petri Nets (in Bulgarian)
Areas of Research: Computer Systems
Research Disciplines: Computer Science
Supervisors: Dr. Iwan G. Tabakow, 1993/10 - 1994/7
Fields of Application: Communication and Information Technologies
- 1993/6 Bachelor's, Education, Lenin, V.I. Higher Inst. of Mech & Elect Engineering
Degree Status: Completed

Credentials

CORS Diploma, Canadian Operations Research Society
Fields of Application: Industrial Manufacturing and Production
Areas of Research: Optimization, Control and Operations Research
Research Disciplines: Computer Engineering and Software Engineering

Recognitions

2014/5	Nipissing University Research Achievement Award - 5,000 Nipissing University Prize / Award Annual award for faculty research achievements across the university
2007/4	NCCU Faculty Senate Scholarly Achievement Award North Carolina Central University Prize / Award Annual award for faculty research achievements across the university

User Profile

Researcher Status: Researcher

Research Career Start Date: 1993/07/01

Engaged in Clinical Research?: No

Fields of Application: Communication and Information Technologies, Foundations and Knowledge Acquisition

Areas of Research: Algorithms, Combinatorial, Geometry, Optimization, Control and Operations Research

Research Specialization Keywords: Algorithms, Combinatorics, Computational Geometry, Graph Theory, Optimization

Research Disciplines: Computer Science, Applied Mathematics

Employment

2018/7	Professor of Mathematics Nipissing University Full-time, Professor Tenure Status: Tenure
2015/7	Chair, Department of Computer Science and Mathematics Computer Science and Mathematics, Nipissing University Full-time, Associate Professor Tenure Status: Tenure
2012/7 - 2018/6	Associate Professor of Mathematics Computer Science and Mathematics, Nipissing University Full-time, Associate Professor Tenure Status: Tenure
2009/7 - 2012/6	Assistant Professor of Mathematics Computer Science and Mathematics, Nipissing University Full-time, Assistant Professor Tenure Status: Tenure Track
2005/8 - 2009/6	Assistant Professor of Computer Science Mathematics and Computer Science, North Carolina Central University Full-time, Assistant Professor Tenure Status: Tenure Track

Research Funding History

Completed [n=5]

2011/5 - 2016/4	Optimization Problems on Graphs - Discovery Grant, Grant

Principal Investigator	Funding Sources: 2011/5 - 2016/4 Natural Sciences and Engineering Research Council of Canada (NSERC) Discovery Grants Total Funding - 70,000 Portion of Funding Received - 70,000 Funding Competitive?: Yes
2012/12 - 2013/6 Principal Applicant	Fields Institute General Scientific Activity Grant, Grant, Workshop Clinical Research Project?: No Funding Sources: 2012/12 - 2013/6 Fields Institute for Research in Mathematical Sciences (The) General Scientific Activity Grant Total Funding - 5,000 Portion of Funding Received - 5,000 Funding Competitive?: Yes
2009/7 - 2011/6 Principal Investigator	Computational Mathematics - Nipissing University Start-Up Research Grant, Grant Clinical Research Project?: No Funding Sources: 2009/7 - 2011/6 Nipissing University Start-Up Research Grant Total Funding - 5,000 Portion of Funding Received - 5,000 Funding Competitive?: No
2011/1 - 2011/6 Principal Applicant	MITACS Networking Events Grant, Grant, Workshop Clinical Research Project?: No Funding Sources: 2011/1 - 2011/6 Mathematics of Information Technology and Complex Systems (MITACS) Networking Events Grant Total Funding - 10,000 Portion of Funding Received - 10,000 Funding Competitive?: Yes
2005/5 - 2005/7 Principal Applicant	Marie Curie Visiting Fellowship (Doctoral), Fellowship Clinical Research Project?: No Funding Sources: 2005/5 - 2005/7 European Union Marie Curie Visiting Fellowship Total Funding - 3,600 (Euro) Portion of Funding Received - 3,600 (Euro) Funding Renewable?: No Funding Competitive?: Yes
Declined [n=1]	
2005/10 - 2007/10 Principal Applicant	NSERC Visiting Fellowship in Canadian Government Labs, Fellowship Clinical Research Project?: No

Funding by Year:

2005/10 - 2007/10 Total Funding - 42,761 (Canadian dollar)
 Portion of Funding Received - 0 (Canadian dollar)

Courses Taught

2018/01/08 - 2018/04/11	Instructor, Computer Science and Mathematics, Nipissing University Course Title: Selected Topics II: Graph Algorithms Course Code: MATH 3397 Course Level: Undergraduate Section: WI001 Academic Session: Winter Number of Students: 2 Number of Credits: 3 Lecture Hours Per Week: 3 Tutorial Hours Per Week: 0 Lab Hours Per Week: 0 Guest Lecture?: No
2018/01/08 - 2018/04/11	Instructor, Computer Science and Mathematics, Nipissing University Course Title: Probability and Statistics I Course Code: MATH 2076 Course Level: Undergraduate Section: WI001 Academic Session: Winter Number of Students: 15 Number of Credits: 3 Lecture Hours Per Week: 4 Tutorial Hours Per Week: 0 Lab Hours Per Week: 0 Guest Lecture?: No
2018/01/08 - 2018/04/11	Instructor, Computer Science and Mathematics, Nipissing University Course Title: Problem Solving Course Code: MATH 2386 Course Level: Undergraduate Section: WI001 Academic Session: Winter Number of Students: 14 Number of Credits: 3 Lecture Hours Per Week: 3 Tutorial Hours Per Week: 0 Lab Hours Per Week: 0 Guest Lecture?: No

2017/09/11 - Instructor, Computer Science and Mathematics, Nipissing University
2017/12/08 Course Title: Combinatorics and Graph Theory
Course Code: MATH 3127
Course Level: Undergraduate
Section: FA001
Academic Session: Fall
Number of Students: 6
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

2017/09/11 - Instructor, Computer Science and Mathematics, Nipissing University
2017/12/08 Course Title: Discrete Mathematics I
Course Code: MATH 1056
Course Level: Undergraduate
Section: FA001
Academic Session: Fall
Number of Students: 39
Number of Credits: 3
Lecture Hours Per Week: 4
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

2017/01/09 - Instructor, Computer Science and Mathematics, Nipissing University
2017/04/14 Course Title: Optimization
Course Code: MATH 4246
Course Level: Undergraduate
Academic Session: Winter
Number of Students: 11
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

2017/01/09 - Instructor, Computer Science and Mathematics, Nipissing University
2017/04/14 Course Title: Geometry
Course Code: MATH 2116
Course Level: Undergraduate
Academic Session: Winter
Number of Students: 17
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

2016/09/06 - Instructor, Computer Science and Mathematics, Nipissing University
2016/12/09 Course Title: Discrete Mathematics I
Course Code: MATH 1056
Course Level: Undergraduate
Academic Session: Fall
Number of Students: 29
Number of Credits: 3
Lecture Hours Per Week: 4
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

2016/09/06 - Instructor, Computer Science and Mathematics, Nipissing University
2016/12/09 Course Title: Mathematical Modeling
Course Code: MATH 3296
Course Level: Undergraduate
Academic Session: Fall
Number of Students: 8
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

2016/01/11 - Instructor, Computer Science and Mathematics, Nipissing University
2016/04/08 Course Title: History of Mathematics
Course Code: MATH 2306
Course Level: Undergraduate
Section: WI001
Academic Session: Winter
Number of Students: 15
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0

2016/01/11 - Instructor, Computer Science and Mathematics, Nipissing University
2016/04/08 Course Title: Optimization
Course Code: MATH 4246
Course Level: Undergraduate
Academic Session: Winter
Number of Students: 1
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

2016/01/11 - Instructor, Computer Science and Mathematics, Nipissing University
2016/04/08 Course Title: Advanced Calculus II
Course Code: MATH 2037
Course Level: Undergraduate
Section: WI001
Academic Session: Winter
Number of Students: 10
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0

2015/09/08 - Instructor, Computer Science and Mathematics, Nipissing University
2015/12/07 Course Title: Discrete Mathematics II
Course Code: MATH 2056
Course Level: Undergraduate
Section: FA001
Academic Session: Fall
Number of Students: 16
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0

2015/09/08 - Instructor, Computer Science and Mathematics, Nipissing University
2015/12/07 Course Title: Combinatorics and Graph Theory
Course Code: MATH 3127
Course Level: Undergraduate
Section: FA001
Academic Session: Fall
Number of Students: 7
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0

2015/01/12 - Instructor, Computer Science and Mathematics, Nipissing University
2015/04/10 Course Title: Optimization
Course Code: MATH 5246
Course Level: Graduate
Section: WI001
Academic Session: Winter
Number of Students: 1
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0

2015/01/12 - Instructor, Computer Science and Mathematics, Nipissing University
2015/04/10 Course Title: Optimization
Course Code: MATH 4246
Course Level: Undergraduate
Section: WI001
Academic Session: Winter
Number of Students: 16
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0

2014/09/08 - Instructor, Computer Science and Mathematics, Nipissing University
2014/12/05 Course Title: Mathematical Modeling
Course Code: MATH 3296
Course Level: Undergraduate
Section: FA001
Academic Session: Fall
Number of Students: 4
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0

2014/09/08 - Instructor, Computer Science and Mathematics, Nipissing University
2014/12/05 Course Title: Advanced Calculus I
Course Code: MATH 2036
Course Level: Undergraduate
Section: FA001
Academic Session: Fall
Number of Students: 10
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0

2014/09/08 - Instructor, Computer Science and Mathematics, Nipissing University
2014/12/05 Course Title: Computational Geometry I
Course Code: MATH 2216
Course Level: Undergraduate
Section: FA001
Academic Session: Fall
Number of Students: 3
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0

2013/01/07 - Instructor, Computer Science and Mathematics, Nipissing University
2013/04/12 Course Title: Advanced Linear Algebra I
Course Code: MATH 2046
Course Level: Undergraduate
Section: WI001
Academic Session: Winter
Number of Students: 22
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0

2013/01/07 - Instructor, Computer Science and Mathematics, Nipissing University
2013/04/12 Course Title: Geometry
Course Code: MATH 2116
Course Level: Undergraduate
Section: WI001
Academic Session: Winter
Number of Students: 37
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0

2012/09/10 - Instructor, Computer Science and Mathematics, Nipissing University
2012/12/07 Course Title: Mathematical Modeling
Course Code: MATH 3296
Course Level: Undergraduate
Section: FA001
Academic Session: Fall
Number of Students: 15
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0

2012/09/10 - Instructor, Computer Science and Mathematics, Nipissing University
2012/12/07 Course Title: Problem Solving
Course Code: MATH 2386
Course Level: Undergraduate
Section: FA001
Academic Session: Fall
Number of Students: 24
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0

2012/01/09 - Instructor, Computer Science and Mathematics, Nipissing University
2012/04/13 Course Title: Computational Geometry I
Course Code: MATH 2216
Course Level: Undergraduate
Section: WI001
Academic Session: Winter
Number of Students: 7
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0

2012/01/09 - Instructor, Computer Science and Mathematics, Nipissing University
2012/04/13 Course Title: Combinatorics and Graph Theory
Course Code: MATH 3127
Course Level: Undergraduate
Section: WI001
Academic Session: Winter
Number of Students: 21
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0

2011/09/06 - Instructor, Computer Science and Mathematics, Nipissing University
2011/12/09 Course Title: Problem Solving
Course Code: MATH 2386
Course Level: Undergraduate
Section: FA001
Academic Session: Fall
Number of Students: 30
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0

2011/09/06 - Instructor, Computer Science and Mathematics, Nipissing University
2011/12/09 Course Title: Number Theory
Course Code: MATH 3126
Course Level: Undergraduate
Section: FA001
Academic Session: Fall
Number of Students: 26
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0

2011/01/10 - Instructor, Computer Science and Mathematics, Nipissing University
2011/04/08 Course Title: Probability and Statistics I
Course Code: MATH 2076
Course Level: Undergraduate
Section: WI001
Academic Session: Winter
Number of Students: 14
Number of Credits: 4
Lecture Hours Per Week: 4
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0

2011/01/10 - Instructor, Computer Science and Mathematics, Nipissing University
2011/04/08 Course Title: Calculus II
Course Code: MATH 1037
Course Level: Undergraduate
Section: WI001, WI002, WI003
Academic Session: Winter
Number of Students: 39
Number of Credits: 4
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 1
Lab Hours Per Week: 0

2011/01/10 - Instructor, Computer Science and Mathematics, Nipissing University
2011/04/08 Course Title: History of Mathematics
Course Code: MATH 2306
Course Level: Undergraduate
Section: WI001
Academic Session: Winter
Number of Students: 37
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0

2010/09/07 - Instructor, Computer Science and Mathematics, Nipissing University
2010/12/10 Course Title: Calculus I
Course Code: MATH 1036
Course Level: Undergraduate
Section: FA001, FA002, FA003
Academic Session: Fall
Number of Students: 75
Number of Credits: 4
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 1
Lab Hours Per Week: 0

2010/09/06 - Instructor, Computer Science and Mathematics, Nipissing University
2010/12/10 Course Title: Mathematical Modeling
Course Code: MATH 3296
Course Level: Undergraduate
Section: FA001
Academic Session: Fall
Number of Students: 17
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0

2010/01/04 - Instructor, Computer Science and Mathematics, Nipissing University
2010/04/09 Course Title: Probability and Statistics I
Course Code: MATH 2076
Course Level: Undergraduate
Section: WI001
Academic Session: Winter
Number of Students: 22
Number of Credits: 4
Lecture Hours Per Week: 4
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0

2010/01/04 - Instructor, Computer Science and Mathematics, Nipissing University
2010/04/09 Course Title: Computational Geometry I
Course Code: MATH 2216
Course Level: Undergraduate
Section: WI001
Academic Session: Winter
Number of Students: 6
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0

2009/09/08 - Instructor, Computer Science and Mathematics, Nipissing University
2009/12/11 Course Title: Number Theory
Course Code: MATH 3126
Course Level: Undergraduate
Section: FA001
Academic Session: Fall
Number of Students: 34
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0

2009/09/08 - 2009/12/11	Instructor, Computer Science and Mathematics, Nipissing University Course Title: Advanced Calculus I Course Code: MATH 2036 Course Level: Undergraduate Section: FA001 Academic Session: Fall Number of Students: 18 Number of Credits: 3 Lecture Hours Per Week: 3 Tutorial Hours Per Week: 0 Lab Hours Per Week: 0
2009/06/29 - 2009/08/21	Instructor, Mathematics and Statistics, University of Saskatchewan Course Title: Calculus II Course Code: MATH 116 Course Level: Undergraduate Section: 02 Academic Session: Summer Number of Students: 50 Number of Credits: 3 Lecture Hours Per Week: 10 Tutorial Hours Per Week: 5 Lab Hours Per Week: 0 Guest Lecture?: No
2009/06/29 - 2009/08/21	Instructor, Mathematics and Statistics, University of Saskatchewan Course Title: Number Theory Course Code: MATH 364 Course Level: Undergraduate Section: 02 Academic Session: Summer Number of Students: 20 Number of Credits: 3 Lecture Hours Per Week: 10 Tutorial Hours Per Week: 0 Lab Hours Per Week: 0 Guest Lecture?: No
2009/05/25 - 2009/06/26	Instructor, Mathematics and Computer Science, North Carolina Central University Course Title: Algebra & Trigonometry I Course Code: MATH 1100 Course Level: Undergraduate Section: 01 Academic Session: Summer Number of Students: 33 Number of Credits: 3 Lecture Hours Per Week: 15 Tutorial Hours Per Week: 0 Lab Hours Per Week: 0 Guest Lecture?: No

2009/05/25 - Instructor, Mathematics and Computer Science, North Carolina Central University
2009/06/26 Course Title: Logic for Mathematical Sciences
Course Code: COMP 2200
Course Level: Undergraduate
Section: 01
Academic Session: Summer
Number of Students: 33
Number of Credits: 3
Lecture Hours Per Week: 15
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

2009/01/05 - Instructor, Mathematics and Computer Science, North Carolina Central University
2009/05/08 Course Title: Senior Seminar in Computer Science
Course Code: COMP 4920
Course Level: Undergraduate
Section: 01
Academic Session: Spring
Number of Students: 5
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

2009/01/05 - Instructor, Mathematics and Computer Science, North Carolina Central University
2009/05/08 Course Title: Logic for Mathematical Sciences
Course Code: COMP 2200
Course Level: Undergraduate
Section: 01
Academic Session: Spring
Number of Students: 33
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

2009/01/05 - Instructor, Mathematics and Computer Science, North Carolina Central University
2009/05/08 Course Title: Organization of Programming Languages
Course Code: COMP 4730
Course Level: Undergraduate
Section: 01
Academic Session: Spring
Number of Students: 33
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

2009/01/05 - Instructor, Mathematics and Computer Science, North Carolina Central University
2009/05/08 Course Title: Data Structures
Course Code: COMP 2810
Course Level: Undergraduate
Section: 01
Academic Session: Spring
Number of Students: 33
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

2008/08/18 - Instructor, Mathematics and Computer Science, North Carolina Central University
2008/12/05 Course Title: Discrete Structures for Computing
Course Code: COMP 2300
Course Level: Undergraduate
Section: 01
Academic Session: Fall
Number of Students: 33
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

2008/08/18 - Instructor, Mathematics and Computer Science, North Carolina Central University
2008/12/05 Course Title: Introduction to Database Systems
Course Code: COMP 3300
Course Level: Undergraduate
Section: 01
Academic Session: Fall
Number of Students: 10
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

2008/08/18 - Instructor, Mathematics and Computer Science, North Carolina Central University
2008/12/05 Course Title: Senior Seminar in Computer Science
Course Code: COMP 4920
Course Level: Undergraduate
Section: 01
Academic Session: Fall
Number of Students: 5
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

2008/08/18 - Instructor, Mathematics and Computer Science, North Carolina Central University
2008/12/05 Course Title: Theory of Computation
Course Code: CISG 5115
Course Level: Graduate
Section: 01
Academic Session: Fall
Number of Students: 7
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

2008/06/30 - Instructor, Mathematics and Computer Science, North Carolina Central University
2008/08/01 Course Title: Algebra & Trigonometry I
Course Code: MATH 1100
Course Level: Undergraduate
Section: 01
Academic Session: Summer
Number of Students: 33
Number of Credits: 3
Lecture Hours Per Week: 10
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

2008/06/30 - Instructor, Mathematics and Computer Science, North Carolina Central University
2008/08/01 Course Title: Logic for Mathematical Sciences
Course Code: COMP 2200
Course Level: Undergraduate
Section: 01
Academic Session: Summer
Number of Students: 33
Number of Credits: 3
Lecture Hours Per Week: 10
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

2008/01/07 - Instructor, Mathematics and Computer Science, North Carolina Central University
2008/05/02 Course Title: Organization of Programming Languages
Course Code: COMP 4730
Course Level: Undergraduate
Section: 01
Academic Session: Spring
Number of Students: 15
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

2008/01/07 - Instructor, Mathematics and Computer Science, North Carolina Central University
2008/05/02 Course Title: Logic for Mathematical Sciences
Course Code: COMP 2200
Course Level: Undergraduate
Section: 01
Academic Session: Spring
Number of Students: 33
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

2008/01/07 - Instructor, Mathematics and Computer Science, North Carolina Central University
2008/05/02 Course Title: Senior Seminar in Computer Science
Course Code: COMP 4920
Course Level: Undergraduate
Section: 01
Academic Session: Spring
Number of Students: 5
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

2007/08/20 - Instructor, Mathematics and Computer Science, North Carolina Central University
2007/12/07 Course Title: Senior Seminar in Computer Science
Course Code: COMP 4920
Course Level: Undergraduate
Section: 01
Academic Session: Fall
Number of Students: 5
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

2007/08/20 - Instructor, Mathematics and Computer Science, North Carolina Central University
2007/12/07 Course Title: Discrete Structures for Computing
Course Code: COMP 2300
Course Level: Undergraduate
Section: 01
Academic Session: Fall
Number of Students: 33
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

2007/08/20 - Instructor, Mathematics and Computer Science, North Carolina Central University
2007/12/07 Course Title: Theory of Computation
Course Code: CISG 5115
Course Level: Graduate
Section: 01
Academic Session: Fall
Number of Students: 5
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

2007/06/25 - Instructor, Mathematics and Statistics, University of Saskatchewan
2007/08/13 Course Title: Intermediate Calculus II
Course Code: MATH 226
Course Level: Undergraduate
Section: 02
Academic Session: Summer
Number of Students: 50
Number of Credits: 3
Lecture Hours Per Week: 8
Tutorial Hours Per Week: 2
Lab Hours Per Week: 0
Guest Lecture?: No

2007/06/25 - Instructor, Mathematics and Statistics, University of Saskatchewan
2007/08/13 Course Title: Linear Algebra I
Course Code: MATH 266
Course Level: Undergraduate
Section: 02
Academic Session: Summer
Number of Students: 50
Number of Credits: 3
Lecture Hours Per Week: 10
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

2007/05/21 - Instructor, Mathematics and Computer Science, North Carolina Central University
2007/06/22 Course Title: Finite Mathematics
Course Code: MATH 1210
Course Level: Undergraduate
Section: 02
Academic Session: Summer
Number of Students: 33
Number of Credits: 3
Lecture Hours Per Week: 10
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

2007/05/21 - Instructor, Mathematics and Computer Science, North Carolina Central University
2007/06/22 Course Title: Logic for Mathematical Sciences
Course Code: COMP 2200
Course Level: Undergraduate
Section: 02
Academic Session: Summer
Number of Students: 33
Number of Credits: 3
Lecture Hours Per Week: 10
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

2007/01/08 - Instructor, Mathematics and Computer Science, North Carolina Central University
2007/05/04 Course Title: Logic for Mathematical Sciences
Course Code: COMP 2200
Course Level: Undergraduate
Section: 01
Academic Session: Spring
Number of Students: 33
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

2007/01/08 - Instructor, Mathematics and Computer Science, North Carolina Central University
2007/05/04 Course Title: Organization of Programming Languages
Course Code: COMP 4730
Course Level: Undergraduate
Section: 01
Academic Session: Spring
Number of Students: 33
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

2007/01/08 - Instructor, Mathematics and Computer Science, North Carolina Central University
2007/05/04 Course Title: Senior Seminar in Computer Science
Course Code: COMP 4920
Course Level: Undergraduate
Section: 01
Academic Session: Spring
Number of Students: 5
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

2007/01/08 - Instructor, Mathematics and Computer Science, North Carolina Central University
2007/05/04 Course Title: Finite Mathematics
Course Code: MATH 1210
Course Level: Undergraduate
Section: 01
Academic Session: Spring
Number of Students: 33
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

2006/08/21 - Instructor, Mathematics and Computer Science, North Carolina Central University
2006/12/08 Course Title: Introductory College Algebra
Course Code: MATH 1000
Course Level: Undergraduate
Section: 02, 04, 06
Academic Session: Fall
Number of Students: 100
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

2006/08/14 - Instructor, Mathematics and Computer Science, North Carolina Central University
2006/12/08 Course Title: Senior Seminar in Computer Science
Course Code: COMP 4920
Course Level: Undergraduate
Section: 01
Academic Session: Fall
Number of Students: 5
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

2006/06/26 - Instructor, Mathematics and Statistics, University of Saskatchewan
2006/08/11 Course Title: Linear Algebra I
Course Code: MATH 266
Course Level: Undergraduate
Section: 02
Academic Session: Summer
Number of Students: 50
Number of Credits: 3
Lecture Hours Per Week: 10
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

2006/06/26 - 2006/08/11	Instructor, Computer Science, University of Saskatchewan Course Title: Mathematical Logic and Computing Course Code: CMPT 260 Course Level: Undergraduate Section: 02 Academic Session: Summer Number of Students: 20 Number of Credits: 3 Lecture Hours Per Week: 10 Tutorial Hours Per Week: 0 Lab Hours Per Week: 0 Guest Lecture?: No
2006/01/09 - 2006/05/05	Instructor, Mathematics and Computer Science, North Carolina Central University Course Title: Introductory College Algebra Course Code: MATH 1000 Course Level: Undergraduate Section: 01 Academic Session: Spring Number of Students: 33 Number of Credits: 3 Lecture Hours Per Week: 3 Tutorial Hours Per Week: 0 Lab Hours Per Week: 0 Guest Lecture?: No
2006/01/09 - 2006/05/05	Instructor, Mathematics and Computer Science, North Carolina Central University Course Title: Algebra & Trigonometry I Course Code: MATH 1100 Course Level: Undergraduate Section: 01 Academic Session: Spring Number of Students: 33 Number of Credits: 3 Lecture Hours Per Week: 3 Tutorial Hours Per Week: 0 Lab Hours Per Week: 0 Guest Lecture?: No
2006/01/09 - 2006/05/05	Instructor, Mathematics and Computer Science, North Carolina Central University Course Title: Logic for Mathematical Sciences Course Code: COMP 2200 Course Level: Undergraduate Section: 01 Academic Session: Spring Number of Students: 33 Number of Credits: 3 Lecture Hours Per Week: 3 Tutorial Hours Per Week: 0 Lab Hours Per Week: 0 Guest Lecture?: No

2005/08/22 - Instructor, Mathematics and Computer Science, North Carolina Central University
2005/12/09 Course Title: Algebra & Trigonometry I
Course Code: MATH 1100
Course Level: Undergraduate
Section: 01
Academic Session: Fall
Number of Students: 33
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

2005/08/22 - Instructor, Mathematics and Computer Science, North Carolina Central University
2005/12/09 Course Title: Selected Topics in Computer Science: Geometric Algorithms
Course Code: COMP 4910
Course Level: Undergraduate
Section: 01
Academic Session: Fall
Number of Students: 5
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

2005/08/22 - Instructor, Mathematics and Computer Science, North Carolina Central University
2005/12/09 Course Title: Introductory College Algebra
Course Code: MATH 1000
Course Level: Undergraduate
Section: 01
Academic Session: Fall
Number of Students: 33
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

2004/06/28 - Instructor, Computer Science, University of Saskatchewan
2004/08/13 Course Title: Mathematical Logic and Computing
Course Code: CMPT 260
Course Level: Undergraduate
Section: 02
Academic Session: Summer
Number of Students: 20
Number of Credits: 3
Lecture Hours Per Week: 10
Tutorial Hours Per Week: 0
Lab Hours Per Week: 0
Guest Lecture?: No

Course Development

2016/9	Developer, Computer Science and Mathematics, Nipissing University Course Title: MATH 5256 Graph Theory Course Level: Graduate
2016/9	Developer, Computer Science and Mathematics, Nipissing University Course Title: MATH 5247 Cryptography and Coding Theory Course Level: Graduate
2015/1	Developer, Computer Science and Mathematics, Nipissing University Course Title: MATH 4246 Optimization Course Level: Undergraduate
2015/1	Developer, Computer Science and Mathematics, Nipissing University Course Title: MATH 5246 Optimization Course Level: Graduate
2009/8	Developer, Mathematics and Computer Science, North Carolina Central University Course Title: COMP 2250 Introduction to Discrete Mathematics Course Level: Undergraduate
2006/8	Developer, Mathematics and Computer Science, North Carolina Central University Course Title: CISG 5115 Theory of Computation Course Level: Graduate
2006/8	Developer, Mathematics and Computer Science, North Carolina Central University Course Title: CISG 5730 Computational Geometry Course Level: Graduate
2006/8	Developer, Mathematics and Computer Science, North Carolina Central University Course Title: CISG 5735 Logic Programming Course Level: Graduate
2006/8	Developer, Mathematics and Computer Science, North Carolina Central University Course Title: CISG 5705 Knowledge Representation and Reasoning Course Level: Graduate
2006/8	Developer, Mathematics and Computer Science, North Carolina Central University Course Title: CISG 5105 Advanced Algorithms and Data Structures Course Level: Graduate

Program Development

2016/8	Co-developer, Nipissing University Program Title: Minor in Physics Course Level: Undergraduate Co-developers: Hatef, Ali; Karashev, Alexandre; Wehrstedt, Carmen
2016/8	Co-developer, Nipissing University Program Title: Bachelor of Science/Bachelor of Arts in Data Science Course Level: Undergraduate Co-developers: Hoehn, Logan; Karashev, Alexandre; Tuncali, Murat; Wachowiak, Mark

2012/9	Co-developer, Computer Science and Mathematics, Nipissing University Program Title: Bachelor of Science in Science and Technology Course Level: Undergraduate Program Description: 4-year undergraduate degree program Unique / innovative characteristics: Program features several streams: Artificial Intelligence, Engineering Technology, Environment, Industrial Mathematics, Robotics, Service Technology and General Co-developers: Hoehn, Logan; Karashev, Alexandre; Schreyer, Boguslaw; Tuncali, Murat; Valov, Vesko; Wachowiak, Mark; Zhu, Haibin
2009/9	Co-developer, Computer Science and Mathematics, Nipissing University Program Title: Master of Science in Mathematics Course Level: Graduate Program Description: 1-year graduate program Unique / innovative characteristics: Program consists of 6 3-credit courses and Major Research Paper (MRP) worth 6 credits Co-developers: Karashev, Alexandre; Tuncali, Murat; Valov, Vesko; Wachowiak, Mark
2006/8	Co-developer, Mathematics and Computer Science, North Carolina Central University Program Title: Master of Science in Computer Science Course Level: Graduate Program Description: 2-year graduate program Unique / innovative characteristics: Program consists of 24 credits of course work, plus a 6-credit thesis Co-developers: Gosnell, Russell; Melikyan, Hayk; Tokuta, Alade; Uma, Rawanasamudram

Student/Postdoctoral Supervision

Bachelor's Honours [n=49]

2017/9 - 2017/12 Principal Supervisor	Emma Illerbrunn (In Progress) , Nipissing University Student Degree Start Date: 2014/9 Student Degree Expected Date: 2020/6 Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Mathematics in Visual Arts Present Position: Undergraduate Student
2016/9 - 2017/1 Principal Supervisor	Ashley Lines (Completed) , Nipissing University Student Degree Start Date: 2013/9 Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Problems and Algorithms in Graph Colouring Present Position: Undergraduate Student
2016/5 - 2016/8 Principal Supervisor	Angela D'Amato (Completed) , Nipissing University Student Degree Start Date: 2013/9 Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Computational Complexity Present Position: Undergraduate Student

2016/1 - 2016/4 Principal Supervisor	Angelina Bird (Completed) , Nipissing University Student Degree Start Date: 2012/9 Student Degree Received Date: 2016/6 Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Developing content for and leading Math Circles at Nipissing University Present Position: Unknown
2014/9 - 2014/12 Principal Supervisor	Nathan LeSarge (Completed) , Nipissing University Student Degree Start Date: 2009/9 Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Geometry in the Game of Billiard Present Position: Undergraduate Student
2014/7 - 2014/8 Principal Supervisor	Benjamin Fraser (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Extremal Graph Theory Present Position: PhD Student, York University
2014/5 - 2014/6 Principal Supervisor	Benjamin Fraser (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Graph Colouring Present Position: PhD Student, York University
2013/5 - 2013/8 Principal Supervisor	Laura Huntington (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Working with Mathematically Talented Children in Math Circles Project Description: Nipissing University USRA Present Position: Unknown Project Funding Sources: Nipissing University Amount - 4,500 (Canadian dollar)
2013/1 - 2013/4 Principal Supervisor	Brian Eades (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Generalized Voronoi Diagrams Present Position: Unknown
2012/9 - 2012/12 Principal Supervisor	Brian Eades (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Algorithms for Routing in Wireless and Ad Hoc Networks Present Position: Unknown
2012/9 - 2012/12 Principal Supervisor	Joanna Ammerlaan (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: The Middle Level Conjecture Present Position: Unknown
2012/5 - 2012/8 Principal Supervisor	Laura Huntington (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Geometric Approaches to Bus Scheduling in Northern Ontario Project Description: NSERC USRA Present Position: Unknown Project Funding Sources: Natural Sciences and Engineering Research Council of Canada (NSERC) Amount - 4,500 (Canadian dollar)

2012/1 - 2012/4 Principal Supervisor	Andrew Twizell (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Optimization Problems in Graphs Present Position: Unknown
2012/1 - 2012/4 Principal Supervisor	Stefan Pape (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Visibility in Polygons Present Position: Teacher, Pickering School
2012/1 - 2012/4 Principal Supervisor	Laura Huntington (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Matchings in Graphs Present Position: Unknown
2011/9 - 2011/12 Principal Supervisor	Andrew Twizell (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Cryptography: Public Key Cryptosystems Present Position: Unknown
2011/9 - 2011/12 Principal Supervisor	Laura Huntington (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Structural Indices of Graphs Present Position: Unknown
2011/9 - 2011/12 Principal Supervisor	Stefan Pape (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Visibility in Polygons Present Position: Teacher, Pickering School
2011/5 - 2011/8 Principal Supervisor	Joanna Ammerlaan (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Implementation of Longest Path Algorithms for 2-trees Project Description: Nipissing University USRA Present Position: Unknown Project Funding Sources: Nipissing University Amount - 4,500 (Canadian dollar)
2011/1 - 2011/4 Principal Supervisor	Ashley Languille (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Graph Colouring and the 4-colour Theorem Present Position: Teacher, United Kingdom
2011/1 - 2011/4 Principal Supervisor	Jeffrey Price (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Hashing Algorithms Present Position: Unknown
2011/1 - 2011/4 Principal Supervisor	Monica Krzeszowiec (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Perfect Numbers Present Position: Student Services Office, Nipissing University
2010/9 - 2010/12 Principal Supervisor	Monica Krzeszowiec (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Graph Searching

2010/9 - 2010/12 Principal Supervisor	Jeffrey Price (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Quantum Computing, Cryptography and Shor's Algorithm Present Position: Unknown
2010/9 - 2010/12 Principal Supervisor	Ashley Languille (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: The Traveling Salesman Problem
2010/1 - 2010/4 Principal Supervisor	Jonathan Margeson (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Hadamard Matrices and Hadamard's Conjecture
2010/1 - 2010/4 Principal Supervisor	Larry Murray (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Generating Random Numbers
2010/1 - 2010/4 Principal Supervisor	Andrew Pegg (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Cryptography: Substitution Ciphers
2009/9 - 2009/12 Principal Supervisor	Jonathan Margeson (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Euler Bricks
2009/9 - 2009/12 Principal Supervisor	Larry Murray (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Game Theory and Nash Equilibrium
2009/1 - 2009/5 Principal Supervisor	Brandon Williams (Completed) , North Carolina Central University Student Canadian Residency Status: Not Applicable Thesis/Project Title: Developing a Computational Model of the Human Hair
2009/1 - 2009/5 Principal Supervisor	Sharon Johnson (Completed) , North Carolina Central University Student Canadian Residency Status: Not Applicable Thesis/Project Title: GS Wood Online Store
2008/8 - 2008/12 Principal Supervisor	Mustapha Koroma (Completed) , North Carolina Central University Student Canadian Residency Status: Not Applicable Thesis/Project Title: Eigenvalue Solver
2008/1 - 2008/5 Principal Supervisor	Allen Taylor (Completed) , North Carolina Central University Student Canadian Residency Status: Not Applicable Thesis/Project Title: Developing a Video Game with the Microsoft XNA Toolkit
2008/1 - 2008/5 Principal Supervisor	Donovan Bradley (Completed) , North Carolina Central University Student Canadian Residency Status: Not Applicable Thesis/Project Title: Revamping of SPV Assistant 2.0
2008/1 - 2008/5 Principal Supervisor	Lateema Spencer (Completed) , North Carolina Central University Student Canadian Residency Status: Not Applicable Thesis/Project Title: PHP, a Dynamic Web-Sight
2007/8 - 2007/12 Principal Supervisor	Victor Medina (Completed) , North Carolina Central University Student Canadian Residency Status: Not Applicable Thesis/Project Title: Information Indexing and Retrieval
2007/8 - 2007/12 Principal Supervisor	Desirai Gilliam (Completed) , North Carolina Central University Student Canadian Residency Status: Not Applicable Thesis/Project Title: StudioFashion Database-Driven E-Commerce Web-Site

2007/8 - 2007/12 Principal Supervisor	Darin Tyler (Completed) , North Carolina Central University Student Canadian Residency Status: Not Applicable Thesis/Project Title: An Investigation of Digital Audio: Programming a Virtual Instrument
2007/1 - 2007/5 Principal Supervisor	Pedro J. Salinas (Completed) , North Carolina Central University Student Canadian Residency Status: Not Applicable Thesis/Project Title: ESL Intranet Database Driven Website Present Position: Web Developer, Durham, NC
2007/1 - 2007/5 Principal Supervisor	Natalia Quinn (Completed) , North Carolina Central University Student Canadian Residency Status: Not Applicable Thesis/Project Title: Hidden Markov Model and Viterbi Algorithm for predicting structural RNAs in hyperthermophilic bacteria
2007/1 - 2007/5 Principal Supervisor	Jason Roop (Completed) , North Carolina Central University Student Canadian Residency Status: Not Applicable Thesis/Project Title: High Performance Social Dynamics Application
2007/1 - 2007/5 Principal Supervisor	Demetrius Williams (Completed) , North Carolina Central University Student Canadian Residency Status: Not Applicable Thesis/Project Title: Image Enhancement in the Spatial Domain
2007/1 - 2007/5 Principal Supervisor	Adrian Powell (Completed) , North Carolina Central University Student Canadian Residency Status: Not Applicable Thesis/Project Title: Field Goal Kicking
2006/8 - 2006/12 Principal Supervisor	Michael Best (Completed) , North Carolina Central University Student Canadian Residency Status: Not Applicable Thesis/Project Title: Adword Matching Problem Present Position: Software Developer, Raleigh, NC
2006/8 - 2006/12 Principal Supervisor	Ceresh Perry (Completed) , North Carolina Central University Student Canadian Residency Status: Not Applicable Thesis/Project Title: In?>nity Trucking Company
2006/8 - 2006/12 Principal Supervisor	Antwan Dozier (Completed) , North Carolina Central University Student Canadian Residency Status: Not Applicable Thesis/Project Title: Network Design
2006/8 - 2006/12 Principal Supervisor	Samuel Adu (Completed) , North Carolina Central University Student Canadian Residency Status: Not Applicable Thesis/Project Title: Lazy Scheduling in Wireless Networks
2006/1 - 2006/5 Principal Supervisor	Antoine Ellis (Completed) , North Carolina Central University Student Canadian Residency Status: Not Applicable Thesis/Project Title: Persistent Data Structures

Master's Thesis [n=4]

2014/7 - 2015/8 Principal Supervisor	Benjamin Fraser (Completed) , Nipissing University Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Persistent Homology Present Position: PhD Student, York University
2011/7 - 2012/12 Principal Supervisor	Andrew Sukhai (Completed) , Nipissing University Thesis/Project Title: On Vertex Separation of Graph Classes Present Position: High School teacher in Norway
2010/7 - 2012/6 Principal Supervisor	Chris Shier (Completed) , Nipissing University Thesis/Project Title: Hamiltonian Properties in Claw-Free Graphs Present Position: Professor at Canadore College

2006/7 - 2007/12 Tigran Mirzoev (Completed) , North Carolina Central University
 Principal Supervisor Student Canadian Residency Status: Not Applicable
 Thesis/Project Title: Efficient Implementations of Optimal Area Triangulation Algorithms
 Present Position: Project Manager at SAS, Cary, NC, USA

Staff Supervision

Event Administration

2012/8 - 2018/12 Local Organizer, William Lowell Putnam Mathematical Competition, Club, Mathematical Association of America, 2012/8 - 2018/12
 Mathematical Contest for University Students

2011/7 - 2018/4 Organizer, Math Circles at Nipissing University, Club, Department of Computer Science and Mathematics, 2011/7 - 2018/4
 Enrichment Program for School Students in North Bay and Area

2011/7 - 2018/4 Regional Representative and Local Organizer, Math Kangaroo Contest, Club, Canadian Math Kangaroo Corporation, 2011/7 - 2018/4
 Mathematical Contest for School Students

2012/7 - 2013/7 Local Organizer, 21st Ontario Combinatorics Workshop, Workshop, OCW Steering Committee, 2013/5 - 2013/5

2011/7 - 2012/7 Organizer, 3rd Annual Workshop on Algorithmic Graph Theory, Workshop, Tzvetalin S. Vassilev, 2012/6 - 2012/6

2010/7 - 2011/7 Organizer, 2nd Annual Workshop on Algorithmic Graph Theory, Workshop, Tzvetalin S. Vassilev, 2011/5 - 2011/5

2009/7 - 2010/7 Organizing Committee Member, Workshops on Recent Advances in Topological and Measure-Theoretic Methods in Dynamical Systems, Workshop, Murat Tuncali, 2010/5 - 2010/5

2009/7 - 2010/7 Organizer, Workshop on Algorithmic Graph Theory, Workshop, Tzvetalin S. Vassilev, 2010/5 - 2010/5

2006/7 - 2007/7 Organizing Committee Member, Mid-Atlantic Algebra Conference, Conference, Hayk Melikyan, 2007/4 - 2007/4

Editorial Activities

2014/1 - 2015/12 Editorial Board Member, Athens Journal of Sciences, Journal

2013/5 - 2015/5 Editor-in-Chief, American Journal of Algorithms Research, Journal

2012/1 - 2015/5 Editorial Board Member, American Journal of Algorithms Research, Journal

Mentoring Activities

2017/9 - 2018/4	Program Coordinator, Nipissing University Number of Mentorees: 13 Mentorees: Brent Crane Marlayna Kolkman Trevor Gansekoele Emma Illerbrunn Jessica Stephenson Cassandra Wood Erika Desjardins John Tsafatinos Taylor Nadon Katie Talbot Oliver Clark Harper Jeffrey Selecting and preparing students to lead Math Circles sessions - enrichment program for school-age students who are mathematically talented.
2016/9 - 2017/4	Program Coordinator, Nipissing University Number of Mentorees: 20 Mentorees: Trevor Gansekoele Marlayna Kolkman Emma Illerbrunn Keiana Clement Jessica Stephenson Michael Anderson Emily Candelora John Tsafatinos Lauren Wooley Rachel Kashul Angela D'Amato Ashley Lines Selecting and preparing students to lead Math Circles sessions - enrichment program for school-age students who are mathematically talented.
2015/9 - 2016/4	Program Coordinator, Nipissing University Number of Mentorees: 20 Mentorees: Nicole Lapp Jacob Baisley Angelina Bird Michael Anderson Kathryn Chase Nathan LeSarge Victoria Blendemann Marlayna Kolkman Emma Illerbrunn Trevor Gansekoele Yi Han Zhu Jessica Stephenson Selecting and preparing students to lead Math Circles sessions - enrichment program for school-age students who are mathematically talented.
2014/9 - 2015/4	Program Coordinator, Nipissing University Number of Mentorees: 23 Mentorees: Alyssa Di Luca Beau Bedard Braden Leonard Brooke Power Brittney Shields Christian Peart Christopher Simmonds Cassandra Schizkoske David Duval Heather-Lynn Topping Jacob Baisley and 12 more. Selecting and preparing students to lead Math Circles sessions - enrichment program for school-age students who are mathematically talented.
2013/9 - 2014/4	Program Coordinator, Nipissing University Number of Mentorees: 10 Mentorees: Alyssa McIntee, Brian Eades, Christopher Simmonds, Cassandra Schizkoske, Logan Ora Ellis, Meghan Best, Madisen Johnston, Nicole Anderson, Nathan LeSarge, Rachel Stevenson Selecting and preparing students to lead Math Circles sessions - enrichment program for school-age students who are mathematically talented.
2012/9 - 2013/4	Program Coordinator, Nipissing University Number of Mentorees: 5 Mentorees: Brian Eades, Nathan LeSarge, Alyssa McIntee, Miranda Wheatstone, Erika Crozier Selecting and preparing students to lead Math Circles sessions - enrichment program for school-age students who are mathematically talented.
2011/9 - 2012/4	Program Coordinator, Nipissing University Number of Mentorees: 5 Mentorees: Laura J. Huntington, Stefan A. Pape, Ian Kelly, Bryan Bellefeuille, Jocelynn C. Geertsema Selecting and preparing students to lead Math Circles sessions - enrichment program for school-age students who are mathematically talented.

Journal Review Activities

2017/9	Reviewer,Topology Proceedings Number of Works Reviewed / Refereed: 1
2016/9	Reviewer,Canadian Journal of Chemistry,Thomson Reuters Number of Works Reviewed / Refereed: 2
2014/1	Reviewer,Serdica Journal of Computing,Bulgarian Academy of Sciences Number of Works Reviewed / Refereed: 3
2014/1	Reviewer,Journal of Integer Sequences,University of Waterloo Number of Works Reviewed / Refereed: 2
2014/1	Reviewer,Information Processing Letters,Elsevier Number of Works Reviewed / Refereed: 1
2014/1	Reviewer,Athens Journal of Sciences,ATINER Number of Works Reviewed / Refereed: 1
2013/1	Reviewer,International Journal of Computational Complexity and Intelligent Algorithms,Inderscience Publishers Number of Works Reviewed / Refereed: 1
2013/1	Reviewer,Discrete Applied Mathematics,Elsevier Number of Works Reviewed / Refereed: 2
2013/1	Reviewer,Utilitas Mathematica,The Charles Babbage Research Centre, Winnipeg Number of Works Reviewed / Refereed: 1
2013/1	Reviewer,British Journal of Applied Science and Technology,Sciencedomain International Number of Works Reviewed / Refereed: 6
2013/1	Reviewer,British Journal of Mathematics and Computer Science,Sciencedomain International Number of Works Reviewed / Refereed: 8
2011/1	Reviewer,Journal of Combinatorial Mathematics and Combinatorial Computing,The Charles Babbage Research Centre, Winnipeg Number of Works Reviewed / Refereed: 11
2011/1	Reviewer,International Journal of Computer Mathematics,Taylor and Francis Number of Works Reviewed / Refereed: 1
2005/8	Reviewer,Textbooks,Thomson Learning Brooks/Cole Number of Works Reviewed / Refereed: 5

Conference Review Activities

2015/8 - 2015/8	Undergraduate Student Presentation Judge, MAA MathFest 2015, Open, Washington, DC Number of Works Reviewed / Refereed: 6
2014/3 - 2014/3	Undergraduate Student Presentation Judge, 93rd Annual Meeting of the Southeast Section of MAA, Open, Tennessee Tech University, Cookeville, Tennessee, USA Number of Works Reviewed / Refereed: 5
2012/3 - 2012/3	MATH Jeopardy Judge, 91st Annual Meeting of the Southeast Section of MAA, Open, Clayton State University, Morrow, Georgia, USA Number of Works Reviewed / Refereed: 20

2010/3 - 2010/3	Student Presentation Judge, 89th Annual Meeting of the Southeast Section of MAA, Open, Elon University, Elon, North Carolina, USA Number of Works Reviewed / Refereed: 5
2007/1 - 2009/6	Judge, North Carolina State Math Fair, Open, North Carolina School of Science and Math, Durham, North Carolina, USA Number of Works Reviewed / Refereed: 50
2009/3 - 2009/3	Poster Judge, 88th Annual Meeting of the Southeast Section of MAA, Open, Belmont University, Nashville, Tennessee, USA Number of Works Reviewed / Refereed: 15
2009/1 - 2009/3	Reviewer, 25th Annual ACM Symposium on Computational Geometry, Blind, Aarhus, Denmark Number of Works Reviewed / Refereed: 1
2006/2 - 2009/2	Scientific Judge, North Carolina Regional Science Bowl, Open, North Carolina Central University, Durham, North Carolina, USA Number of Works Reviewed / Refereed: 50

Graduate Examination Activities

2016/1 - 2016/12	Master's Oral Exam Member, Benjamin Fraser, Computer Science and Mathematics, Nipissing University
2011/7 - 2011/9	Master's Oral Exam Member, Richard Smith, Computer Science and Mathematics, Nipissing University
2009/3 - 2009/5	Master's Oral Exam Member, Aren Arakelyan, Mathematics and Computer Science, North Carolina Central University

Promotion Tenure Assessment Activities

2014/7 - 2016/7	Member of the Tenure and Promotion Faculty Committee (TPF) in Arts and Science, Nipissing University Number of Assessments: 8

Organizational Review Activities

2015/1 - 2015/2	External Reviewer, Concordia University of Edmonton Departmental Programs Review of the Department of Mathematics and Computing Sciences

Event Participation

2017/7 - 2017/7	Participant, Mathematics Days in Sofia 2017, Institute of Mathematics and Informatics of the Bulgarian Academy of Sciences, Sofia, Bulgaria, Conference, 2017/7 - 2017/7
2017/6 - 2017/6	Participant, Second Malta Conference on Graph Theory and Combinatorics, Qawra, Malta, Conference, 2017/6 - 2017/6
2017/5 - 2017/5	Exhibitor, 2017 Annual Conference of the Ontario Association for Mathematical Education, St. Lawrence College, Kingston, Ontario, Canada, Conference, 2017/5 - 2017/5
2016/12 - 2016/12	Participant, 40 ACCMCC - 40th Australasian Conference on Combinatorial Mathematics and Combinatorial Computing, University of Newcastle, Newcastle, New South Wales, Australia, Conference, 2016/12 - 2016/12

2016/12 - 2016/12	Participant, Workshop on Applied Probability, Combinatorics and Optimisation, University of Newcastle, Newcastle, New South Wales, Australia, Workshop, 2016/12 - 2016/12
2015/12 - 2015/12	Presenter, 39 ACCMCC - 39th Australasian Conference on Combinatorial Mathematics and Combinatorial Computing, University of Queensland, Brisbane, Queensland, Australia, Conference, 2015/12 - 2015/12
2015/10 - 2015/10	Participant, TLC 12 - 12th Meeting of the Triangle Lectures in Combinatorics, Duke University, Durham, North Carolina, USA, Conference, 2015/10 - 2015/10
2015/8 - 2015/8	Participant, MAA MathFest 2015, Washington, DC, USA, Conference, 2015/8 - 2015/8
2015/6 - 2015/6	Participant, CanaDAM 2015, University of Saskatchewan, Saskatoon, Saskatchewan, Canada, Conference, 2015/6 - 2015/6 Canadian (biennial) Conference on Discrete and Algorithmic Mathematics
2015/6 - 2015/6	Presenter, Advances in Theoretical Computer Science 2015 (ATCS'15), Sofia University, Sofia, Bulgaria, Workshop, 2015/6 - 2015/6 Workshop in honour of Dr. Iwan G. Tabakow's 70th birthday
2015/5 - 2015/5	Participant, Discrete Mathematics Days and 23rd Ontario Combinatorics Workshop, University of Ottawa, Ottawa, Ontario, Canada, Conference, 2015/5 - 2015/5
2015/5 - 2015/5	Participant, 12th Annual Workshop on Topology and Dynamical Systems, Nipissing University, North Bay, Ontario, Canada, Workshop, 2015/5 - 2015/5
2015/3 - 2015/3	Presenter, 94th Annual Meeting of the MAA Southeastern Section, University of North Carolina at Wilmington, Wilmington, North Carolina, USA, Conference, 2015/3 - 2015/3
2015/2 - 2015/2	Participant, ALS XIV, Georgia State University, Atlanta, Georgia, USA, Conference, 2015/2 - 2015/2 14th meeting of the Atlanta Lecture Series in Combinatorics
2015/1 - 2015/1	Presenter, 2015 Joint Meetings of AMS and MAA, San Antonio, Texas, USA, Conference, 2015/1 - 2015/1
2014/12 - 2014/12	Presenter, 125year Jubilee Conference of the Faculty of Mathematics at Sofia University, Sofia, Bulgaria, Conference, 2014/12 - 2014/12
2014/11 - 2014/11	Participant, 16th Annual Meeting of Canadian Math Department Chairs, Western University, London, Ontario, Canada, Conference, 2014/11 - 2014/11
2014/11 - 2014/11	Participant, ALS XIII, Emory University, Atlanta, Georgia, USA, Conference, 2014/11 - 2014/11 13th meeting of the Atlanta Lecture Series in Combinatorics
2014/10 - 2014/10	Participant, TLC X, High Point University, High Point, North Carolina, USA, Workshop, 2014/10 - 2014/10 10th meeting of the Triangle Lectures in Combinatorics
2014/8 - 2014/8	Presenter, 26th Canadian Conference on Computational Geometry, Dalhousie University, Halifax, Nova Scotia, Canada, Conference, 2014/8 - 2014/8
2014/8 - 2014/8	Participant, MAA MathFest 2014, Portland, Oregon, USA, Conference, 2014/8 - 2014/8
2014/7 - 2014/7	Presenter, International Conference "Mathematics Days in Sofia", Sofia, Bulgaria, Conference, 2014/7 - 2014/7
2014/5 - 2014/5	Participant, Workshop on Graphs and Algorithms, Workshop, 2014/5 - 2014/5 Workshop in honour of Derek Corneil's contributions to Graph Theory and Computer Science
2014/5 - 2014/5	Participant, 22nd Ontario Combinatorics Workshop, York University, Toronto, Ontario, Canada, Workshop, 2014/5 - 2014/5

2014/3 - 2014/3	Presenter, 93rd Annual Meeting of the MAA Southeastern Section, Tennessee Tech University, Cookeville, Tennessee, USA, Conference, 2014/3 - 2014/3
2014/2 - 2014/2	Participant, TLC IX, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, USA, Workshop, 2014/2 - 2014/2 9th meeting of the Triangle Lectures in Combinatorics
2014/1 - 2014/1	Participant, ALS XI, Georgia State University, Atlanta, Georgia, USA, Conference, 2014/1 - 2014/1 11th meeting of the Atlanta Lecture Series in Combinatorics
2014/1 - 2014/1	Participant, 2014 Joint Meetings of AMS and MAA, Baltimore, Maryland, USA, Conference, 2014/1 - 2014/1
2013/11 - 2013/11	Participant, ALS X, Emory University, Atlanta, Georgia, USA, Conference, 2013/11 - 2013/11 10th meeting of the Atlanta Lecture Series in Combinatorics
2013/1 - 2013/1	Participant, 2013 Joint Meetings of AMS and MAA, San Diego, California, Conference, 2013/1 - 2013/1
2012/6 - 2012/6	Participant, 2012 CORS (Canadian Operations Research Society) Annual Conference, Niagara Falls, Ontario, Canada, Conference, 2012/6 - 2012/6
2012/6 - 2012/6	Participant, Computational Geometry Week, including 28th Annual ACM Symposium on Computational Geometry (SoCG 2012), University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, USA, Conference, 2012/6 - 2012/6
2012/5 - 2012/5	Presenter, 8th Annual International Conference on Information Technology & Computer Science, Athens, Greece, Conference, 2012/5 - 2012/5
2012/4 - 2012/4	Participant, 10th Latin American Theoretical INformatics Symposium (LATIN 2012), Universidad Católica San Pablo, Arequipa, Peru, Conference, 2012/4 - 2012/4
2012/3 - 2012/3	Presenter, 91st Annual Meeting of the MAA Southeastern Section, Clayton State University, Morrow, Georgia, USA, Conference, 2012/3 - 2012/3
2011/12 - 2011/12	Participant, 22nd International Symposium on Algorithms and Computation (ISAAC 2011), Yokohama, Japan, Conference, 2011/12 - 2011/12
2011/11 - 2011/11	Participant, 21st Fall Workshop on Computational Geometry 2011, City College of New York, Manhattan, New York, USA, Workshop, 2011/11 - 2011/11
2011/6 - 2011/6	Participant, 27th Annual ACM Symposium on Computational Geometry (SoCG 2011), Paris, France, Conference, 2011/6 - 2011/6
2010/3 - 2010/3	Presenter, 89th Annual Meeting of the MAA Southeastern Section, Elon University, Elon, North Carolina, USA, Conference, 2010/3 - 2010/3
2009/3 - 2009/3	Participant, 88th Annual Meeting of the MAA Southeastern Section, Belmont University, Nashville, Tennessee, USA, Conference, 2009/3 - 2009/3
2007/3 - 2007/3	Participant, 23rd European Workshop on Computational Geometry, Technische Universitaet Graz, Graz, Austria, Workshop, 2007/3 - 2007/3
2005/6 - 2005/6	Presenter, XI Encuentros de Geometría Computacional (11th Spanish Meeting on Computational Geometry), Universidad de Cantabria, Santander, Spain, Conference, 2005/6 - 2005/6
2005/6 - 2005/6	Participant, 21st Annual ACM Symposium on Computational Geometry (SoCG 2005), Pisa, Italy, Conference, 2005/6 - 2005/6
2005/3 - 2005/3	Presenter, 21st European Workshop on Computational Geometry, Technische Universiteit Eindhoven, Eindhoven, The Netherlands, Workshop, 2005/3 - 2005/3

2004/11 - 2004/11	Presenter, 14th Annual Fall Workshop on Computational Geometry, Massachusetts Institute of Technology, Cambridge, Massachusetts, USA, Workshop, 2004/11 - 2004/11
2003/8 - 2003/8	Presenter, 15th Canadian Conference on Computational Geometry, Dalhousie University, Halifax, Nova Scotia, Canada, Conference, 2003/8 - 2003/8
2003/6 - 2003/6	Presenter, 2003 Federated Computing Research Conferences (FCRC), including 19th Annual ACM Symposium on Computational Geometry (SoCG 2003), San Diego, California, USA, Conference, 2003/6 - 2003/6

Committee Memberships

2015/7	Committee Member, Arts and Science Executive Committee, Nipissing University
2012/1	Committee Member, Grade 9-10 Problem Selection Committee, Canadian Math Kangaroo Corporation
2012/1	Committee Member, Grade 11-12 Problem Selection Committee, Canadian Math Kangaroo Corporation
2016/9 - 2019/5	Committee Member, Nipissing University Senate, Nipissing University Senator, 3-year term
2009/7 - 2015/12	Committee Member, Departmental Curriculum Committee, Nipissing University
2014/8 - 2015/5	Committee Member, Senate Executive Committee, Nipissing University Representative of the Faculty of Arts and Science
2012/8 - 2015/5	Committee Member, Nipissing University Senate, Nipissing University Senator, 3-year term
2011/1 - 2013/12	Committee Member, Nominating Committee, Nipissing University
2012/1 - 2012/12	Committee Member, Faculty Selection Committee, Nipissing University
2010/1 - 2012/12	Committee Member, Action Planning Team #3, Increasing Efficiency of Student Processes and Synergy Between Departments, Nipissing University
2008/8 - 2009/6	Committee Member, Departmental Faculty Search Committee, North Carolina Central University
2007/8 - 2009/6	Committee Member, Faculty Senate, North Carolina Central University Faculty Senator representing the Department of Mathematics and Computer Science
2005/8 - 2009/6	Committee Member, Departmental Curriculum Committee, North Carolina Central University
2006/3 - 2008/3	Committee Member, Joint 2+2 Initiative on Mathematical Education, University of North Carolina General Administration Committee on online curriculum development
2005/9 - 2006/6	Committee Member, Departmental Faculty Search Committee, North Carolina Central University
2001/7 - 2002/6	Committee Member, Graduate Student Association Committee on Student Financing, University of Saskatchewan

Other Memberships

2014/7	Class A Member, Canadian Math Kangaroo Corporation

2016/11 - 2019/11	Vice-Chair and Secretary, Canadian Math Kangaroo Corporation Vice-Chair and Secretary of the National Board of Directors.
2015/8 - 2019/11	Director-at-large, Canadian Math Kangaroo Corporation Member of the 5-person National Board of Directors.

Presentations

1. (2015). On Certain Sums Involving the Legendre Symbol. 39 ACCMCC - 39th Australasian Conference on Combinatorial Mathematics and Combinatorial Computing, Brisbane, Australia
Main Audience: Researcher
Invited?: No, Keynote?: No, Competitive?: Yes
2. (2015). Optimization Problems in Computational Geometry. Advances in Theoretical Computer Science 2015 (ATCS'15), Sofia, Bulgaria
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
3. (2015). On the Sweepwidth of Orthogonal Polygons. 94th Annual Meeting of the Southeast Section of MAA, Wilmington, United States
Main Audience: Researcher
Invited?: No, Keynote?: No, Competitive?: Yes
4. (2015). Math Circles in North Bay - the Northern Experience. 2015 Joint Mathematics Meetings of AMS and MAA, San Antonio, United States
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: Yes
5. (2014). On the sweepwidth of polygons in the plane. Department of Computer Science Seminar Series, University of Saskatchewan, Saskatoon, Canada
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
6. (2014). New Results on the Sweepwidth of Orthogonal Polygons. 125 year Jubilee Conference of the Faculty of Mathematics at Sofia University, Sofia, Bulgaria
Main Audience: Researcher
Invited?: No, Keynote?: No, Competitive?: Yes
7. (2014). Sweeping Polygons with Line Segments. 93rd Annual Meeting of the Southeast Section of MAA, Cookeville, United States
Main Audience: Researcher
Invited?: No, Keynote?: No, Competitive?: Yes
8. (2014). Sweepwidth of Polygons in the Plane. Departmental Seminar, Nipissing University, North Bay, Canada
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
9. Minko Markov. (2014). The decontamination sweepwidth of planar shapes. International Conference "Mathematics Days in Sofia", Sofia, Bulgaria
Main Audience: Researcher
Invited?: No, Keynote?: No, Competitive?: Yes
10. (2014). Polygon Decontamination and Related Problems. Department of Mathematics and Physics Seminar, North Carolina Central University, Durham, United States
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No

11. (2013). Algorithmic Problems on Graphs. Department of Mathematics and Physics Seminar, North Carolina Central University, Durham, United States
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
- [12.](#) (2012). Visibility in Polygons. Colloquium of the Faculty of Mathematics and Informatics, Sofia University, Sofia, Bulgaria
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
- [13.](#) (2012). Visibility: Finding the Staircase Kernel in Orthogonal Polygons. 91st Annual Meeting of the Southeast Section of MAA, Clayton State University, Morrow, United States
Main Audience: Researcher
Invited?: No, Keynote?: No, Competitive?: Yes
- [14.](#) (2012). Structural Indices of Graphs. Colloquium of the Faculty of Mathematics and Informatics, Sofia University, Sofia, Bulgaria
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
15. (2012). The Longest Path Problem on Generalized Trees. Nipissing University Research Talks, North Bay, Canada
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
- [16.](#) (2012). Visibility: Finding the Staircase Kernel in Orthogonal Polygons. 8th Annual International Conference on Information Systems and Computer Science, Athens, Greece
Main Audience: Researcher
Invited?: No, Keynote?: No, Competitive?: Yes
- [17.](#) (2011). Algorithmic Problems in Graphs, Part I. Departmental Seminar, North Bay, Canada
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
18. (2011). Graph Models and Optimization. Innovation & Entrepreneurship Forum, North Bay, Canada
Main Audience: General Public
Invited?: Yes, Keynote?: No, Competitive?: No
- [19.](#) (2010). Longest Paths in Graphs. 89th Annual Meeting of the Southeast Section of MAA, Elon University, Elon, United States
Main Audience: Researcher
Invited?: No, Keynote?: No, Competitive?: Yes
20. (2009). Longest Paths in Graphs. Nipissing University Research Talks, North Bay, Canada
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
21. (2008). New Results on Optimal Area Triangulation. College of Arts & Science Seminar, North Carolina Central University, Durham, United States
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
22. (2007). Optimal Area Triangulation, Part II. College of Arts & Science Seminar, North Carolina Central University, Durham, United States
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No

23. (2006). Optimal Area Triangulation, Part I. College of Arts & Science Seminar, North Carolina Central University, Durham, United States
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
24. (2005). Optimal Area Triangulations, Part I. Colloquium of the Marie Curie program, Technische Universitaet, Berlin, Berlin, Germany
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
25. (2005). Optimal Area Triangulations. Departmental Colloquium, North Carolina Central University, Durham, United States
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
26. (2005). Optimal Area Triangulations, Part II. Theory Group Seminar, Freie Universitaet, Berlin, Berlin, Germany
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
- [27.](#) (2005). Optimal Area Triangulations. Algorithms Seminar, Carleton University, Ottawa, Canada
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
28. (2005). Shortest Paths in Geometric Graphs. Theory Group Seminar, Freie Universitaet, Berlin, Berlin, Germany
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No

Publications

Journal Articles

1. Borislav Karaivanov, Tzvetalin S. Vassilev. (2017). Featured Solution to Problem 11798. American Mathematical Monthly. 124(4): 371.
Co-Author
Published, Mathematical Association of America, United States
Refereed?: Yes, Open Access?: No, Synthesis?: Yes
Number of Contributors: 2
Editors: Gerald A. Edgar, Daniel H. Ullman, Douglas B. West
2. Borislav Karaivanov, Tzvetalin S. Vassilev. (2017). Featured Solution to Problem 11857. American Mathematical Monthly. 124(5): 472.
Co-Author
Published, Mathematical Association of America, United States
Refereed?: Yes, Open Access?: No, Synthesis?: Yes
Number of Contributors: 2
Editors: Gerald A. Edgar, Daniel H. Ullman, Douglas B. West
3. Borislav Karaivanov, Tzvetalin S. Vassilev. (2017). Featured Solution to Problem 11862. American Mathematical Monthly. 124(5): 473-474.
Co-Author
Published, Mathematical Association of America, United States
Refereed?: Yes, Open Access?: No, Synthesis?: Yes
Number of Contributors: 2
Editors: Gerald A. Edgar, Daniel H. Ullman, Douglas B. West

4. Borislav Karaivanov, Tzvetalin S. Vassilev. (2016). Featured Solution to Problem 11803. American Mathematical Monthly. 123(9): 943.
Co-Author
Published, Mathematical Association of America, United States
Refereed?: Yes, Open Access?: No, Synthesis?: Yes
Number of Contributors: 2
Editors: Gerald A. Edgar, Doug Hensley, Douglas B. West

5. Borislav Karaivanov and Tzvetalin S. Vassilev. (2016). On Certain Sums Involving the Legendre Symbol. Integers. 16(A14): 1-10.
Co-Author
Published, de Gruyter, Germany
Refereed?: Yes, Open Access?: Yes, Synthesis?: No
Number of Contributors: 2
Editors: Bruce Landman, Managing Editor
Contribution Percentage: 51-60
Description of Contribution Role: I wrote the main body of the manuscript and all the revisions thereafter. The results were obtained in collaboration with Dr. Borislav Karaivanov during a visit to him in August 2015.
Description / Contribution Value: We prove several properties regarding the computation of certain types of parametric sums involving the Legendre symbol (a well-known number-theoretical quantity related to the quadratic residues modulo prime number). The main result is a closed form formula for the computation of these sums, as well as discussion of the dependence on the three parameters involved.

6. Borislav Karaivanov, Tzvetalin S. Vassilev. (2016). Featured Solution to Problem 11822. American Mathematical Monthly. 123(10): 1055.
Co-Author
Published, Mathematical Association of America, United States
Refereed?: Yes, Open Access?: No, Synthesis?: Yes
Number of Contributors: 2
Editors: Gerald A. Edgar, Doug Hensley, Douglas B. West

7. Laura J. Huntington and Tzvetalin S. Vassilev. (2015). Math Circles in North Bay - the Northern Experience. British Journal of Education, Society & Behavioural Science. 6(3): 189-195.
Co-Author
Published, SCIENCEDOMAIN International, United Kingdom
Refereed?: Yes, Open Access?: Yes
Number of Contributors: 2
Editors: Eduardo Montero Garca, Department of Electromechanical Engineering, Polytechnic School, University of Burgos, Spain

8. Laura J. Huntington and Tzvetalin S. Vassilev. (2015). Activities for Math Circles. British Journal of Education, Society & Behavioural Science. 6(3): 165-173.
Co-Author
Published, SCIENCEDOMAIN International, United Kingdom
Refereed?: Yes, Open Access?: Yes
Number of Contributors: 2
Editors: Eduardo Montero Garca, Department of Electromechanical Engineering, Polytechnic School, University of Burgos, Spain

9. Benjamin Fraser and Tzvetalin S. Vassilev. (2014). Overview of Graph Colouring and some Ramsey-type Numbers. British Journal of Mathematics & Computer Science. 5(3): 414-428.
Co-Author
Published, SCIENCEDOMAIN International, United Kingdom
Refereed?: Yes, Open Access?: Yes
Number of Contributors: 2
Editors: Doina Bein, Applied Research Laboratory, The Pennsylvania State University, USA

10. Tzvetalin S. Vassilev and Laura J. Huntington. (2013). Geometric Approaches to Bus Scheduling in Northern Ontario. *British Journal of Mathematics & Computer Science*. 3(4): 567-597.
First Listed Author
Published, SCIENCEDOMAIN International, United Kingdom
Refereed?: Yes, Open Access?: Yes
Number of Contributors: 2
Editors: Dr. Narayan Thapa, Minot State University, Minot, USA Dr. Neculai Andrei Research Institute for Informatics (ICI), Romania Prof. Tian-Xiao He Illinois Wesleyan University, USA
11. Tzvetalin S. Vassilev, Brian Eades. (2013). Generalizations of the Voronoi Diagram. *American Journal of Computational and Applied Mathematics*. 3(2): 91-96.
First Listed Author
Published, Scientific & Academic Publishing, United States
Refereed?: Yes, Open Access?: Yes
Number of Contributors: 2
Editors: Editor-in-Chief: Jose C. Valverde Department of Mathematics, University of Castilla-La Mancha, Spain
12. Minko Markov, Tzvetalin Vassilev, Krassimir Manev. (2013). A Linear Time Algorithm for Computing LongestPaths in 2-Trees. *Ars Combinatoria*. 112: 329-351.
Co-Author
Published, The Charles Babbage Research Centre, Canada
Refereed?: Yes, Open Access?: No
Number of Contributors: 3
Editors: Editor-in-Chief: Scott Vanstone, Waterloo Managing Editor: Jeff Allston, Winnipeg
13. Joanna Ammerlaan, Tzvetalin S. Vassilev. (2013). Properties of the Binary Hypercube and Middle Level Graphs. *Applied Mathematics*. 3(1): 20-26.
Co-Author
Published, Scientific & Academic Publishing, United States
Refereed?: Yes, Open Access?: Yes
Number of Contributors: 2
Editors: Editor-in-Chief: Mohammad Siddique, Department of Mathematics and General Sciences, Prince Sultan University, Saudi Arabia
14. Tzvetalin Vassilev, Joanna Ammerlaan. (2013). Programming and Testing a Two-Tree Algorithm. *Serdica Journal of Computing*. 7(2): 115-134.
First Listed Author
Published, Bulgarian Academy of Sciences, Bulgaria
Refereed?: Yes, Open Access?: Yes
Number of Contributors: 2
Editors: Peter Stanchev, Editor-in-Chief Avram Eskenazi, Publications Editor Radoslav Pavlov, Publications Editor Ivan Derzhanski, Secretary
15. Tzvetalin S. Vassilev, Brian Eades. (2013). Wireless Routing in Ad-Hoc Networks. *Computer Science and Engineering*. 3(1): 1-7.
First Listed Author
Published, Scientific & Academic Publishing, United States
Refereed?: Yes, Open Access?: Yes
Number of Contributors: 2
Editors: Editors-in-Chief: Duc Nguyen, Old Dominion University, USA Xun Zhang, ISEP Insitute Supérieur d'Electronique de Paris, France Zoran Ciric, University of Novi Sad, Faculty of Economics, Serbia

16. Tzvetalin S. Vassilev, Andrew Twizell. (2012). Cryptography: A Comparison of Public Key Systems. American Journal of Algorithms Research. 1(5): 31-42.
First Listed Author
Published, Scientific & Academic Publishing, United States
Refereed?: Yes, Open Access?: Yes
Number of Contributors: 2
Editors: Editorial Board: Imed Kacem, University Paul Verlaine-Metz (UPVM), France Hamdi Tolga Kahraman, Karadeniz Technical University, Turkey Long Chen, Qualcomm Incorporated, USA
17. Tzvetalin S. Vassilev, Laura J. Huntington. (2012). On the Minimum ABC Index of Chemical Trees. Applied Mathematics. 2(1): 8-16.
First Listed Author
Published, Scientific & Academic Publishing, United States
Refereed?: Yes, Open Access?: Yes
Number of Contributors: 2
Editors: Editor-in-Chief: Mohammad Siddique, Department of Mathematics and General Sciences, Prince Sultan University, Saudi Arabia
18. Tzvetalin S. Vassilev , Laura Huntington. (2012). Algorithms for Matchings in Graphs. American Journals of Algorithms Research. 1(4): 20-30.
First Listed Author
Published, Scientific & Academic Publishing, United States
Refereed?: Yes, Open Access?: Yes
Number of Contributors: 2
Editors: Editorial Board: Imed Kacem, University Paul Verlaine-Metz (UPVM), France Hamdi Tolga Kahraman, Karadeniz Technical University, Turkey Long Chen, Qualcomm Incorporated, USA
19. Stefan A. Pape , Tzvetalin S. Vassilev. (2012). Visibilty: Finding the Staircase Kernel in Orthogonal Polygons. American Journal of Computational and Applied Mathematics. 2(2): 17-24.
Co-Author
Published, Scientific & Academic Publishing, United States
Refereed?: Yes, Open Access?: Yes
Number of Contributors: 2
Editors: Editor-in-Chief: Jose C. Valverde, Department of Mathematics, University of Castilla-La Mancha, Spain
20. Tigran Mirzoev, Tzvetalin S. Vassilev. (2010). Quadratic Time Computable Instances of MaxMin and MinMax Area Triangulations of Convex Polygons. Serdica Journal of Computing. 4(3): 335-348.
Co-Author
Published, Bulgarian Academy of Sciences, Bulgaria
Refereed?: Yes, Open Access?: Yes
Number of Contributors: 2
Editors: Editorial Board: Peter Stanchev, Editor-in-Chief Avram Eskenazi, Publications Editor Radoslav Pavlov, Publications Editor Ivan Derzhanski, Secretary
21. J. Mark Keil, Tzvetalin S. Vassilev. (2010). Approximating the MaxMin and MinMax Area Triangulations using Angular Constraints. Serdica Journal of Computing. 4(3): 321-334.
Co-Author
Published, Bulgarian Academy of Sciences, Bulgaria
Refereed?: Yes, Open Access?: Yes
Number of Contributors: 2
Editors: Editorial Board: Peter Stanchev, Editor-in-Chief Avram Eskenazi, Publications Editor Radoslav Pavlov, Publications Editor Ivan Derzhanski, Secretary

- [22.](#) J. Mark Keil, Tzvetalin S. Vassilev. (2008). The relative neighbourhood graph is a part of every 30° -triangulation. Information Processing Letters. 109(2): 93-97.
Co-Author
Published, Elsevier, Netherlands
Refereed?: Yes, Open Access?: No
Number of Contributors: 2
Editors: Frank Dehne, Carleton University, Canada
- [23.](#) J. Mark Keil, Tzvetalin S. Vassilev. (2006). Algorithms for optimal area triangulations of a convex polygon. Computational Geometry: Theory and Applications. 35(3): 173-187.
Co-Author
Published, Elsevier, Netherlands
Refereed?: Yes, Open Access?: No
Number of Contributors: 2
Editors: Godfried Toussaint, McGill University, Canada
- [24.](#) C. Sean Bohun, Olivier Dubois, Hongbin Guo, Veena B. Mendiratta, Nilima Nigam, Kostyantyn Stepankevych, Tzvetalin S. Vassilev. (2004). Modelling Quality and Warranty Cost. Canadian Applied Mathematics Quarterly. 12(1): 37-66.
Co-Author
Published, University of Alberta, Canada
Refereed?: Yes, Open Access?: No
Number of Contributors: 7
Editors: MANAGING EDITORS: Michael Y. Li (Alberta) T. Bryant Moodie (Alberta) Michael Ward (UBC)
- [25.](#) Brett Stevens, Paul Buskell, Paule Ecimovic, Cristian Ivanescu, Abid M. Malik, Anamaria Savu, Tzvetalin S. Vassilev, Helen Verrall, Boting Yang, Zhiduo Zhao. (2002). Solution of an outstanding conjecture: the non-existence of universal cycles with $k=n-2$. Discrete Mathematics. 258(1-3): 193-204.
Co-Author
Published, Elsevier, Netherlands
Refereed?: Yes, Open Access?: No
Number of Contributors: 10
Editors: Editor-in-Chief: Peter L. Hammer, RUTCOR, Rutgers, the State University of New Jersey, 640 Bartholomew Road, Piscataway, NJ 08854-8003, USA

Books

- [1.](#) Tzvetalin S. Vassilev. (2009). Optimal Area Triangulation of Planar Point Sets. : 136.
First Listed Author
Published, VDM Verlag, Germany
Refereed?: No
Number of Contributors: 1

Dissertations

- [1.](#) Optimal Area Triangulation. (2008). University of Saskatchewan. Doctorate.
Number of Pages: 119 Supervisor: J. Mark Keil
- [2.](#) Modeling of Digital Systems Using Petri Nets. (1994). Lenin, V.I. Higher Inst. of Mech & Elect Engineering. Master's Thesis.
Number of Pages: 70 Supervisor: Iwan G. Tabakow

Reports

1. [First Listed Author](#). Tzvetalin S. Vassilev. (2005). Scientific report of Tzvetalin S. Vassilev. 4. Freie Universitat Berlin
Number of Contributors: 1

Manuals

1. Tzvetalin Vassilev, Todor Pandeliev, Hristo Sendov. (2017). Math Kangaroo 2017 Solutions, grades 11-12.
First Listed Author
Published, Canadian Math Kangaroo Corporation, Edmonton, Canada
Number of Contributors: 3
Editors: Rossitza Marinova
2. Tzvetalin Vassilev, Todor Pandeliev, Hristo Sendov. (2017). Math Kangaroo 2017 Solutions, grades 9-10.
First Listed Author
Published, Canadian Math Kangaroo Corporation, Edmonton, Canada
Number of Contributors: 3
Editors: Rossitza Marinova
3. Tzvetalin Vassilev, Todor Pandeliev, Mariya Svishchuk. (2016). Math Kangaroo 2016 Solutions, grades 11-12.
First Listed Author
Published, Canadian Math Kangaroo Corporation, Edmonton, Canada
Number of Contributors: 3
Editors: Rossitza Marionva
4. Tzvetalin Vassilev, Todor Pandeliev, Mariya Svishchuk. (2016). Math Kangaroo 2016 Solutions, grades 9-10.
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Number of Contributors: 3
Editors: Rossitza Marinova
5. Tzvetalin Vassilev, Todor Pandeliev, Mariya Svishchuk. (2015). Math Kangaroo 2015 Solutions, grades 11-12.
First Listed Author
Published, Canadian Math Kangaroo Corporation, Edmonton, Canada
Number of Contributors: 3
Editors: Rossitza Marinova
6. Tzvetalin Vassilev, Todor Pandeliev, Mariya Svishchuk. (2015). Math Kangaroo 2015 Solutions, grades 9-10.
First Listed Author
Published, Canadian Math Kangaroo Corporation, Edmonton, Canada
Number of Contributors: 3
Editors: Rossitza Marinova

Conference Publications

1. Tzvetalin S. Vassilev, Stefan Pape. (2015). Visibility: Finding the Staircase Kernel in Orthogonal Polygons. Essays on Mathematics and Statistics, Volume 5. 8th Annual International Conference on Information Technology and Computer Science, Athens, Greece (79-89). ATINER, Greece
Conference Date: 2012/5
Paper
First Listed Author
Published
Refereed?: Yes, Invited?: Yes
Number of Contributors: 2
Editors: Codruta Stoica, Aurel Vlaicu University of Arad, Romania

2. Borislav Karaivanov, Minko Markov, Jack Snoeyink, Tzvetalin S. Vassilev. (2014). Decontaminating planar regions by sweeping with barrier curves. Proceedings of the 26th Canadian Conference on Computational Geometry. 26th Canadian Conference on Computational Geometry, Halifax, Canada (206-211). Dalhousie University, Canada
Conference Date: 2014/8
Paper
Co-Author
Published
Refereed?: Yes, Invited?: No
Number of Contributors: 4

3. Tigran Mirzoev and Tzvetalin S. Vassilev. (2007). New Results on Optimal Area Triangulations of Convex Polygons. Proceedings of the XII Encuentros de Geometría Computacional. XII Encuentros de Geometría Computacional, Valladolid, Spain. Universidad de Valladolid, Spain
Conference Date: 2007/6
Paper
Co-Author
Published
Refereed?: Yes, Invited?: No
Number of Contributors: 2

4. J. Mark Keil, Tzvetalin S. Vassilev. (2005). Optimal Area Triangulation with Angular Constraints. Proceedings of the XI Encuentros de Geometría Computacional. XI Encuentros de Geometría Computacional, Santander, Spain (15-22). Universidad de Cantabria, Spain
Conference Date: 2005/6
Paper
Co-Author
Published
Refereed?: Yes, Invited?: No
Number of Contributors: 2

5. J. Mark Keil, Tzvetalin S. Vassilev. (2005). The Relative Neighbourhood Graph is a Part of every 30°-triangulation. Proceedings of the 21st European Workshop on Computational Geometry. 21st European Workshop on Computational Geometry, Eindhoven, Netherlands (9-12). Technische Universiteit Eindhoven, Netherlands
Conference Date: 2005/3
Paper
Co-Author
Published
Refereed?: Yes, Invited?: No
Number of Contributors: 2
Editors: Mark de Berg, TU Eindhoven

6. Randall Pyke, Nancy Azer, Karel Casteels, Zhu Jiaping, Yury Petrachenko, Mahin Salmani, Tzvetalin S. Vassilev, Mengzhe Wang, Pengpeng Wang, Mohammed Ali Yassaei, Bo Zeng. (2005). Path Planning for an Autonomous Robot. Proceedings of the 7th PIMS-MITACS Annual Graduate Industrial Math Modelling Camp. 7th PIMS-MITACS Annual Graduate Industrial Math Modelling Camp, Victoria, Canada (40-54). Pacific Institute for the Mathematical Sciences, Canada
Conference Date: 2004/5
Paper
Co-Author
Published
Refereed?: No, Invited?: No
Number of Contributors: 11
Editors: Reinhard Illner (University of Victoria) and David Leeming (University of Victoria)
7. Tzvetalin S. Vassilev. (2004). Polynomially Computable Approximations of Optimal Area Triangulations. 5th MITACS Annual Conference, Halifax, Canada, Canada
Conference Date: 2015/6
Poster
First Listed Author
Accepted
Refereed?: No, Invited?: No
Number of Contributors: 1
8. J. Mark Keil, Tzvetalin S. Vassilev. (2004). Optimal Area Triangulation with Angular Constraints. Proceedings of the 14th Annual Fall Workshop on Computational Geometry. 14th Annual Fall Workshop on Computational Geometry, Boston, United States (39-40). Massachusetts Institute of Technology, United States
Conference Date: 2004/11
Abstract
Co-Author
Published
Refereed?: No, Invited?: No
Number of Contributors: 2
9. Surrey Kim, Hongwei Long, Weiguang Shi, Randall Pyke, Lang Wu, Stanislava Peker, Benjamin Chan, Radu Haiduc, Andrei Maxim, Vilen Abramov, Bo Zeng, Pengpeng Wang, Robert Liao, Yury Petrachenko, Yulia Romaniuk, Mengzhe Wang, Zhiang Wang, Mohammad Ali Yassaei, Gabriel Mititica, Shijun Song, Xuekui Zhang, Song Li, Tzvetalin S. Vassilev, Nancy Azer, Mahin Salmani, Jiaping Zhu. (2004). Analyzing network Traffic for Malicious Hacker Activity. Proceedings of the 8th PIMS-MITACS Annual Industrial Problem Solving Workshop. 8th PIMS-MITACS Annual Industrial Problem Solving Workshop, Vancouver, Canada (25-36). Pacific Institute for the Mathematical Sciences, Canada
Conference Date: 2004/5
Paper
Co-Author
Published
Refereed?: No, Invited?: No
Number of Contributors: 26
Editors: C. Sean Bohun

- [10.](#) J. Mark Keil, Tzvetalin S. Vassilev. (2003). An Algorithm for the MaxMin Area Triangulation of a Convex Polygon. Proceedings of the 15th Canadian Conference on Computational Geometry. 15th Canadian Conference on Computational Geometry, Halifax, Canada (145-149). Dalhousie University, Canada
 Conference Date: 2003/8
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 Co-Author
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 Refereed?: Yes, Invited?: No
 Number of Contributors: 2
11. Tzvetalin S. Vassilev. (2003). An Algorithm for the MaxMin Area Triangulation of a Convex Polygon. 2003 Federated Computing Research Conference and 19th Annual ACM Symposium on Computational Geometry, San Diego, United States, United States
 Conference Date: 2003/6
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 First Listed Author
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 Refereed?: No, Invited?: No
 Number of Contributors: 1
- [12.](#) C. Sean Bohun, Olivier Dubois, Hongbin Guo, Veena B. Mendiratta, Nilima Nigam, Kostyantyn Stepankevych, Tzvetalin S. Vassilev. (2003). Modelling Quality and Warranty Cost. Proceedings of the 7th PIMS-IMA Annual Industrial Problem Solving Workshop. 7th PIMS-IMA Annual Industrial Problem Solving Workshop, Calgary, Canada (25-47). Pacific Institute for the Mathematical Sciences, Canada
 Conference Date: 2003/5
 Paper
 Co-Author
 Published
 Refereed?: No, Invited?: No
 Number of Contributors: 7
 Editors: C. Sean Bohun
- [13.](#) Robert Piché, Samet Kadioglu, Lin Zhou, Ying Han, Tzvetalin S. Vassilev, Thalya Burden, Xinghua Deng. (2003). Converting Machine Tool Measurements into a CAD Model. Proceedings of the 6th PIMS-IMA Annual Graduate Industrial Math Modelling Camp. 6th PIMS-IMA Annual Graduate Industrial Math Modelling Camp, Banff, Canada (75-81). Pacific Institute for the Mathematical Sciences, Canada
 Conference Date: 2003/5
 Paper
 Co-Author
 Published
 Refereed?: No, Invited?: No
 Number of Contributors: 7
 Editors: Rachel Kuske, University of British Columbia

- [14.](#) Michael Baumann, Chris Bose, Lorraine Dame, Isabelle Dechene, Maria Inez Goncalves, Robert Israel, Edward Keyes, Frithjof Lutscher, David Lyder, Colin Macdonald, Jenny McNulty, Joy Morris, Nancy Ann Neudauer, Benjamin Ong, Robert Piché, Arunas Salkauskas, Karen Seyffarth, Brett Stevens, Tzvetalin S. Vassilev, Brian Wetton, Fabien Youbissi. (2002). Stitching IC Images. Proceedings of the 6th PIMS Annual Industrial Problem Solving Workshop. 6th PIMS Annual Industrial Problem Solving Workshop, Vancouver, Canada (1-26). Pacific Institute for the Mathematical Sciences, Canada
 Conference Date: 2002/5
 Paper
 Co-Author
 Published
 Refereed?: No, Invited?: No
 Number of Contributors: 21
 Editors: J. Macki, University of Alberta
- [15.](#) Brett Stevens, Lorraine Dame, Charles Fortin, Jingxiang Luo, Huamei Yin, Tzvetalin S. Vassilev, Qingze Zou. (2002). Software Testing Using t-covering. Proceedings of the 5th PIMS Annual Graduate Industrial Math Modelling Camp. 5th PIMS Annual Graduate Industrial Math Modelling Camp, Burnaby, Canada (33-50). Pacific Institute for the Mathematical Sciences, Canada
 Conference Date: 2002/5
 Paper
 Co-Author
 Published
 Refereed?: No, Invited?: No
 Number of Contributors: 7
 Editors: Manfred Trummer, Simon Fraser University
- [16.](#) Tzvetalin S. Vassilev. (2002). Optimal Area Triangulation. Proceedings of the 14th Annual Graduate Symposium on Computational Science. 14th Annual Graduate Symposium on Computational Science, Saskatoon, Canada (1-10). University of Saskatchewan, Canada
 Conference Date: 2002/4
 Paper
 First Listed Author
 Published
 Refereed?: Yes, Invited?: No
 Number of Contributors: 1
- [17.](#) Tzvetalin S. Vassilev. (2001). Exclusion regions for the MWT (Minimum Weight Triangulation) in the L_1 and L_∞ metrics. Proceedings of the 13th Annual Graduate Symposium on Computational Science. 13th Annual Graduate Symposium on Computational Science, Saskatoon, Canada (1-10). University of Saskatchewan, Canada
 Conference Date: 2001/4
 Paper
 First Listed Author
 Published
 Refereed?: Yes, Invited?: No
 Number of Contributors: 1

- [18.](#) Brian Alspach, Calin Anton, Amos Ben-Zwi, Kyle Biswanger, Yonqiang Cao, Glynis Carling, Huaxiong Huang, Dong Liang, Margaret Liang, Mufeed Mahmoud, Jim Muldowney, Reza Naserasr, Marc Paulhus, Cristina Popescu, Miro Powojowski, Bruce Rout, Nikhil Shah, Shane Stark, Tzvetalin S. Vassilev. (2000). Optimal Strategy for Imperial Oil's Cold Lake Facilities. Proceedings of the 4th PIMS Annual Industrial Problem Solving Workshop. 4th PIMS Annual Industrial Problem Solving Workshop, Edmonton, Canada (7-32). Pacific Institute for the Mathematical Sciences, Canada
Conference Date: 2000/5
Paper
Co-Author
Published
Refereed?: No, Invited?: No
Number of Contributors: 19
Editors: J. Macki, University of Alberta
- [19.](#) Brett Stevens, Paul Buskell, Paule Ecimovic, Cristian Ivanescu, Anamaria Savu, Abid Malik, Tzvetalin S. Vassilev, Boting Yang, Zhiduo Zhao. (2000). Queue Compatible Grey Codes and Applications. Proceedings of the 3rd PIMS Annual Graduate Industrial Math Modelling Camp. 3rd PIMS Annual Graduate Industrial Math Modelling Camp, Burnaby, (8-15). Pacific Institute for the Mathematical Sciences, Canada
Conference Date: 2000/5
Paper
Co-Author
Published
Refereed?: No, Invited?: No
Number of Contributors: 9
Editors: Keith Promislow and Mary Catherine Kropinski, Department of Mathematics and Statistics, Simon Fraser University

This is a draft version only. Do not submit to any funding organization. Only the final version from the History page can be submitted.

Dr. Mark Paul Wachowiak

Correspondence language: English

Sex: Male

Date of Birth: 8/20

Canadian Residency Status: Canadian Citizen

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This is a draft version only. Do not submit to any funding organization. Only the final version from the History page can be submitted.



Protected when completed

Dr. Mark Wachowiak

Language Skills

Language	Read	Write	Speak	Understand	Peer Review
English	Yes	Yes	Yes	Yes	Yes

Degrees

1998/8 - 2002/12	Doctorate, Computer Engineering and Computer Science, Biomedical Image Registration, University of Louisville Degree Status: Completed Thesis Title: Similarity Metrics and Optimization Techniques for Multimodal Biomedical Image Registration Transferred to PhD without completing Masters?: No Areas of Research: Research Disciplines: Computer Science Supervisors: Adel S. Elmaghraby, 1999/8 - 2002/12 Fields of Application: Communication and Information Technologies
1995/8 - 1997/12	Master's Thesis, Engineering Mathematics and Computer Science, Signal Processing, University of Louisville Degree Status: Completed Thesis Title: Wavelet Transforms for the Analysis of Biomedical Signals Supervisors: Ahmed H. Desoky, 1995/8 - 1997/12
- 1994/12	Bachelor's, Mathematics, Mathematics, University of Louisville Degree Status: Completed

Recognitions

2017/6	Chancellor's Award for Excellence in Research - 1,500 Nipissing University Prize / Award Winner of 2017 Research Award. One award is given per year.
2015/6	Best Presentation (Contributed Session) - 200 Applied Mathematics, Modeling and Computational Science Prize / Award Best Presentation in a contributed session awarded to my M.Sc. graduate student (Benjamin Fraser) for his paper "Persistent Homology for Analyzing Environmental Lake Monitoring Data (Benjamin Fraser, Mark P. Wachowiak, and Renata Wachowiak-Smolikova). The paper was presented at the 2015 joint AMMCS-CAIMS Congress held in Waterloo, ON in June, 2015. The award consists of \$200 CDN plus assorted prizes, including software and a book

Refereed?: Yes, Open Access?: No

User Profile

Researcher Status: Researcher

Research Career Start Date: 2006/09/04

Engaged in Clinical Research?: No

Research Interests: Biomedical signal processing Biomedical imaging Biomedical computing Geospatial computing Visual analytics Data analytics High-performance computing Global optimization Scientific visualization

Fields of Application: Communication and Information Technologies, Biomedical Aspects of Human Health,

Disciplines Trained In: Computer Science, Applied Mathematics, Computer Engineering and Software Engineering, Biomedical Engineering and Biochemical Engineering

Technological Applications: Software

Areas of Research: Computer Science and Statistics, Shape Recognition and Computer Graphics, Data mining

Research Specialization Keywords: Scientific computing, Biomedical signal processing, Visual analytics, Data analytics, Geospatial computing

Research Disciplines: Computer Science, Applied Mathematics

Employment

2014/5	Associate Professor Computer Science and Mathematics, Nipissing University Full-time, Associate Professor Tenure Status: Tenure
2006/7 - 2014/5	Assistant Professor Computer Science and Mathematics, Arts and Sciences, Nipissing University Full-time, Assistant Professor Tenure Status: Tenure Track
2004/7 - 2006/7	Research Associate Imaging Laboratories, Robarts Research Institute Full-time Tenure Status: Non Tenure Track Research associate, student mentoring
2006/9 - 2006/5	Adjunct Professor Medical Biophysics, University of Western Ontario Part-time, Adjunct, Lecturer Tenure Status: Non Tenure Track Co-instructor for courses in the Department of Medical Biophysics
2002/9 - 2004/7	Postdoctoral Fellow Imaging Laboratories, Robarts Research Institute Full-time Tenure Status: Non Tenure Track Research, high-performance computing, student mentoring
1995/9 - 1998/9	Software developer, research assistant Gait and Biomechanics Laboratory, Frazier Rehabilitation Center Wrote software for assisting with the clinical and research applications of the Gait and Biomechanics Laboratory at Frazier Rehabilitation Center. Performed data analysis and assisted with data collection.

Research Funding History

Awarded [n=1]

2017/6 - 2019/5 New Data Analytics Approaches for Biomedical, Physiological, and Geospatial Time
Principal Investigator Series and Imagery, Grant

Funding Sources:

Nipissing University
Internal Research Grant
Total Funding - 5,000
Portion of Funding Received - 5,000
Funding Competitive?: Yes

Completed [n=7]

2011/11 - 2016/11 Northern Centre for Research on Aging and Communication (Internship), Grant
Co-applicant

Funding Sources:

2015/11 - 2016/11 Northern Ontario Heritage Fund Corporation (NOHFC) (ON)
NOHFC Internship Program
Total Funding - 42,000
Portion of Funding Received - 100
Funding Competitive?: Yes

2014/11 - 2015/11 Northern Ontario Heritage Fund Corporation (NOHFC) (ON)
NOHFC Internship Program
Total Funding - 42,000
Portion of Funding Received - 100
Funding Competitive?: Yes

2013/11 - 2014/11 Northern Ontario Heritage Fund Corporation (NOHFC) (ON)
NOHFC Internship Program
Total Funding - 42,000
Portion of Funding Received - 100
Funding Competitive?: Yes

2012/11 - 2013/11 Northern Ontario Heritage Fund Corporation (NOHFC) (ON)
NOHFC Internship Program
Total Funding - 42,000
Portion of Funding Received - 100
Funding Competitive?: Yes

2011/11 - 2012/11 Northern Ontario Heritage Fund Corporation (NOHFC) (ON)
NOHFC Internship Program
Total Funding - 42,000
Portion of Funding Received - 100
Funding Competitive?: Yes

Co-applicant : Arnocky, Steven;

Principal Applicant : Murphy, Dana

2015/5 - 2016/9 Virtual Vimy Ridge, Grant
Principal Investigator

Funding Sources:

2015/5 - 2016/9 Military Communications and Electronics Museum
 Total Funding - 7,000
 Portion of Funding Received - 95
 Funding Competitive?: No

Principal Knowledge User : McCarey, David

2011/4 - 2016/4 High-Performance Global Optimization and Signal Processing on Multicore, GPU, and
 Principal Investigator Hybrid Architectures, Grant
 Clinical Research Project?: No
 Research Settings: Canada (Urban)
 Research Disciplines: Computer Science, Applied Mathematics, Biomedical Engineering
 and Biochemical Engineering
 Areas of Research: Algorithms, Computer Science and Statistics, Biomedical
 Technologies
 Fields of Application: Communication and Information Technologies, Biomedical Aspects
 of Human Health

Funding by Year:

2015/4 - 2016/4 Total Funding - 14,000 (Canadian dollar)
 Portion of Funding Received - 100 (Canadian dollar)
 Time Commitment: 30

2014/4 - 2015/4 Total Funding - 14,000 (Canadian dollar)
 Portion of Funding Received - 100 (Canadian dollar)
 Time Commitment: 30

2013/4 - 2014/4 Total Funding - 14,000 (Canadian dollar)
 Portion of Funding Received - 100 (Canadian dollar)
 Time Commitment: 30

2012/4 - 2013/4 Total Funding - 14,000 (Canadian dollar)
 Portion of Funding Received - 100 (Canadian dollar)
 Time Commitment: 30

2011/4 - 2012/4 Total Funding - 14,000 (Canadian dollar)
 Portion of Funding Received - 100 (Canadian dollar)
 Time Commitment: 30

Funding Sources:

2011/4 - 2016/4 Natural Sciences and Engineering Research Council of Canada
 (NSERC)
 Discovery Grant
 Total Funding - 70,000 (Canadian dollar)
 Portion of Funding Received - 100 (Canadian dollar)
 Funding Renewable?: No
 Funding Competitive?: Yes
 Funding Reference Number: 386586-2011

2010/7 - 2015/5 Integrated Geospatial Data and Visualization Technology for Agricultural Applications,
 Co-applicant Grant

Funding Sources:

2014/1 - 2015/5 Agriculture and Agri-Food Canada
 In-kind contribution for equipment
 Total Funding - 60,000
 Portion of Funding Received - 100
 Funding Competitive?: No

2011/7 - 2015/5 Northern Ontario Heritage Fund Corporation (NOHFC) (ON)
 Total Funding - 410,500
 Portion of Funding Received - 100
 Funding Competitive?: Yes

2011/7 - 2015/5 Nipissing University
 Matching funds for NOHFC award
 Total Funding - 410,500
 Portion of Funding Received - 100
 Funding Competitive?: Yes

Co-applicant : James, April;

Principal Applicant : Kovacs, John; Walters, Daniel

2012/6 - 2014/6
 Co-applicant

Modeling the Innovation Commercialization Risk-Actions-Success Decision Process: An Artificial Neural Network Approach, Grant

Funding Sources:

2012/6 - 2014/6 Social Sciences and Humanities Research Council of Canada (SSHRC)
 Insight Development Grant
 Total Funding - 51,000
 Portion of Funding Received - 100
 Funding Competitive?: Yes

Co-applicant : Hay, Dean;

Principal Applicant : Brophey, Glenn; Hemsworth, David

2011/7 - 2013/7
 Principal Investigator

SHARCNET Site Leader, Grant

Funding Sources:

2011/7 - 2013/7 Shared Hierarchical Academic Research Computing Network (The) (SHARCNET) (Ontario)
 Site Leader Research Grant
 Total Funding - 12,000
 Portion of Funding Received - 100
 Funding Competitive?: No

2011/7 - 2013/7
 Co-applicant

Postdoctoral Fellowship, Fellowship

Funding Sources:

2011/7 - 2013/7 Ontario Ministry of Research and Innovation (ON)
 Postdoctoral fellowship
 Total Funding - 110,000
 Portion of Funding Received - 100
 Funding Competitive?: Yes

Co-applicant : Hay, Dean;

Principal Applicant : Brophey, Glenn; Hemsworth, David

Under Review [n=1]

2019/1 - 2012/3
Co-applicant

Sports Performance Analysis System: Integrating Artificial Intelligence Movement Analysis and Telemetry for Novice to Expert Participants, Grant

Funding Sources:

New Brunswick Health Research Foundation (NBHRF)

Total Funding - 0

Portion of Funding Received - 0

Funding Competitive?: Yes

Atlantic Canada Opportunities Agency

Atlantic Innovation Fund

Total Funding - 1,800,000

Portion of Funding Received - 0

Funding Competitive?: Yes

New Brunswick Innovation Foundation

Total Funding - 0

Portion of Funding Received - 0

Funding Competitive?: Yes

Co-applicant : Dean Hay; Renata Wachowiak-Smolikova; Wayne Albert; Yassine Bouslimani;

Principal Applicant : Michel Johnson

Student/Postdoctoral Supervision**Bachelor's Honours [n=15]**

2017/5 - 2019/6

Principal Supervisor

Moggridge, Jason (In Progress) , Nipissing University

Student Degree Expected Date: 2019/6

Thesis/Project Title: Lake Nipissing Visualization and Analytics System High-Performance Computing for Global Optimization and Advanced Signal Processing Techniques

Present Position: Research Assistant, Nipissing University

2015/9 - 2016/5

Principal Supervisor

Singhe, Tsering (Completed) , Nipissing University

Thesis/Project Title: GeoVisage - Web-based visualization, analytics, and decision support system for agricultural producers in Northern Ontario (funded by NOHFC) Web-based data analytics, visualization, and visual analytics of environmental monitoring data

Present Position: Software developer, FDM, Toronto, ON

2015/9 - 2016/8

Principal Supervisor

DuVal, David (Completed) , Nipissing University

Thesis/Project Title: GeoVisage - Web-based visualization, analytics, and decision support system for agricultural producers in Northern Ontario (funded by NOHFC) Advanced time-frequency analysis and visual analytics of biomedical signals (funded by NSERC Discovery Grant) Virtual Vimy Ridge - Web-based GIS/3D visualization system (funded by Military Communications and Electronics Museum, Kingston, ON, Canada)

Present Position: Software developer, Hard-Line (mining company)

2015/7 - 2016/7

Co-Supervisor

Albert, Graham (Completed) , Nipissing University

Thesis/Project Title: NOHFC Intern - Northern Centre for Research in Aging and Communication, Nipissing University

Present Position: Doctoral student, Biological Anthropology, Boston University, Boston, MA, USA

2015/5 - 2016/7 Principal Supervisor	Timson, Mitchell (Completed) , Nipissing University Thesis/Project Title: GeoVisage - Web-based visualization, analytics, and decision support system for agricultural producers in Northern Ontario (funded by NOHFC) Global optimization using hybrid computing with multicore processors and graphics processing units (funded by NSERC Discovery Grant, USRA, Summer 2015) Virtual Vimy Ridge - Web-based GIS/3D visualization system (funded by Military Communications and Electronics Museum, Kingston, ON, Canada) Present Position: Software developer, AutoDesk Canada
2014/9 - 2015/5 Principal Supervisor	Forgette, Jacquelyne (Completed) , Nipissing University Thesis/Project Title: GPU/parallel optimization algorithms (funded by NSERC) GeoVisage -- visual web-based analytics and decision support system for agricultural producers in Northern Ontario (funded by NOHFC) Web-based data analytics, visualization, and visual analytics of environmental monitoring data Worked as an undergraduate research assistant, then as a research assistant after completing the M.Sc. degree. Present Position: Software developer (M.Sc. Computer Science, University of Western Ontario in 2014), Marval North America / Stroma Service Consulting (North Bay, ON)
2014/5 - 2015/6 Principal Supervisor	Dobbs, Brandon (Completed) , Nipissing University Thesis/Project Title: GeoVisage -- visual web-based analytics and decision support system for agricultural producers in Northern Ontario (funded by NOHFC) Web-based data analytics, visualization, and visual analytics of environmental monitoring data Present Position: Software developer, Marval North America / Stroma Service Consulting, North Bay, ON
2013/5 - 2014/6 Principal Supervisor	Rotondo, Devin (Completed) , Nipissing University Thesis/Project Title: Global optimization using hybrid computing with multicore processors and graphics processing units (NSERC USRA, Summer 2013) Present Position: Software developer, FDM4 International, Inc., North Bay, ON
2012/5 - 2015/6 Co-Supervisor	Pearson, Marlena (Completed) , Nipissing University Thesis/Project Title: Research into psychological aspects of aging and communication Present Position: M.Sc. student, Psychological Science, Ryerson University, Toronto, ON
2012/5 - 2014/6 Principal Supervisor	Jaynes, Kyle (Completed) , Nipissing University Thesis/Project Title: GeoVisage - Web-based visualization, analytics, and decision support system for agricultural producers in Northern Ontario Ancient History Geovisage - Web-based research and pedagogical GIS and database tool for exploring classical cultures Integrative Watershed Research Centre - Web-based visualization and analytics system for environmental monitoring (Lake Nipissing, Ontario) Present Position: Business analyst, Information Technology and Services, Scotiabank, Toronto, ON
2012/5 - 2013/6 Principal Supervisor	Sarlo, Bryan (Completed) , Nipissing University Thesis/Project Title: GeoVisage - Web-based visualization, analytics, and decision support system for agricultural producers in Northern Ontario (funded by NOHFC) Global optimization using hybrid computing with multicore processors and graphics processing units (funded by NSERC Discovery Grant) Present Position: Computer science instructor (graduated with M.Sc. from Western), University of Western Ontario
2012/5 - 2012/7 Co-Supervisor	Carlson, Alain, Nipissing University Thesis/Project Title: Ageing and Communications Research Present Position: Masters student, Nutritional Sciences, University of Toronto, Toronto, ON

2011/11 - 2012/8 Co-Supervisor	Tanner, Jessica (Completed) , Nipissing University Thesis/Project Title: Northern Centre for Research in Aging and Communication (Psychology). NOHFC Internship Present Position: Doctoral student, Clinical Psychology, Lakehead University, Thunder Bay, ON
2011/5 - 2011/9 Principal Supervisor	Kelly, Ian (Completed) , Nipissing University Thesis/Project Title: Global optimization algorithms Present Position: Unknown, Unknown
2011/5 - 2013/8 Principal Supervisor	Lambe Foster, Alexander (Completed) , Nipissing University Thesis/Project Title: Global optimization using hybrid computing with multicore processors and graphics processing units (NSERC USRA, Summer 2013) Present Position: Software developer, Savage Data Systems, North Bay, ON

Master's non-Thesis [n=2]

2010/10 - 2012/7 Principal Supervisor	Macedo, Andrea (Completed) , Nipissing University Thesis/Project Title: Coherence and Significance of the Continuous Wavelet Transform (Major Research Paper) Present Position: Substitute Teacher (after completing further training at Ontario Teacher's College), Highland Park High School, Highland Park, IL, USA
2009/9 - 2011/5 Principal Supervisor	Zimmerling, Jonathan (Completed) , Nipissing University Thesis/Project Title: Estimation of Spatial Econometric Parameters Using Particle Swarm Optimization (Major Research Paper) Present Position: Software developer, Marval North America / Stroma Service Consulting, Toronto, ON

Master's Thesis [n=1]

2015/5 - 2016/8 Principal Supervisor	Fraser, Benjamin (Completed) , Nipissing University Thesis/Project Title: Topological Data Analysis Parameters in Time Series Analysis (funded by NSERC Discovery Grant) Present Position: Doctoral student, York University

Knowledge and Technology Translation

- 2014/7 - 2017/12 Researcher, Community Engagement
 Group/Organization/Business Serviced: Provincial and federal government agencies; general public
 Target Stakeholder: General Public
 Outcome / Deliverable: Web-based analysis and visualization system for environmental monitoring of Lake Nipissing, an economically and culturally important Lake in northern Ontario.
 Evidence of Uptake/Impact: The system is currently used by Nipissing University students and some provincial government researchers. The system will be presented at the upcoming Global Lake Ecological Observatory Network (GLEON) conference: <http://gleon.org/meetings/gleon19/main>.
 References / Citations / Web Sites: 1. Wachowiak et al. (2017) J Data Sci Anal 2. <http://iwrc.nipissingu.ca/> 3. <http://visual.nipissingu.ca/buoys/> 4. Wachowiak et al. (2015) Env & Poll 5. <http://visual.nipissingu.ca/Commanda2>
 Activity Description: Researcher, student supervisor, and software developer. The web-based service is part of a larger initiative, led by Dr. April James (CRC II, Nipissing University) into watershed monitoring and modeling. Other faculty from the Department of Geography at Nipissing University, as well as many students, are also involved in this work. The applicant's contribution consists of student supervision, research, and software development for a web-based visualization/visual analytics and data analysis system for a large amount of high-frequency lake monitoring data.
- 2015/1 - 2017/5 Researcher, Community Engagement
 Group/Organization/Business Serviced: Military Communications and Electronics Museum, Kingston, ON
 Target Stakeholder: General Public
 Outcome / Deliverable: Virtual Vimy Ridge: interactive virtual representation of Canadian Signal Corps activity during the Taking (Battle) of Vimy Ridge. The system was presented to the general public through an exhibit featured at the Military Communications and Electronics Museum.
 Evidence of Uptake/Impact: The project was featured as an exhibit for the general public at the Military Communications and Electronics Museum in Kingston, ON for the centenary of the Battle of Vimy Ridge.
 References / Citations / Web Sites: <http://www.nugget.ca/2016/11/05/nipissing-creates-museum-exhibit-using-gis-mapping-3d-modelling> <http://www.nipissingu.ca/about-us/newsroom/Pages/NU-collaborating-to-create-Virtual-Vimy-Ridge.aspx>
 Activity Description: Researcher, student supervisor, and software developer for "Virtual Vimy Ridge", a community educational initiative developed in collaboration with the Military Communications and Electronics Museum in Kingston, ON. The system was part of the Vimy Ridge centenary celebrations at the Museum, focusing specifically on the activity of the Signal Corps. The project is an interactive virtual 3D world based on GIS visualization incorporating digitized maps, logs, 3D models, topography generated from trench maps, and other information. Three students worked on the project, and gained experience in 3D computer graphics, GIS systems, software engineering, and interdisciplinary collaboration.

2011/7 - 2015/9

Researcher, Community Engagement

Group/Organization/Business Served: Northern Ontario agricultural producers; provincial and federal government agencies; general public

Target Stakeholder: General Public

Outcome / Deliverable: Web-based decision support, weather monitoring, and visualization for Northern Ontario agricultural producers.

Evidence of Uptake/Impact: Upcoming article in "Better Farmer" (2017) Article in "Research Matters" (2016): <http://yourontarioresearch.ca/2016/04/getting-ahead-mother-nature/> Presentation (by J. Kovacs) at the Combined Conference of the Rural Ontario Municipal Association (2015): <http://www.nipissingu.ca/about-us/newsroom/Pages/GeoVisage-helping-to-reboot-municipal-sector.aspx> Article in AgInnovation Ontario (2016): <https://www.aginnovationontario.ca/en/navigating-northern-ontarios-climate-shortcomings/> A case study demonstrates evidence of uptake and impact by agricultural producers: Jarvis et al. (2017) Agriculture 7(8)

References / Citations / Web Sites: 1. Wachowiak et al. (2017) Computers and Electronics in Agriculture (in Press) 2. Jarvis et al. (2017) Agriculture 7(8) 3. GeoVisage: <http://geovisage.nipissingu.ca>

Activity Description: Researcher, student supervisor, and software developer for the web-based, not-for-profit decision support service (GeoVisage), funded primarily by NOHFC. Co-applicant (with three others) on the NOHFC grant to fund the project. Many HQP were trained in all aspects of software engineering, software development, and interdisciplinary science as the result of this project. The website contains research-oriented aspects, such as statistical analysis, signal processing, imaging, image processing, and visual analytics.

Committee Memberships

2013/7

Chair, Graduate Coordinator, M.Sc. in Mathematics Program, Nipissing University
Advising of graduate (M.Sc.) students in the graduate Mathematics program at Nipissing University. Coordinating programs and activities of the M.Sc. in Mathematics program. This role is ongoing.

2013/7

Committee Member, Graduate Studies Graduate Council, Nipissing University
Member of the Committee that makes decision on policies, procedures, and programs of the Nipissing University Graduate School. The role is ongoing.

2017/10 - 2018/5

Committee Member, Compute Ontario Advisory Committee: Provincial Study on Highly Qualified Personnel, Compute Ontario
Service on an advisory committee for Compute Ontario to study the training of Highly Qualified Personnel in high performance computing

2015/7 - 2017/7

Committee Member, Tenure and Promotion Committee, Nipissing University
Alternate member from the Faculty of Arts and Science on the Tenure and Promotion Committee at Nipissing University

Other Memberships

2011/9

SHARCNET/Compute Canada Site Leader, Nipissing University
SHARCNET (Shared Hierarchical Academic Research Computing Network) is a high-performance computing consortium which is part of Compute Canada. The site leader role is a liaison between Nipissing University and SHARCNET/Compute Canada, and involves maintaining researcher computer accounts and some training of users (see <https://www.sharcnet.ca/my/contact/directory>). The role is ongoing.

Presentations

1. Albert G*, Pearson M*, Arnocky S, Wachowiak MP, Nicol JR, Murphy DR (Presented by G. Albert). (2015). An analysis of the effects of male vocal attractiveness on attention and memory of females. Canadian Society For Brain, Behaviour, and Cognitive Science Conference, Ottawa, Canada
Main Audience: Researcher
Invited?: No, Keynote?: No
2. Wenghofer R, Wachowiak MP (Co-presented by R. Wenghofer and M.P. Wachowiak). (2015). Utilizing digital mapping technology as a tool for organization of historical knowledge. Classical Association of Canada (Annual Meeting), Toronto, Canada
Main Audience: Researcher
Invited?: No, Keynote?: No
3. Pearson M*, Rotondo D*, Lambe Foster A*, Wachowiak M, Nicol JR, Murphy DR, Sommers M (presented by M. Pearson). (2014). Previous presentation influences release from binocular suppression similarly in younger and older adults. Cognitive Aging Conference, Atlanta, United States
Main Audience: Researcher
Invited?: No, Keynote?: No
4. Pearson M*, Rotondo D*, Wachowiak M, Nicol JR, Murphy DR (presented by M. Pearson). (2014). What older adults' perception of emotional faces during binocular suppression reveals about theories of aging. 24th Annual Canadian Society for Brain, Behaviour, and Cognitive Science (CSBBCS) Conference, Toronto, Canada
Main Audience: Researcher
Invited?: No, Keynote?: No
5. Pearson M*, Tanner J*, Wachowiak MP, Nicol JR, Sommers M, Murphy DR (Presented by M. Pearson). (2012). Inhibitory deficits in older and younger adults as measured by a binocular rivalry task. Cognitive Aging Conference, Atlanta, United States
Main Audience: Researcher
Invited?: No, Keynote?: No

Text Interviews

- 2016/04/19 Farmers get ahead of Mother Nature (GeoVisage Visualization and Decision Support System), Research Matters <http://yourontarioresearch.ca/2016/04/getting-ahead-mother-nature/>

Publications

Journal Articles

1. Wachowiak MP, James AL, Wachowiak-Smolikova R, Walters DF, Chutko KJ, Rusak JA. (2018). Visual analytics of high-frequency lake monitoring data: A case study of multiple stressors on a large inland lake system. International Journal of Data Science and Analytics. 5(2-3): 99-110.
Published,
Refereed?: Yes, Open Access?: No
2. Albert G, Pearson M, Arnocky S, Wachowiak M, Nicol J, Murphy DR. (2018). Effects of masculinized and feminized male voices on men and women's distractibility and implicit memory. Journal of Individual Differences.
Accepted,
Refereed?: Yes, Open Access?: No

3. Wachowiak MP, Wachowiak-Smolikova R, Johnson MJ, Hay DC, Power K, Williams-Bell FM. (2018). Quantitative feature analysis of continuous analytic wavelet transforms of ECG and EMG. *Philosophical Transactions of the Royal Society A*. 376(2126): 15 p.
<http://dx.doi.org/10.1098/rsta.2017.0250>
Published,
Refereed?: Yes, Open Access?: No
Editors: Addison P
4. Jarvis DH, Wachowiak MP, Walters D, Kovacs JM. (2017). Adoption of web-based spatial tools by agricultural producers: Conversations with seven northern Ontario farmers using the GeoVisage decision support system. *Agriculture*. 7(8)
Published,
Refereed?: Yes, Open Access?: Yes
5. Wachowiak MP, Timson MC*, DuVal DJ*. (2017). Adaptive particle swarm optimization with heterogeneous multicore parallelism and GPU acceleration. *IEEE Transactions on Parallel and Distributed Systems*. 28(10): 2784-2793.
Published,
Refereed?: Yes, Open Access?: No
6. Hay DC, Wachowiak MP. (2017). Analysis of free moment and center of pressure frequency components during quiet standing using magnitude squared coherence. *Human Movement Science*. 54(August): 101-109.
Published,
Refereed?: Yes, Open Access?: No
7. Wachowiak MP, Walters DF, Kovacs JM, Smolikova-Wachowiak R, James AL. (2017). Visual analytics and remote sensing imagery to support community-based research for precision agriculture in emerging areas. *Computers and Electronics in Agriculture*. 143
Published, 149-164,
Refereed?: Yes, Open Access?: No
8. Hay DC, Wachowiak MP, Graham RB. (2016). Evaluating the relationship between muscle activation and spine kinematics through wavelet coherence. *Journal of Applied Biomechanics*. 32(5): 526-531.
Published,
Refereed?: Yes, Open Access?: No
9. Suchacek J, Seda P, Friedrich V, Wachowiak-Smolikova R, Wachowiak, MP. (2016). From regional to national clouds: TV coverage in the Czech Republic. *PLoS ONE*. 11(11): e0165527.
Published,
Refereed?: Yes, Open Access?: Yes
10. Wachowiak MP, Hay DC, Johnson MJ. (2016). Assessing heart rate variability through wavelet-based statistical measures. *Computers in Biology and Medicine*. 77: 222-230.
Published,
Refereed?: Yes, Open Access?: No
11. Brown B, Wachowiak-Smolikova R, Spence ND, Wachowiak MP, Walters DF. (2016). Why do some First Nations communities have safe water and others not? Socioeconomic determinants of drinking water risk. *Global journal of health science*. 8(9): 99-106.
Published,
Refereed?: Yes, Open Access?: Yes
12. Graham RB, Wachowiak MP, Gurd BJ. (2015). The assessment of muscular effort, fatigue, and physiological adaptation using EMG and wavelet analysis. *PLoS ONE*. 10(8): 1-13.
Published, Public Library of Science,
Refereed?: Yes, Open Access?: Yes

13. Wachowiak MP, Wachowiak-Smolikova R, Dobbs BT*, Abbott J, Walters D. (2015). Interactive web-based visualization for lake monitoring in community-based participatory research: A pilot study using a commercial vessel to monitor Lake Nipissing. *Environment and Pollution*. 4(2): 42-54.
Published,
Refereed?: Yes, Open Access?: Yes
14. Brophey G, Baregheh A, Hemsworth D, Wachowiak M, Hay D, Ben Dhaou S. (2015). The "Everything's Different, Every Time" innovation management problem: A promising model development. *International Journal of Innovation Management*. 19(05): 1550057:1-24.
Published,
Refereed?: Yes, Open Access?: No
15. Wachowiak MP, Sarlo BB*, Lambe Foster AE*. (2014). High-dimensional adaptive particle swarm optimization on heterogeneous systems. *Journal of Physics: Conference Series*. 540(1): 012007:1-10.
Published,
Refereed?: Yes, Open Access?: Yes
16. Walters DF, Smolikova-Wachowiak R, Wachowiak M, Shrubsole D, Malczewski J. (2013). Ontario's nutrient calculator: Overview and focus on sensitivity analysis. *Journal of Agricultural Science*. 5(11): 189-200.
Published, Canadian Center of Science and Education,
Refereed?: Yes, Open Access?: Yes
17. Nicol JR, Perrotta S, Caliciuri S, Wachowiak MP. (2013). Emotion-specific modulation of early visual perception. *Cognition and Emotion*. 27(8): 1478-1485.
Published,
Refereed?: Yes, Open Access?: No
18. Zhang C, Kovacs JM, Wachowiak MP, Flores-Verdugo F. (2013). Relationship between hyperspectral measurements and mangrove leaf nitrogen concentrations. *Remote Sensing*. 5(2): 891-908.
Published,
Refereed?: Yes, Open Access?: Yes
19. Fu C, James AL, Wachowiak MP. (2012). Analyzing the combined influence of solar activity and El Nino on streamflow across southern Canada. *Water Resources Research*. 48(5)
Published,
Refereed?: Yes, Open Access?: No
20. Wachowiak M, Lambe Foster AE*. (2012). GPU-based asynchronous global optimization with particle swarm. *Journal of Physics: Conference Series*. 385(1): 012012:1-8.
Published,
Refereed?: Yes, Open Access?: Yes
21. Forgette, Jacquelyne and Wachowiak-Smolikova, Renata and Wachowiak, Mark P. (2010). Influence maps for facilitating tactical engagement decisions in real-time strategy games. *International Journal of Intelligent Games and Simulation*. 6(1): 8.
Published,
Refereed?: Yes, Open Access?: Yes
22. Wachowiak, Mark P and Smolikova-Wachowiak, Renata and Smolik, Dusan. (2010). Parameter estimation of nonlinear econometric models using particle swarm optimization. *Central European Review of Economics Issues*. 13(4): 193-199.
Published, Vysoka skola banska-Technicka univerzita Ostrava,
Refereed?: Yes, Open Access?: No
23. Wachowiak, MP and Wachowiak-Smolikova, R and Fryia, GD. (2010). Practical considerations in human-computer interaction for e-Learning systems for people with cognitive and learning disabilities. *International Journal of Information Studies*. 2(1): 60--70.
Published,
Refereed?: Yes, Open Access?: No

24. Wachowiak, Mark P and Peters, Terry M. (2006). High-performance medical image registration using new optimization techniques. *IEEE Transactions on Information Technology in Biomedicine*. 10(2): 344--353. Published, IEEE,
Refereed?: Yes, Open Access?: No
25. Zheng, Yufeng and Wachowiak, Mark Paul and Elmaghraby, Adel S. (2005). Resolution improvement and detail enhancement for computed tomography scout images. *Journal of Electronic Imaging*. 14(1): 013003. Published, International Society for Optics and Photonics,
Refereed?: Yes, Open Access?: No
26. Smolikova-Wachowiak, Renata and Wachowiak, Mark P and Fenster, Aaron and Drangova, Maria. (2005). Registration of two-dimensional cardiac images to preprocedural three-dimensional images for interventional applications. *Journal of Magnetic Resonance Imaging*. 22(2): 219--228. Published, Wiley Online Library,
Refereed?: Yes, Open Access?: No
27. Wachowiak, Mark P and Smolikova, Renata and Tourassi, Georgia D and Elmaghraby, Adel S. (2005). Estimation of generalized entropies with sample spacing. *Pattern Analysis and Applications*. 8(1-2): 95--101. Published, Springer,
Refereed?: Yes, Open Access?: No
28. Zhong, Hualiang and Wachowiak, Mark P and Peters, Terry M. (2005). Enhanced pre-computed finite element models for surgical simulation. *simulation*. 2(3): 12. ,
29. Zhong, Hualiang and Wachowiak, Mark P and Peters, Terry M. (2005). A real time finite element based tissue simulation method incorporating nonlinear elastic behavior. *Computer methods in biomechanics and biomedical engineering*. 8(3): 177--189. Published, Taylor and Francis,
Refereed?: Yes, Open Access?: No
30. Smolikova, Renata and Wachowiak, Mark P and Zurada, Jacek M. (2004). An information-theoretic approach to estimating ultrasound backscatter characteristics. *Computers in biology and medicine*. 34(4): 355--370. Published, Elsevier,
Refereed?: Yes, Open Access?: No
31. Wachowiak, Mark P and Smolikova, Renata and Zheng, Yufeng and Zurada, Jacek M and Elmaghraby, Adel Said. (2004). An approach to multimodal biomedical image registration utilizing particle swarm optimization. *IEEE Transactions on evolutionary computation*. 8(3): 289--301. Published, IEEE,
Refereed?: Yes, Open Access?: No
32. Smolikova, Renata and Wachowiak, Mark P. (2002). Aggregation operators for selection problems. *Fuzzy Sets and Systems*. 131(1): 23--34. Published, Elsevier,
Refereed?: Yes, Open Access?: No
33. Wachowiak, Mark P and Smolikova, Renata and Zurada, Jacek M and Elmaghraby, Adel Said. (2002). Estimation of K distribution parameters using neural networks. *IEEE transactions on Biomedical Engineering*. 49(6): 617--620. Published, IEEE,
Refereed?: Yes, Open Access?: No
34. Somia, Naveen N and Rash, Gregory S and Epstein, Emily E and Wachowiak, Mark and Sundine, Michael J and Stremel, Richard W and Barker, John H and Gossman, Douglas. (2000). A computer analysis of reflex eyelid motion in normal subjects and in facial neuropathy. *Clinical Biomechanics*. 15(10): 766--771. Published, Elsevier,
Refereed?: Yes, Open Access?: No

35. Wachowiak, S and Smolikova, R and Zurada, J and Elmaghraby, A. (2000). A neural approach to speckle noise modeling. *Intell. Eng. Syst. Artif. Neural Netw.* 10: 837--842. ,
36. Wachowiak, Mark P and Rash, Gregory S and Quesada, Peter M and Desoky, Ahmed H. (2000). Wavelet- based noise removal for biomechanical signals: A comparative study. *IEEE Transactions on Biomedical engineering.* 47(3): 360--368.
Published, IEEE,
Refereed?: Yes, Open Access?: No
37. Rash, Gregory S and Belliappa, Palecanda P and Wachowiak, Mark P and Somia, Naveen N and Gupta, Amit. (1999). A demonstration of the validity of a 3-D video motion analysis method for measuring finger flexion and extension. *Journal of Biomechanics.* 32(12): 1337--1341.
Published, Elsevier,
Refereed?: Yes, Open Access?: No
38. Roberts, Craig S and Rash, Gregory S and Honaker, Joshua T and Wachowiak, Mark P and Shaw, John C. (1999). A deficient anterior cruciate ligament does not lead to quadriceps avoidance gait. *Gait & posture.* 10(3): 189--199.
Published, Elsevier,
Refereed?: Yes, Open Access?: No
39. Gupta, Amit and Rash, Gregory S and Somia, Naveen N and Wachowiak, Mark P and Jones, Jeff and Desoky, A. (1998). The motion path of the digits. *Journal of Hand Surgery.* 23(6): 1038--1042.
Published, Elsevier,
Refereed?: Yes, Open Access?: No
40. Somia, N and Rash, GS and Wachowiak, M and Gupta, A. (1998). The initiation and sequence of digital joint motion: a three-dimensional motion analysis. *Journal of Hand Surgery.* 23(6): 792--795.
Published, Sage Publications Sage UK: London, England,
Refereed?: Yes, Open Access?: No

Book Chapters

1. Fraser BA*, Wachowiak MP, Wachowiak-Smolikova R. (2016). Persistent homology for analyzing environmental lake monitoring data. B  lair J, Frigaard IA, Kunze H, Makarov R, Melnik R, Spiteri RJ. *Mathematical and Computational Approaches in Advancing Modern Science and Engineering.* : 233-243.
Published, Springer Verlag,
Refereed?: Yes
2. Wachowiak-Smolikova R, Wachowiak MP, Zimmerling J*. (2015). Approximations to intractable spatial econometric models and their solutions through global optimization. Cojocar   MG, Kotsireas IS, Makarov RN, Melnik RVN, Shodiev H. *Interdisciplinary Topics in Applied Mathematics, Modeling and Computational Science.* : 481-487.
Published, Springer International,
Refereed?: Yes

Conference Publications

1. Wachowiak-Smolikova R, Wachowiak MP, Johnson JJ. (2017). Exploratory ECG analysis of driving events using wavelet band metrics. *Proceedings of the International Conference on Information and Digital Technologies (2017).* International Conference on Information and Digital Technologies (2017), Zilina, Slovakia,
Conference Date: 2017/7
Paper
In Press
Refereed?: Yes, Invited?: No

2. Fraser BA*, Wachowiak MP, Wachowiak-Smolikova R. (2017). Time-delay lifts for physiological signal exploration. Canadian Conference on Electrical and Computer Engineering, Windsor, Canada (134-137), Conference Date: 2017/5
Paper
Published
Refereed?: Yes, Invited?: No
3. Wachowiak M, Hay D, Wachowiak-Smolikova R, DuVal DJ*, Johnson M. (2016). Analyzing multiresolution wavelet entropy of ECG with visual analytics techniques. Proceedings of IEEE CCECE 2016. IEEE CCECE 2016, Vancouver, Canada (1-5), Conference Date: 2016/5
Paper
Published
Refereed?: Yes, Invited?: No
4. Wachowiak MP, Wachowiak-Smolikova R, Rotondo DM*. (2015). Dynamic particle swarm optimization with heterogeneous multicore parallelism and GPU acceleration. Electrical and Computer Engineering (CCECE), 2015 IEEE 28th Canadian Conference, (343-348), Conference Date: 2016/5
Paper
Published
Refereed?: Yes, Invited?: No
5. Wachowiak MP, Hay DC, Johnson MJ. (2015). Quantification of wavelet band metrics for assessing heart rate variability. IFMBE Proceedings, Vol. 51. World Congress on Medical Physics and Biomedical Engineering. World Congress on Medical Physics and Biomedical Engineering, (1026-1029), Conference Date: 2015/6
Paper
Published
Refereed?: Yes, Invited?: No
6. Rotondo DM*, Wachowiak MP, Hay DC, Johnson MJ. (2014). Uncovering similarities in biomedical signals. Electrical and Computer Engineering (CCECE), 2014 IEEE 27th Canadian Conference on. CCECE 2014, (6901075:1-6), Conference Date: 2014/5
Paper
Published
Refereed?: Yes, Invited?: No
7. Wachowiak MP, Sarlo BB*. (2013). Interactive visualization of dynamic and high-dimensional particle swarm behavior. 2013 IEEE International Conference on Systems, Man, and Cybernetics. IEEE SMC 2013, (770-775), Conference Date: 2013/10
Paper
Published
Refereed?: Yes, Invited?: No
8. Wachowiak M, Wachowiak-Smolikova R, Zimmerling J*. (2012). The viability of global optimization for parameter estimation in spatial econometrics models. Proceedings of European Regional Science Association (ERSA 2012). European Regional Science Association (ERSA 2012), (120602:1-12), Conference Date: 2012/8
Paper
Published
Refereed?: Yes, Invited?: No

9. Sarlo BB*, Lambe Foster AE*, Wachowiak MP. (2012). A visualization framework for simulating fuel consumption through serious games. Computer Games (CGAMES), 2012 17th International Conference on. CGAMES 2012, (103-107),
Conference Date: 2012/7
Paper
Published
Refereed?: Yes, Invited?: No
10. Forgette J*, Wachowiak-Smolikova R, Wachowiak M. (2011). Scalable parallel implementation of independent components analysis on the graphics processing unit. Electrical and Computer Engineering (CCECE), 2011 24th Canadian Conference on. IEEE CCECE 2011, (000912-000916),
Conference Date: 2011/5
Paper
Published
Refereed?: Yes, Invited?: No

Curriculum Vitae

NAME: Haibin Zhu

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North Bay, ON P1B 8L7, Canada

Tel: 705-474-3450 ext 4434

FAX: 705-474-1947

Email: haibinz@nipissingu.ca

PRESENT RANK AND CATEGORY:

- **Full Professor**, Tenured, Department of Computer Science and Mathematics, Nipissing University, Canada.
 - **Coordinator, Computer Science Program, and**
 - **Founding Director, Collaborative Systems Laboratory.**
- Adjunct Professor, Department of Mathematics and Computer Science, Laurentian University, Canada.

RESEARCH AREAS:

- Role-Based Collaboration, Role-Based Systems,
- Collaborative Systems, Team Work Optimization, CSCW (Computer-Supported Cooperative Work),
- Complex Systems, Multi-Agent Systems, Distributed Intelligent Systems, and
- Software Engineering.

A ACADEMIC AND PROFESSIONAL QUALIFICATIONS

1. Academic Qualifications

- 1997: Ph.D., Computer Science, National University of Defense Technology (NUDT), Changsha, China.
 - **The computer department at this university is highly recognized and ranked as Number 1 in China.**
- 1988: M. Sc., Computer Science, National University of Defense Technology, Changsha, China.
- 1983: Honors B. Sc., Computer Engineering, Institute of Engineering and Technology, Zhengzhou, China.

2. Previous Academic Appointments

- 2010-: Full Professor of Computer Science, Nipissing University, Canada.
- 2010-: Adjunct Professor of Computer Science, Laurentian University, Canada.
- 2014-2017: Non full-time research scientist, Nanjing University, China.
- 2006-2010: Associate Professor of Computer Science, Nipissing University, Canada.
- 2002-2006: Assistant Professor of Computer Science, Nipissing University, Canada.
- 2000-2002: Special Lecturer, Computer and Information Science (CIS) Dept., New Jersey Institute of Technology (NJIT), USA.
- 1999-2000: Visiting Professor, CIS Dept., NJIT, USA.
- 1999-2000: Professor, College of Computer, NUDT, China.
 - **The promotion to the full professorship took place when he was in USA. This had been the sole case in the NUDT's history.**
- 1993-1999: Associate Professor, Associate Division Leader (1994) and Division Leader (1997), Dept. of Computer, NUDT, China.
 - **This Division offered all the courses to the computer engineering program in the department. There were 20 faculty members from lecturers to full professors in this division. This division**

was awarded “Outstanding Division” by the Board of Governors, NUDT, 1998.

- 1988-1993: Lecturer, Dept. of Computer, NUDT, China.
- 1983-1985: Full-Time Teaching Assistant, Electronics Section, Luoyang Foreign Language University, China.

3. Academic, University, and Professional Awards

- 1) 2018: Meritorious Service Award, IEEE Systems, Man, and Cybernetics Society, Oct. 9, 2018.
- 2) 2017: Profiled on IEEE Systems, Man, and Cybernetics Magazine, vol. 3, no. 3, July 2017, pp 26-29.
- 3) 2015: Hunan Province Oversea Outstanding Professor, Education Bureau of Hunan Province, China.
- 4) 2014: Best Student Paper Award, “Effective Approaches to Adaptive Collaboration”, *The IEEE Int’l Conference on Networking, Sensing and Control, (ICNSC’14)*, Miami, FL, USA, Apr. 13-16, 2014, pp.297-302.
- 5) 2012-2013: Research Achievement Award, Nipissing University.
- 6) 2010-2011: Chancellor's Award for Excellence in Research, Nipissing University, Canada.
- 7) 2009: Best Paper Nomination (with L. Ferrari), the ACM/IEEE Int’l Symposium on Collaborative Technologies and Systems (CTS), Baltimore, MD, USA, May 18-22, 2009.
- 8) 2011, 2010, 2009, 2008, 2007: Service award, ACM/IEEE The Int’l Symposium on Collaborative Technologies and Systems (CTS), Philadelphia, Pennsylvania, USA, May 23-27, 2011; Chicago, IL, May 17-21, 2010; Baltimore, MD, USA, May 18-22, 2009; Irvine, CA, USA, May 19-23, 2008; Orlando, FL, USA, May 21-25, 2007.
- 9) 2006-2007: Research Achievement Award, Nipissing University.
- 10) 2005: IBM Faculty Award, IBM.
- 11) 2004: Best Paper Award, the 11th ISPE Int’l Conference on Concurrent Engineering (ISPE/CE2004), Beijing, China, July 26-30, 2004.
- 12) 2004: IBM Eclipse Innovation Grant Award, IBM.
- 13) 2004: Senior Member, IEEE.
- 14) 2003, The Educator’s Fellowship, Int’l Conference on Object-Oriented Programming: Systems, Languages and Applications (OOPSLA’03).
- 15) 2002: 2nd Class National Level Excellent Textbook Award of China, Ministry of Education of China.
- 16) 2002-2003: Included in Contemporary Who’s Who (2002/2003), American Biographical Institute.
- 17) 1998: Selected and included in “The Dictionary of Modern Chinese Scientists and Inventors”, China.
- 18) 1998: Outstanding Master Student Supervisor Award, NUDT.
- 19) 1997: 2nd Class Nation-Level Award of Education Achievement for contributions to computer education, Ministry of Education of China.
- 20) 1997, 1994, and 1991: Three 1st Class Ministry-level Research Achievement Awards, DOD of China.
- 21) 1996: 2nd Class Research Paper Award, Hunan Provincial Commission of Science and Technology.
- 22) 1996: 2nd Class Excellent Textbook Award, Ministry of Electronics Industry of China.
- 23) 1996: Ci Yungui Computer Research Prize for contributions to computer research, NUDT, China.
- 24) 1996: 2nd Class Ministry-level Research Achievement Awards, DOD of China.

4. Academic/Administrative Roles

- [1] 2018-: Member, Research Council, Nipissing University, Canada.
- [2] 2008 – 2014, 2018-: Member, Senate, Nipissing University, Canada.
- [3] 2018-: Associate Editor, [IEEE Transactions on Computational Social Systems](#).
- [4] 2018-: Associate Editor, [IEEE Transactions on Systems, Man and Cybernetics: Systems](#).
- [5] 2018-: Member, [Conferences and Meetings Committee, IEEE SMC Society](#)
- [6] 2018-: Associate Editor, [Int’l J. of Distributed Artificial Intelligence \(IJCAI\)](#).
- [7] 2017-: Associate Editor, [IEEE Canadian Review](#).
- [8] 2011-2017: Associate Editor, [Int’l J. of Agent Technologies and Systems](#).
- [9] 2016-: Member, Arts & Science Council Nominations and Elections Subcommittee, Nipissing University
- [10] 2015-: Associate Editor, [IEEE Systems, Man and Cybernetics \(SMC\) Magazine](#).
- [11] 2015-: Member, [Electronic Communications Subcommittee, IEEE SMC Society](#).
- [12] 2011-2013: Member, University Review Committee for Tenure and Promotion, Nipissing University,

- Canada.
- [13] 2010-: Associate Editor, [Advances in Information Sciences and Service Sciences](#).
 - [14] 2008-: Member, Editorial Board, Int'l J. of Software Sciences and Computational Intelligence.
 - [15] 2006-: Co-Chair, [Technical Committee on Distributed Intelligent Systems, IEEE SMC Society](#).
 - [16] 2004-: Senior Member, IEEE.
 - [17] 2004-: Member, ACM.
 - [18] 2002-: Lifetime Members, Chinese Association for Science and Technology, USA.
 - [19] 2012: Member, Search Committee of the Tenure-Track Assistant Professor of Mathematics, Nipissing University.
 - [20] 2012: Member, Internal Research Grant - Selection Committee, Nipissing University
 - [21] 2008 - 2011: Member, Executive Subcommittee of Technologies and Infrastructures, Nipissing University, Canada.
 - [22] 2007-2011: Associate Editor, Int'l J. of Intelligent Control and Systems.
 - [23] 2005-2007: Member, Academic Computing Committee, Nipissing University, Canada.
 - [24] 2005-2007: Member, University Research Council, Nipissing University, Canada.
 - [25] 1997-1999: Member of Academic Committee, NUDT, China.
 - [26] 1997-1999: Member of Committee of Human-Computer Interaction, China Computer Association, China.
 - [27] 1997-1999: Associate Chair of Committee on Computer Architecture, Hunan Computer Association, China.
 - [28] Reviewer of Journal articles:
 - IEEE Transactions on Industrial Informatics, since 2017.
 - Elsevier, Journal of Parallel and Distributed Computing, since 2017.
 - Wiley, Concurrency and Computation: Practice and Experience, since 2016.
 - Elsevier, Engineering Applications of Artificial Intelligence, since 2015.
 - Elsevier, Social Network Analysis and Mining, since 2014.
 - Wiley, The Int'l J. of Communication Systems, since 2014.
 - Springer, J. of Autonomous Agents and Multi-Agent Systems, since 2013.
 - Oxford, The Computer J., since 2013.
 - Elsevier, Computer Methods and Programs in Biomedicine, since 2013.
 - Elsevier, Computers in Industry, since 2013.
 - Elsevier, J. of Network and Computer Applications, since 2012.
 - SCS, Simulation: Trans. of the Society for Modeling and Simulation Int'l, since 2012.
 - Elsevier, Future Generation Computer Systems- The Int'l J. of Grid Computing and eScience, since 2012.
 - Springer, Int'l J. of Machine Learning and Cybernetics, since 2010.
 - IEEE Trans. on Service Computing, since 2010.
 - IEEE Trans. on Robotics and Automation, since 2009.
 - IEEE Trans. on Intelligent Transportation Systems, since 2007.
 - Springer, Int'l J. of Software and Systems Modeling, since 2005.
 - Taylor & Francis, Int'l J. of Production Research, since 2005.
 - IEEE Trans. on Systems, Man, and Cybernetics, Part C, since 2005.
 - IEEE Trans. on Systems, Man, and Cybernetics, Part A, since 2003.
 - IEEE Trans. on Systems, Man, and Cybernetics, Part B, since 2003.
 - IEEE Trans. on Educations, since 2002.

B TEACHING AND RELATED EXPERIENCE

Courses Prepared and Taught

a. at Nipissing University

Course Title	Course Level	Course Number	Number of Times Taught
Introduction to Computing	BSc	COSC1557	15
C++ Programming	BSc	COSC1567	14
Programming Paradigms	BSc	COSC3306	2
Object-Oriented Programming	BSc	COSC2767	11

Object-Oriented Programming	BSc	COSC3557	3
Distributed Systems	BSc	COSC3657	4
Computer Profession	BSc	COSC3706	2
Project Management	BSc	COSC3807	1
Human Computer Interaction	Honours BSc	COSC4107	1
Software Engineering	Honours BSc	COSC4406	15
Computer Security	Honours BSc	COSC4607	2

b. at Other Institutions

Course Title	Course Level	Institution	Number of Times Taught
Data Structure	BSc	Laurentian University	1
Operating System Designs	MSc/PhD	NJIT, USA	3
Introduction to UNIX Operating System	BSc	NJIT, USA	1
Introduction to Computer Science II	BSc	NJIT, USA	1
Object-Oriented Programming with C++	MSc	NJIT, USA	3
Object-Oriented Programming with C++	MSc Distance Learning	NJIT, USA	2
Principles of Operating Systems	BSc	NJIT, USA	1
Machine and Assembly Language	BSc	NJIT, USA	1
Advanced Programming Environment and Tools	MSc Distance Learning	NJIT, USA	1
Advanced Software Engineering Research	MSc/PhD	NUDT, China	1
Advanced Software Engineering	MSc	Shandong University, China	2
Advanced Computer Architecture	MSc course in Chinese	NUDT, China	1
Computer System Performance Evaluation	Honors BSc course in Chinese	NUDT, China	1

C SCHOLARLY ACTIVITIES

1. Impacts:

Google Scholar H-Index: 24.

Google Scholar Citations from others: > 1000.

Research Gate (RG) score: 29.17.

<http://ieeexplore.ieee.org/search>:

- The most productive author in “Collaboration”.
- The most productive author in “Role-Based Systems”.
- The most productive author in “Role Assignment”.

2. Publications

Copyrighted Software:

[1] H. Zhu (Owner), Visualization Tool for Role Transfer, Canadian Intellectual Property Office, 1063784, Dec.

18, 2008.

Books:

- [1] H. Zhu and M. Zhou, *Object-Oriented Programming with C++: A Project-Based Approach*, Tsinghua University Press, 2006. Sold copies: 5, 000.
- [2] C. Zhang, Z. Wang, C. Zhang, K. Dai, and H. Zhu, *Computer Architecture*, High Education Press, China, 2000 (In Chinese). Sold copies: 3, 000.
- [3] H. Zhu, G. Yang, and Z. Liu, *Object-Oriented Principle and its Applications*, Publishing House of NUDT, China, Sept. 1998 (In Chinese). Sold copies: 3, 000.
- [4] H. Zhu, K. Cai, A. Fan, H. Song, *Principles and Designs of Distributed Systems*, Publishing House of NUDT, China, Sept. 1997 (In Chinese). Sold copies: 3, 000.
- [5] H. Zhu, *Object-Oriented Technology: Principles and Designs*, Publishing House of NUDT, China, Oct. 1992 (In Chinese). **This book was the first textbook of object-oriented programming in China.** Sold copies: 4, 000.

Edited Proceedings:

- [1] W. Shen, J. Luo, J.-P. Barthès, F. Dong, J. Zhang, H. Zhu, *Proceedings of the 2018 IEEE 22nd Int'l Conference on Computer Supported Cooperative Work in Design(CSCWD 2018)*, May 9-11, 2018, Nanjing, China, IEEE.
- [2] W. Shen, W. Li, J.-P. Barthès, J. Luo, H. Zhu, J. Yong, and X. Li, *Proceedings of the 2013 IEEE 17th Int'l Conference on Computer Supported Cooperative Work in Design(CSCWD 2013)*, June 27-29, 2013, Whistler, BC, Canada, IEEE.

Journal Issues:

- [1] H. Zhu (Guest Editor), Special Issue on Distributed Intelligent Systems, *J. of Intelligent Control and Systems*, vol. 12, no. 2, 2007.
- [2] H. Zhu (Guest Editor), Special Issue on Emergency Management Systems, *J. of Intelligent Control and Systems*, vol. 11, no. 4, 2006.
- [3] G. Cabri, H. Zhu, and J. Yang (Guest Co-Editors), Special Issue on Collaboration Support Systems, *IEEE Trans. on Systems, Man, and Cybernetics, Part A: Systems and Humans*, vol. 36, no. 6, 2006.
- [4] H. Zhu (Guest Associate Editor), Special Issue on Computer and Information Technology, *Int'l J. of Pervasive Computing and Communications*, 2006.

Peer-Review Book Chapters:

- [1] H. Zhu, M.C. Zhou and M. Hou, "Support Collaboration with Roles", in *M. Zhou, et al. (ed.), Contemporary Issues in Systems Science and Engineering*, IEEE Press, 2015, pp. 575-598.
- [2] M. Hou, H. Zhu, M.C. Zhou and G. R. Arrabito "Advances and Challenges in Intelligent adaptive interface Design", in *M. Zhou, et al. (ed.), Contemporary Issues in Systems Science and Engineering*, IEEE Press, 2015, pp. 369-424.
- [3] J. Zhou, H. Zhu, M. Ylianttila, and M. Rautiainen, "Mobile Multimedia Cloud Computing", *K.-C. Li, Q. Li, T. K. Shih (Eds.) Cloud Computing and Digital Media: Fundamentals, Techniques, and Applications*, CRC Press, Boca Raton, FL USA, 2014, pp. 1-19.
- [4] H. Zhu and M. Zhou, "Role-Based Multi-Agent Systems", *R. A. González, N. Chen and A. Dahanayake (Eds.), Personalized Information Retrieval and Access: Concept, Methods and Practices*, IDEA GROUP INC., Hershey, PA, USA, 2008, pp. 254-285.

Peer-Review Journal Papers:

- [1] D. Liu, B. Huang, and H. Zhu, "Solving the Tree-Structured Task Allocation Problem via Group Multirole Assignment", *IEEE Trans. on Automation Science and Engineering* (Conditionally Accepted), 2019. (IF: 3.667)
- [2] H. Ma, Z. Hu, K. Li, and H. Zhu, "Variation-aware cloud service selection via collaborative QoS prediction," *IEEE Transactions on Services Computing*, 2019 (In press), DOI: 10.1109/TSC.2019.2895784.
- [3] Y. Guo, H. Zhu, C. Xiong, and L. Yu, "A two-dimensional generalized thermo-hydro-mechanical-coupled problem for a poroelastic half-space," *Waves in Random and Complex Media*, 2019 (In press), DOI: 10.1080/17455030.2018.1557758 (IF: 2.54).

- [4] H. Ma, H. Zhu, K. Li, W. Tang. "Collaborative optimization of service composition for data-intensive applications in a hybrid cloud", *IEEE Trans. on Parallel and Distributed Systems*, 2019 (In press), DOI: 10.1109/TPDS.2018.2879603 (IF: 3.971).
- [5] X. Zhu, H. Zhu, D. Liu, and X. Z. Zhou, "Criteria Making in Role Negotiation", *IEEE Trans. on Systems, Man, and Cybernetics: Systems*, 2019 (In press), DOI: 10.1109/TSMC.2018.2868307. (IF: 5.131)
- [6] H. Zhu, "Avoiding Critical Members in a Team by Redundant Assignment," *IEEE Trans. on Systems, Man, and Cybernetics: Systems*, 2019 (In press), DOI: 10.1109/TSMC.2018.2827391. (IF: 5.131)
- [7] H. Zhu, "Maximizing Group Performance while Minimizing Budget," *IEEE Trans. on Systems, Man, and Cybernetics: Systems*, 2019 (In press), DOI: 10.1109/TSMC.2017.2735300.
- [8] H. Zhu, Y. Sheng, X.-Z. Zhou, Y. Zhu, "Group Role Assignment with Cooperation and Conflict Factors", *IEEE Trans. on Systems, Man, and Cybernetics: Systems*, vol. 48, no. 6, June 2018, pp. 851 – 863.
- [9] D. Liu, Y. Yuan, H. Zhu, S. Teng, and C. Huang, "Balance Preferences with Performance in Group Role Assignment", *IEEE Trans. on Cybernetics*, vol. 48, no. 6, June 2018, pp. 1800 - 1813. (IF: 8.803)
- [10] S. Teng, N. Wu, H. Zhu, L. Teng, W. Zhang, "SVM – DT - Based Adaptive Collaboration Intrusion Detection", *IEEE/CAA J. of Automatica Sinica*, vol. 5, no. 1, 2018, pp. 108-118.
- [11] H. Zhu, "Big Data and Collaboration Research: Creating Real Data", *IEEE Systems, Man, & Cybernetics Magazine*, vol. 4, no. 1, January 2018, pp. 16-19.
- [12] H. Ma, H. Zhu, Z. Hu, K. Li, and W. Tang, "Time-aware trustworthiness ranking prediction for cloud services using interval neutrosophic set and ELECTRE," *Knowledge-Based Systems*, vol. 138, 15 December 2017, Pages 27-45. (IF: 4.53)
- [13] H. Zhu, D. Liu, S. Zhang, S. Teng, and Y. Zhu, "Solving the Group Multi-Role Assignment Problem by Improving the ILOG Approach", *IEEE Trans. on Systems, Man, and Cybernetics: Systems*, vol. 47, no. 12, Dec. 2017, pp. 3418-3424. (IF: 5.131)
- [14] Z. Chen, H. Zhu, and Y. Sheng, C. Zhang, "Assignment problem with task weight and qualification threshold in GRMTAP," *Computer Applications Research*, vol. 34, no. 3, March 2017, pp. 718-722 (In Chinese).
- [15] Z. Chen, H. Zhu, and Y. Sheng, H. Gao, "Multi task assignment algorithms based on the E-CARGO model," *Computer Engineering & Science*, vol. 38, no. 12, Dec. 2016, pp. 2542-2551 (In Chinese).
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- [17] M. Tang, H. Zhu, and X. Mao, "A Lightweight Social Computing Approach to Emergency Management Policy Selection", *IEEE Trans. on Systems, Man, and Cybernetics: Systems*, vol. 46, no. 8, Aug. 2016, pp. 1075-1087. (IF: 5.131)
- [18] H. Zhu, "Avoiding Conflicts by Group Role Assignment", *IEEE Trans. on Systems, Man, and Cybernetics: Systems*, vol. 46, no. 4, April 2016, pp. 535-547. (IF: 5.131)
- [19] H. Zhu, D. Liu, S. Zhang, Y. Zhu, L. Teng, S. Teng, "Solving the Many to Many Assignment Problem by Improving the Kuhn-Munkres Algorithm with Backtracking", *Theoretical Computer Science*, vol. 618, March 2016, pp. 30-41. (IF: 0.81)
- [20] D. Almaatani, H. Boudjellaba, Y. Gningue, M. Takouda, H. Zhu, "Improving the NNA for the travelling salesman problem using the MVM", *Int'l J. of Latest Research in Science and Technology*, vol. 5, no. 2., March-April 2016, pp. 106-109.
- [21] Y. Sheng, H. Zhu, X. Zhou, and W. Hu, "Effective Approaches to Adaptive Collaboration via Dynamic Role Assignment", *IEEE Trans. on Systems, Man, and Cybernetics: Systems*, vol. 46, no. 1, Jan. 2016, pp. 76 - 92. (IF: 5.131)
- [22] H. Zhu, "Adaptive Collaboration Systems", *IEEE Systems, Man, and Cybernetics Magazine*, vol. 1, no. 4, Oct. 2015, pp. 8-15.
- [23] H. Zhu, "Role-Based Collaboration and the E-CARGO: Revisiting the Developments of the Last Decade", *IEEE Systems, Man, and Cybernetics Magazine*, vol. 1, no. 3, July 2015, pp. 27-35.
- [24] W. Zhang, Y. Wang, J. Zhu, D. Liu, S. Teng, and H. Zhu, "A Role-Permission Assignment Method of RBAC Involved Conflicting Constraints under E-CARGO", *Int'l J. of Cognitive Informatics and Natural Intelligence*, vol. 9, no. 4, October-December 2015, pp. 48-63.
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- [27] X. Mao, M. Dong, and H. Zhu, "A Two-Layer Approach to Developing Self-Adaptive Multi-Agent Systems in

- Open Environment”, *Int’l J. of Agent Technologies and Systems*, vol. 6, no. 1, January-March 2014, pp. 65-85.
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Submitted Papers:

- [183] J. Yang, and H. Zhu, "Secure and Economical Resource Allocation in a Multi-Cloud Environment", Submitted to applied soft computing, Nov. 2018.

2. Scholarly Research Projects/Grants:

- 1) 2018-2023: Dynamic On-Demand Vehicle Services for Small or Medium-sized Cities based on the E-CARGO Model, NSERC Discovery Grant, Canada, \$155, 000CAD ((Primary Investigator (PI)).
- 2) 2015: An Interactive Physician Scheduling Tool, NSERC Engage Plus Grant, Canada. \$25, 000CAD (PI).
- 3) 2014: Automated and Optimized Assignment of Physicians in the Emergence Department, NSERC Engage Grant, Canada, \$24, 976CAD (PI).
- 4) 2014, Development and Test of a Volunteer and Member-based Platform, Ontario Centres of Excellence (OCE) Grant, Canada, \$57,200CAD (PI).
- 5) 2013-2015: Wireless Sensor Networking Simulation Platform based the E-CARGO model, Guangzhou City, Guangdong, China, CNY¥300, 000 (Co-PI, 1/3).

- 6) 2012-2018: Online Auction-Based Scheduling of Health Care Services for Outpatients, NSERC Discovery Grant, Canada, \$89, 000CAD (PI).
- 7) 2012: Dynamic Project Scheduling Software Package, NSERC Engage Grant, Canada. \$19, 905CAD (PI).
- 8) 2011: Heuristic Solution to the Outpatient Scheduling Problem in Health Care, Nipissing University Internal Grant, Canada, \$5, 000CAD (PI).
- 9) 2010: Role-Based Interaction. Nipissing University Internal Grant, Canada, \$5, 000CAD (PI).
- 10) 2009: Operator Interface Technologies for Network Enabled Operational Environments Using Complex System Analysis, Defence R&D Canada (DRDC) -Toronto, Canada, \$23, 150 CAD (PI).
- 11) 2008-2009: Commercialization of Role Transfer Software Tool, Ontario Partnership for Innovation in Commercialization, Canada, \$10, 000 CAD (PI).
- 12) 2006-2009: Role-Based Collaboration, NSERC Discovery Grant, Canada, \$33,500 CAD (PI).
- 13) 2005: "Introduce Roles into Eclipse", IBM Faculty Grants, 79 winners out of 360 competitors, \$29,600 CAD (PI).
- 14) 2005: Role-Based Collaboration, Nipissing University Internal Grant, Canada, \$5, 000CAD (PI).
- 15) 2005-2007: the Provincial Summer Experience Program (Ontario, Canada), \$6, 000 CAD (PI).
- 16) 2004: "Role-Based Collaboration", IBM Eclipse Innovation Grants, 78 winners out of 278 competitors, \$33,300 CAD (PI).
- 17) 2003: Role-Based Collaboration, Nipissing University Internal Grant, Canada, \$4, 700CAD (PI).
- 18) 1999-2002: A Collaborative Toolkit for Group Decision. This project was partly sponsored by NSF of USA. As an advisor, I designed the system and managed a group of 15 graduate students to implement the system. This system was implemented on windows/NT platform using Microsoft Active Server Page (ASP).
- 19) 1997-1999: The Beidou-I Ground Information Processing Subsystem. It is a Distributed Real-Time System for the Chinese Positioning System. The quality of the system followed ISO 9000 standard. The system was implemented on Digital UNIX with real-time kernel. This system was a part of Chinese own positioning system. As the vice general engineer for this project, I made the proposal, wrote the engineering plan, designed the system, evaluated the whole system performance and coordinated the technology issues of the whole project. Also, as a director engineer, I designed a subsystem, created the plan, and managed a group of 15 programmers to implement the subsystem. DOD, China, CNY¥5, 000, 000 (Co-PI:1/4).
- 20) 1994-1996: YHCS: A Client/Server System with Collaborative Hypermedia. This system was designed with object-oriented methodology and implemented with C++ on Windows for Workgroup. This system was a flagship project of China to design and implement her self-owned software platform. As one of the 6 chief designers, I designed a collaborative subsystem, managed the testing, evaluation and a group of 10 programmers to implement the subsystem. CNY¥2, 000, 000 (Co-PI:1/6)
- 21) 1994-1996: OOTOOLS: An Object-Oriented Software Engineering Environment. This system was designed with object-oriented methodology and implemented with C++ on Windows 3.0. As the project leader, I made the proposal, wrote the engineering plan, designed the structure of the system, evaluated the whole system performance, and managed a group of 5 programmers to implement the system. National Hi-Tech (863) Plan of China. CNY¥60, 000 (PI).
- 22) 1993-1994: YH-MMDT: A Hypermedia Management System Based on Object-Oriented Paradigm. This system was designed with object-oriented methodology and implemented with C++ on Windows 3.0. As a chief technical leader, I designed the system and managed a group of 5 programmers to implement the system. National Hi-Tech (863) Plan of China, CNY¥300, 000 (Co-PI:1/2).
- 23) 1990-1992: Object-Oriented Computer Architecture, National Science Foundation (NSF) of China, CNY¥30, 000 (Co-PI:1/2).
- 1) 1988-1993: YH-ITM: An Intelligent Computer System. This system was a very large project from hardware to software. This system was one of the four flagship projects to demonstrate that China is one of the several countries that can design intelligent computers in the world. I was one of the five chief designers and a chief technology coordinator. I designed the instruction cache board of this computer and implemented the Smalltalk virtual machine on this computer. National 863 Hi-Tech Plan, China, CNY¥2, 000, 000 (Co-PI:1/5).
- 24) 1987-1991: GWOOSE: An Integrated Object-Oriented System. This system is the first object-oriented system in China. As one of the three chief designers, I designed and implemented the Smalltalk virtual machine (the key component of the system) on a VAX/VMS system. National Hi-Tech (863) Plan of China, CNY¥300, 000 (Co-PI:1/3).

3. Conference, Meetings and/Workshops:

- 1) 2020, IEEE The Int'l Conference on Int'l Conference on Systems, Man, and Cybernetics (SMC'20), Oct.. 7-10, 2020, Toronto, Canada, **Poster Co-Chair**.
- 2) 2019, IEEE The Int'l Conference on Int'l Conference on Systems, Man, and Cybernetics (SMC'19), Oct.. 6-9, 2019, Bari, Italy, **Tutorial Chair**.
- 3) 2018, The 18th IEEE International Conference on Cognitive Informatics & Cognitive Computing, Polytechnic University of Milan, Italy, July 23-25, 2019, **PC member**.
- 4) 2019, IEEE The 16th Int'l Conference on Networking, Sensing and Control, (ICNSC'19), May. 9-11, 2019, Banff, Canada, **Program Chair**.
- 5) 2019, IEEE 23rd Int'l Conference on Computer Supported Cooperative Work in Design, May 4-6, 2017, May 6-8, 2019, Porto, Portugal, **PC member**.
- 6) 2018, IEEE Int'l Conference on Systems, Man, and Cybernetics (SMC'18), October 7-10, 2018, Miyazaki, Japan, **PC member, Session Chair, and Special Session Organizer**.
- 7) 2018, The 17th IEEE International Conference on Cognitive Informatics & Cognitive Computing, University of California, Berkeley, USA, July 16-18, 2018, **PC member**.
- 8) 2018, IEEE 22nd Int'l Conference on Computer-Supported Cooperative Work in Design (CSCWD'18), May 9-11, 2018, Nanjing, China, **Special Session Chair**.
- 9) 2017, IEEE Int'l Conference on Systems, Man, and Cybernetics (SMC'17), October 5-8, 2017, Banff, Canada, **Area Co-Chair, Publicity Co-Chair, PC member, Session Chair, and Special Session Organizer**.
- 10) 2017, The 15th International Conference on Advances in Mobile Computing & Multimedia (MoMM2017), 04-06 December 2017, Salzburg, Austria, **PC member**.
- 11) 2017, The 8th International Conference on Industrial Applications of Holonic and Multi-Agent Systems, August 28-30, 2017, Lyon, France, **PC member**.
- 12) 2017, The 16th IEEE International Conference on Cognitive Informatics & Cognitive Computing, University of Oxford, UK July 26-28, 2017, **PC member**.
- 13) 2017, IEEE 21st Int'l Conference on Computer Supported Cooperative Work in Design, May 4-6, 2017, April 26-28, 2017, Wellington, New Zealand, **PC member**.
- 14) 2016, The 14th Int'l Conference on Advances in Mobile Computing & Multimedia (MoMM2016), Nov. 28-30, 2016, Singapore, **PC member**.
- 15) 2016, The 17th Int'l Conference on Collaboration Technologies and Systems (CTS 2016), Oct. 31 – Nov. 04, 2016, Orlando, Florida, USA, USA, **PC Member**.
- 16) 2016, 2nd Workshop on Distributed Adaptive Systems at ICAC 2016, July 19, 2016, Würzburg, Germany, **Co-Chair**.
- 17) 2016, The 15th IEEE International Conference on Cognitive Informatics & Cognitive Computing, Aug. 22-23, 2016, Stanford University, USA, 2016, **PC member**.
- 18) 2016, IEEE 20th Int'l Conference on Computer Supported Cooperative Work in Design, May 4-6, 2016, Nanchang, China, **PC member**.
- 19) 2016, IEEE The Int'l Conference on Networking, Sensing and Control, (ICNSC'16), Apr. 28-30, 2016, Mexico City, Mexico, **PC member**.
- 20) 2016: The Int'l Conference of Internet of People, July 18-21, 2016, Toulouse, France, **PC Member**.
- 21) 2015: The Third World Conference on Complex Systems, November 23-25, 2015, Marrakech, Morocco, **PC Member**.
- 22) 2015, The Third Int'l Conference on Advanced Cloud and Big Data (CBD 2015), October 30-November 1, YangZhou, JiangSu, China, **PC member**.
- 23) 2015, IEEE Int'l Conference on Systems, Man, and Cybernetics (SMC'15), October 9-12, 2015, Hong Kong, **PC member, and Special Session Organizer/Chair**.
- 24) 2015, Int'l Symposium on Intelligent Technologies and Applications (ISTA'15), Aug. 10-13, Kerala, India, **PC Member**.
- 25) 2015, Workshop on Distributed Adaptive Systems, The 12th IEEE Int'l Conference on Autonomic Computing, July 07-10, 2015, Grenoble, France, **Co-Chair**.
- 26) 2015, IEEE Int'l Conference on Services Computing (SCC'15), June 27 - July 2, 2015, New York, USA, **PC Member**.

- 27) 2015, The Int'l Conference on Collaboration Technologies and Systems (CTS 2015), June 01-05, 2015, Atlanta, Georgia, USA, **PC Member**.
- 28) 2015, The IEEE 19th Int'l Conference on Computer Supported Cooperative Work in Design, May 6-8, 2015, Calabria, Italy, **PC Member**.
- 29) 2014, IEEE Int'l Conference on Systems, Man, and Cybernetics (SMC'14), October 5-8, 2014, San Diego, USA, **PC member, Social Media Co-Chair, Web Co-Chair, and Special Session Organizer/Chair**.
- 30) 2014, IEEE The 18th Int'l Conference on Computer Supported Cooperative Work in Design, Hsinchu, Taiwan, May 21- 23, 2014, **PC Member**.
- 31) 2014, IEEE Int'l Conference on Services Computing (SCC'14), June 27-July 2, 2014, Anchorage, Alaska, USA, **PC Member**.
- 32) 2014: 2013, IEEE 23rd WEITICE Conference (AROSA Track), Parma, Italy, June 23-25, 2014, **PC member**.
- 33) 2014, The 13th Wuhan Int'l Conference on E-Business, May 31-June 1, 2014, Wuhan, China, **PC Member**.
- 34) 2014, IEEE The Int'l Conference on Networking, Sensing and Control, (ICNSC'14), Miami, FL, USA, Apr. 13-16, 2014, **PC member**.
- 35) 2013, IEEE The 15th Int'l Conference on High Performance Computing and Communications (HPCC 2013), Zhangjiajie, China, November 13-15, 2013, **PC member**.
- 36) 2013, IEEE Int'l Conference on Systems, Man, and Cybernetics (SMC'13), October 13-16, 2013, Manchester, UK, **PC member and Special Session Organizer**.
- 37) 2013, IEEE/ACM Int'l Conference on Advances in Social Networks Analysis and Mining, Niagara Falls, Canada, August 25-28, 2013, **PC member**.
- 38) 2013, IEEE Int'l Conference on Services Computing (SCC'13), June 27-July 2, 2013, Santa Clara Marriott, CA, USA, **PC Member**.
- 39) 2013, IEEE 22nd WEITICE Conference (AROSA Track), Hammamet, Tunisia, June 17-22, 2013, **PC member**.
- 40) 2013, The 27th IEEE Int'l Conference on Advanced Information Networking and Applications (AINA-2013), Barcelona, Spain, March 25 - 28, 2013, **PC member**.
- 41) 2013, IEEE Int'l Conference on Networking, Sensing and Control, Paris-Evry University, France, April 10-12, 2013, **PC member**.
- 42) 2013, 17th IEEE Int'l Conference on Computer Supported Cooperative Work in Design, Whistler, BC, Canada, June 27- 29, 2013, **PC Chair**.
- 43) 2012, IEEE Int'l Conference on Systems, Man, and Cybernetics (SMC'12), October 14-17, 2012, Seoul, Korea, **PC member**.
- 44) 2012, IADIS Int'l Conference on Applied Computing, Madrid, Spain, October 19-21, 2012, **PC member**.
- 45) 2012, the 6th IEEE Int'l Conference on Intelligent Systems, Sofia, Bulgaria, September 6-8, 2012, **PC member**.
- 46) 2012, Int'l Conference on E-business Technology and Strategy, Tianjin, China, August 29-31, 2012, **PC member**.
- 47) 2012, IEEE/ACM Int'l Conference on Advances in Social Networks Analysis and Mining, Istanbul, Turkey, 26-29 August, 2012, 2012, **PC member**.
- 48) 2012, 11th IEEE Int'l Conference on Cognitive Informatics & Cognitive Computing, Kyoto, Japan, August 22-24, 2012, **PC member**.
- 49) 2012, 9th IEEE Int'l Conference on Service Computing (SCC'12), Honolulu, Hawaii, USA, June 24-29 2012, **PC member**.
- 50) 2012, 16th IEEE Int'l Conference on Computer Supported Cooperative Work in Design, Wuhan, China, May 23- 25, 2012, **PC member**.
- 51) 2012, ACM/IEEE Int'l Conference on Collaborative Technologies and Systems (CTS'12), Denver, CO, USA, May 21-25, 2012, **Workshop Organizer**.
- 52) 2011, the IEEE Asia-Pacific Services Computing Conference, December 12 - 15, 2011, Jeju, Korea, **PC member**.
- 53) 2011, IEEE Int'l Conference on Systems, Man, and Cybernetics (SMC'11), October 9-12, 2011, Anchorage, USA, **PC member, Special Session Organizer**.
- 54) 2011, IEEE 10th Int'l Conference on Cognitive Informatics (ICCI'11), August 18-20, 2011, Banff, Canada, **PC Member**.
- 55) 2011, Int'l Conference on Advances in Social Network Analysis and Mining (ASONAMI'11), July 25-27,

- 2011, Kaohsiung, Taiwan, **PC Member**.
- 56) 2011, HCI Int'l 2011, July 9-14, 2011, Orlando, Florida, USA, **PC Member**.
 - 57) 2011, IEEE Int'l Conference on Services Computing (SCC'11), July 4-9, 2011, Washington DC, USA, **PC Member**.
 - 58) 2011, IEEE 15th Int'l Conference on Computer Supported Cooperative Work in Design (CSCWD'10), June 8-10, 2011, Lausanne, Switzerland, **PC Member**.
 - 59) 2011, the 10th Wuhan Int'l Conference on e-Business, May 28-29, 2011, Wuhan, China, **PC Member**.
 - 60) 2011, ACM/IEEE Int'l Conference on Collaborative Technologies and Systems (CTS'11), May 23-27, 2011, Philadelphia, PA, USA, **Poster Co-Chair, Workshop Organizer**.
 - 61) 2010, IEEE Asia-Pacific Services Computing Conference, December 6 - 10, 2010, Hangzhou, China, **PC Member**.
 - 62) 2010, Int'l Symposium on Social Computing and Networking, Oct. 30-Nov. 1, 2010, Hangzhou, China, **PC Chair**.
 - 63) 2010, IEEE Int'l Conference on Systems, Man, and Cybernetics (SMC'10), October 10-13, 2010, Istanbul, Turkey, **PC member, Special Session Organizer, Tutorial Instructor**.
 - 64) 2010, IEEE Int'l Conference on Granular Computing (GrC'10), Aug. 14-16, 2010, Silicon Valley, CA, USA, **PC Vice Chair**.
 - 65) 2010, IEEE Int'l Conference on Information Technology Convergence and Services (ITCS 2010), August 11 - 13, 2010, Cebu, Philippines, **PC Member**.
 - 66) 2010, IADIS Int'l Conference Interfaces and Human Computer Interaction, July 28 - 30, 2010, Freiburg, Germany, **PC Member**.
 - 67) 2010, IEEE Int'l Conference on Services Computing (SCC'10), July 5-10, 2010, Miami, FL, **PC Member**.
 - 68) 2010, IEEE 3rd Int'l Conference on Cloud Computing (CLOUD'10), July 5-10, 2010, Miami, FL, **PC Member**.
 - 69) 2010, IEEE 9th Int'l Conference on Cognitive Informatics (ICCI'10), July 7-9, 2010, Beijing, China, **PC Member, Special Session Organizer**.
 - 70) 2010, ACM/IEEE Int'l Symposium on Collaborative Technologies and Systems (CTS'10), May 17-21, 2010, Chicago, IL, USA, **Poster Co-Chair, Workshop Organizer**.
 - 71) 2010, the 9th Wuhan Int'l Conference on E-Business, May 29-30, 2010, Wuhan, China, **PC Member**.
 - 72) 2010, IEEE 14th Int'l Conference on Computer Supported Cooperative Work in Design (CSCWD'10), April 14-16, 2010, Shanghai, China, **PC Member**.
 - 73) 2009, IEEE Asia-Pacific Services Computing Conference (APSCC'09), December 7-11, 2009, Bopolis, Singapore, **PC Member**.
 - 74) 2009, IEEE Int'l Conference on Systems, Man, and Cybernetics (SMC'09), October 11-14, 2009, San Antonio, Texas, USA, **Special Session Organizer, Session Chair, Tutorial Instructor**.
 - 75) 2009, IEEE Toronto Int'l Conference – Science and Technology for Humanity (TIC-STH 2009), September 26-27, 2009, Toronto, Canada, **Session Chair**.
 - 76) 2009, IEEE Int'l Conference on Cloud Computing (CLOUD-II 2009), September 21-25, 2009, Bangalore, India, **PC Member**.
 - 77) 2009, IEEE Int'l Conference on Services Computing (SCC'09), September 21-25, 2009, Bangalore, India, **PC Member**.
 - 78) 2009, IEEE 8th Int'l Conference on Cognitive Informatics (ICCI'09), June 15-17, 2009, Hong Kong, China, **PC Member, Special Session Organizer and Chair, Panelist, and Presenter**.
 - 79) 2009, the 8th Wuhan Int'l Conference on E-Business (WHICEB'08), May 29-30, 2009, Wuhan, China, **PC Member**.
 - 80) 2009, ACM/IEEE Int'l Symposium on Collaborative Technologies and Systems (CTS'09), May 18-22, 2009, Baltimore, MA, USA, **Poster Co-Chair, Workshop Organizer, and Presenter**.
 - 81) 2009, IEEE 13th Int'l Conference on Computer Supported Cooperative Work in Design (CSCWD'09), April 22-24, 2009, Santiago, Chile, **PC Member**.
 - 82) 2009, the Systemics and Informatics World Network (SIWN) The 5th Int'l Conference on Self-organization and Adaptation of Computing and Communications (SACC 2009), March 23-25, 2009, Leipzig, Germany, **PC Member**.
 - 83) 2008, IEEE Asia-Pacific Services Computing Conference (APSCC'08), December 9-12, 2008, Yilan, Taiwan, **PC Member**.

- 84) 2008, IEEE Int'l Conference on Systems, Man, and Cybernetics (SMC'08), October 12-15, 2008, Singapore, **Special Session Organizer and Chair.**
- 85) 2008, IEEE 7th Int'l Conference on Cognitive Informatics (ICCI'08), Stanford University, August 14-16, 2008, California, USA, **PC Member.**
- 86) 2008, the SIWN 4th Int'l Conference on Self-organization and Adaptation of Computing and Communications (SSCC 2008), 22-24 July 2008, Glasgow, UK, **PC Member.**
- 87) 2008, IEEE Int'l Conference on Computer and Information Technology (CIT'08), July 8-11, 2008, Sydney, Australia, **PC Member.**
- 88) 2008, IEEE Int'l Conference on Services Computing (SCC'08), July 8-11, 2008, Hawaii, USA, **PC Member.**
- 89) 2008, the 7th Wuhan Int'l Conference on E-Business (WHICEB'08), May 31-June 1, 2008, Wuhan, China, **PC Member.**
- 90) 2008, ACM/IEEE Int'l Symposium on Collaborative Technologies and Systems (CTS'08), May 19-23, 2008, Irvine, California, USA, **Poster Co-Chair, Workshop Organizer, Tutorial Instructor.**
- 91) 2008, IEEE 12th Int'l Conference on Computer Supported Cooperative Work in Design (CSCWD'08), April 16-18, 2008, Xi'an, China, **PC Member.**
- 92) 2008, IEEE Int'l Conference on Distributed Human-Machine Systems, March 9-12, 2008, Athens, Greece, **PC member.**
- 93) 2007, IEEE Int'l Conference on Systems, Man, and Cybernetics (SMC'07), October 7-10, 2007, Montreal, Canada, **Special Session Organizer and Chair, Session Chair and Presenter.**
- 94) 2007, IEEE Int'l Conference on Computer and Information Technology 2007 (CIT'07), October 16-19, 2007, Aizu, Japan, **PC Member.**
- 95) 2007, the 6th IEEE Int'l Conference on Cognitive Informatics (ICCI'07), August 6-8, 2007, Lake Tahoe, California, USA, **PC Member.**
- 96) 2007, ACM/IEEE Int'l Symposium on Collaborative Technologies and Systems (CTS'07), May 21-25, 2007, Orlando, FL, USA, **Publicity Chair.**
- 97) 2007, Int'l Society for Research in Science and Technology (ISRST), Int'l Conference on Software Engineering Theory and Practice (SETP'07), July 9-12, 2007, Orlando, FL, USA, **PC Member.**
- 98) 2007, IEEE Int'l Conference on Complex Open Distributed Systems (CODS'2007), July 22-24, 2007, Chengdu, China, **Vice Program Chair, Panelist, and Tutorial Instructor.**
- 99) 2007, IEEE Int'l Conference on Services Computing (SCC'07), July 9-13, 2007, Salt Lake City, Utah, USA, **PC Member.**
- 100) 2007, IEEE 11th Int'l Conference on CSCW in Design (CSCWD'07), April 26-28, 2007, Melbourne, Australia, **PC Member.**
- 101) 2006, ACM Int'l Conference on Computer-Supported Cooperative Work (CSCW'06), Nov. 5-8, 2006, Banff, Alberta, Canada, **Workshop Organizer and Workshop Presenter.**
- 102) 2006, IEEE System, Man and Cybernetics (SMC) Society, Int'l Conference on Systems, Man & Cybernetics (ICSMC'06), October 9-12, 2006, Taipei, Taiwan, **Special Session Organizer and PC Member.**
- 103) 2006, IEEE Int'l Conference on Cognitive Informatics (ICCI'06), July 17-19, 2006, Beijing, China, **PC Member, Session Chair and Presenter.**
- 104) 2006, IEEE Int'l Workshop on Distributed Intelligent Systems, June 14-16, 2006, Prague, Czech, **Session Chair and Presenter.**
- 105) 2006, IEEE Int'l EDOC Conference, October 16-20, 2006, Hong Kong, China, **PC Member.**
- 106) 2006, IEEE Int'l Conference on Service Computing, Sept. 18-22, 2006, Chicago, USA, **PC Member.**
- 107) 2006, IEEE Int'l Conference on Networking, Sensing and Control, April 23-25, 2006, Ft. Lauderdale, Florida, U.S.A. **PC Member, Session Chair and Presenter.**
- 108) 2006, IADIS Int'l Conference on Applied Computing, February 25-28, 2006, San Sebastian, Spain, **PC Member.**
- 109) 2005, IEEE System, Man and Cybernetics (SMC) Society, Int'l Conference on Systems, Man & Cybernetics (ICSMC'05), October 10-13, 2005, Hawaii, USA, **PC Member, Session Chair.**
- 110) 2005, IEEE Computer Society, 5th Int'l Conference on Computer and Information Technology (CIT2005), September 21-23, 2005, Shanghai, China, **PC Member.**
- 111) 2005, IEEE SMC Society, Int'l Conference on Information Reuse and Integration (IEEE IRI-2005), August 15-17, 2005, Las Vegas, Nevada, USA, **Session Chair.**

- 112) 2005, IEEE Computer Society, Int'l Workshop on Agent-based Computing for Enterprise Collaboration, June 13-15, 2005, Linkoping University, Sweden, **PC Member**.
- 113) 2004, IEEE SMC Society, Int'l Conference on Systems, Man & Cybernetics (ICSMC'04), October 10-13 2004, The Hague, The Netherlands, **PC Member, Special Session Organizer and Chair**.
- 114) 2004, Int'l Society of Production Enhancement (ISPE), Int'l Conference on Concurrent Engineering (ISPE/CE2004), July 26-30, 2004, Beijing, China, **Session Chair**.
- 115) 2004, IEEE Canada, Canadian Conference on Computer and Software Engineering Education (C3SEE'04), March 29-30, 2004, Calgary, Alberta, Canada, **PC Member**.
- 116) 2003, IEEE SMC Society, Int'l Conference on Systems, Man & Cybernetics (CSMC'03), October 5-8, 2003, Washington, D.C., USA, **PC Member, Session Chair**.

4. Invited Presentations, Seminars, Tutorials, and Lectures:

- 1) "Role-Based Collaboration and E-CARGO", Technische Universität Dresden, Dresden, Germany, Dec. 10, 2018.
- 2) "Group Role Assignment with Constraints", Laurentian University, Sudbury, Canada, Sept. 26, 2018.
- 3) "Group Role Assignment with Constraints", Hunan Normal University, Changsha, China, May 18, 2018.
- 4) "Group Role Assignment with Constraints", Central South University, Changsha, China, May 16, 2018.
- 5) "Group Role Assignment with Constraints", State Key Laboratory of Air Traffic Management System and Technology, Nanjing, China, May 14, 2018.
- 6) "Group Role Assignment with Constraints", Anhui University, Hefei, China, May 8, 2018.
- 7) "Group Role Assignment with Constraints", Fudan University, Shanghai, China, May 8, 2018.
- 8) "Group Role Assignment with Constraints", South China University of Science and Technology, Guangzhou, China, March 30, 2018.
- 9) "Group Role Assignment with Constraints", Macau University of Science and Technology, Macau, March 27, 2018.
- 10) "Group Role Assignment with Constraints", Guangdong University of Technology, Guangzhou, China, March 26, 2018.
- 11) "Role-Based Collaboration and the E-CARGO Model: A Decade Review: 2006-2016", Peking University, Beijing, China, July 6, 2016.
- 12) "Role-Based Collaboration and the E-CARGO Model: A Decade Review: 2006-2016", Southeast University, Nanjing, China, June 29, 2016.
- 13) "Role-Based Collaboration and the E-CARGO Model: A Decade Review: 2006-2016", East China Normal University, Shanghai, China, June 28, 2016.
- 14) "Role-Based Collaboration and the E-CARGO Model: A Decade Review: 2006-2016", Nanjing University, Nanjing, China, June 27, 2016.
- 15) "Role-Based Collaboration and the E-CARGO Model: A Decade Review: 2006-2016", Guangdong University of Technology, Guangzhou, China, June 23, 2016.
- 16) "Vocational Education in the Big Data Time", Hunan Electrical College of Technology, Xiangtan, China, Oct. 22, 2015.
- 17) "Role-Based Collaboration and its model E-CARGO", Hunan First Normal University, Hunan, China, Oct. 20, 2015.
- 18) "Role-Based Collaboration and its model E-CARGO", Hunan Normal University, Hunan, China, Oct. 16, 2015.
- 19) "Role-Based Collaboration and its model E-CARGO", Plenary Speech, *The Int'l Workshop on Complex Systems and Their Modeling, Control, Scheduling and Security Management*, Macau, China, Oct. 14, 2015.
- 20) "Role-Based Collaboration and its model E-CARGO", Beijing University of Technology, China, July 6, 2015.
- 21) "Avoiding Conflicts with Group Role Assignment," *Nanjing University, China*, June 24, 2015.
- 22) "Role-Based Collaboration and its model E-CARGO", Huaiyin Institute of Technology, China, June 23, 2015.
- 23) "Role-Based Collaboration and its model E-CARGO", Tongji University, China, June 19, 2015.
- 24) "Briefing Canadian Universities", Hunan Int'l Economics University, China, June 18, 2015.
- 25) "Role-Based Collaboration and its model E-CARGO", Hunan Int'l Economics University, China, June 17, 2015.

- 26) "Avoiding Conflicts with Group Role Assignment," *National University of Defense Technology, China*, June 16, 2015.
- 27) "Role-Based Collaboration and its model E-CARGO", *Sun Yat-Sen University, China*, June 15, 2015.
- 28) "Adaptive Collaboration Systems," *Seminar, System Chapter, Toronto Section, IEEE SMC Society*, October 24, 2014.
- 29) "Adaptive Collaboration Systems," *Laurentian University, Sudbury, Canada*, Oct., 14, 2014.
- 30) "Adaptive Collaboration Systems," *Tutorial, IEEE Int'l Conference on Systems, Man, and Cybernetics (SMC'14), San Diego, USA*, October 5-8, 2014.
- 31) "Adaptive Collaboration Based on the E-CARGO Model," *Nanjing University, China*, May 14, 2014.
- 32) "Group Role Assignment and Role Transfer," *Guangzhou University*, May 8, 2014.
- 33) "Adaptive Collaboration Based on the E-CARGO Model," *Guangdong University of Technology, China*, May 7, 2014.
- 34) "Group Role Assignment and Role Transfer," *The University of Manchester, UK*, Oct. 16, 2013.
- 35) "Group Role Assignment and Role Transfer," *Nanjing University, China*, May 28, 2013.
- 36) "Adaptive Collaboration Based on the E-CARGO Model," *National University of Defense Technology, China*, May 27, 2013.
- 37) "Group Role Assignment and Role Transfer," *Guangdong Normal University, China*, May 20, 2013.
- 38) "Group Role Assignment and Role Transfer," *Guangdong University of Technology, China*, May 17, 2013.
- 39) "Group Role Assignment and Role Transfer," *Harbin University of Engineering, China*, Aug. 1, 2011.
- 40) "Group Role Assignment and Role Transfer," *China University of Communications, China*, July 28, 2011.
- 41) "Group Role Assignment and Role Transfer," *Zhengzhou University of Light Industry, China*, July 26, 2011.
- 42) "Group Role Assignment and Role Transfer," *National University of Defense Technology, China*, July 13, 2011.
- 43) "Group Role Assignment and Role Transfer," *Hunan Normal University, China*, July 11, 2011.
- 44) "Group Role Assignment and Role Transfer," *Nanjing University, China*, June 12, 2011.
- 45) "Research in Computer Science and Collaborative Systems," *Harbin University of Science and Technology, China*, June 8, 2011.
- 46) "Role-Based Collaboration," *Tutorial, IEEE Int'l Conference on Systems, Man and Cybernetics (SMC'10), Istanbul, Turkey*, Oct. 10-13, 2010.
- 47) "Advanced Software Engineering Research," *Lectures, Tianhe Int'l Summer School for Graduate Students, National University of Defense Technology, Changsha, China*, July 19-Aug. 4, 2010.
- 48) "Role-Based Collaboration," *National University of Defense Technology, Changsha, China*, July 22, 2010.
- 49) "Role Transfer and Role Assignment," *Northern Illinois Institute of Technology, DeKalb, IL, USA*, May 17, 2010.
- 50) "Role Transfer and Role Assignment," *Laurentian University, Sudbury, Canada*, Oct., 30, 2009.
- 51) "Role-Based Collaboration," *Tutorial, IEEE Int'l Conference on Systems, Man and Cybernetics (SMC'09), San Antonio, TX, USA*, Oct. 11-14, 2009.
- 52) "Role-Based Collaboration," *Hong Kong City University, Hong Kong*, June 18, 2009.
- 53) "Role-Based Collaboration," *University of Maryland Baltimore County, Baltimore, MD, USA*, May 18, 2009.
- 54) "Role-Based Collaboration," *Towson University, Towson, MD, USA*, May 18, 2009.
- 55) "Role-Based Collaboration," *Nanyang Technology University, Singapore*, Oct. 15, 2008.
- 56) "Role-Based Collaboration," *Tutorial, ACM/IEEE Int'l Symposium on Collaborative Technologies and Systems (CTS'08), Irvine, California, USA*, May 19-23, 2008.
- 57) "Role-Based Collaboration," *Tutorial, IEEE Int'l Conference on Complex Open Distributed Systems (CODS'2007), Chengdu, China*, 22-24 July 2007.
- 58) "Role-Based Collaboration," *Nanjing University of Aeronautics and Astronautics, Nanjing, China*, July 13, 2007.
- 59) "Role-Based Collaboration," *Chongqing University, Chongqing, China*, July 12, 2007.
- 60) "Role-Based Collaboration," *China University of Petroleum, Dongying, China*, July 14, 2006.
- 61) "Role-Based Collaboration," *Computer College, Shandong University, Jinan, China*, July 1, 2006.
- 62) "Role-Based Collaboration," *Southern China University of Technology, Guangzhou, China*, June 28, 2006.
- 63) "Role-Based Collaboration," *Jinan University, Guangzhou, China*, June 27, 2006.
- 64) "Role-Based Collaboration," *Guangzhou Industrial University, Guangzhou, China*, June 26, 2006.
- 65) "Role-Based Collaboration," *Hunan University, Changsha, China*, June 22, 2006.

- 66) "Role-Based Collaboration," *IBM China Research Laboratory*, Beijing, China, July 27, 2004.
- 67) "Role-Based Collaboration," *Software College, Hunan University*, Changsha, China, June 24, 2004.
- 68) "Role-Based Collaboration," *Computer and Communication College, Changsha University of Science and Technology*, Changsha, China, June 17, 2004.

D SERVICES TO THE UNIVERSITY OTHER THAN TEACHING

(Co-) Supervised:

- **3 PostDoc researchers,**
 - **5 PhD students,**
 - **5 visiting scholars,**
 - **41 master students, and**
 - **Many undergraduate students.**
- 1) 2019:- Co-Supervised a graduate student (Amin Monemian), Laurentian University.
 - 2) 2018:- Co-Supervised a graduate student (Zhe Yu), Laurentian University.
 - 3) 2017:- Co-Supervised a graduate student (Pinzhi Wang), Laurentian University.
 - 4) 2017-2018: Supervised two visiting scholars (Drs. Jie YANG and Youfa Wang), Nipissing University.
 - 5) 2017-2018: Supervised a visiting PhD student (Ms. Ying GUO), Nipissing University.
 - 6) 2015-2018: Co-Supervised a graduate student (Bo Lei), Laurentian University.
 - 7) 2003-2017: Participated in the University Fair in Toronto for Nipissing University, Canada.
 - 8) 2016-2017: Supervised a visiting PostDoc researcher (Dr. Hua MA) and a visiting scholar (Dr. Hongyu ZHANG), Nipissing University.
 - 9) 2015-2016: Supervised an undergraduate student in research (Shawn Mason), Nipissing University.
 - 10) Aug. 2015-July 2016: Supervised a visiting PhD student in research (Xianjun ZHU), Nipissing University.
 - 11) May 2015-Feb. 2016: Supervised a visiting PostDoc researcher (Dr. Dongning LIU), Nipissing University, (Dr. Liu is now the associate dean of graduate studies, Guangdong University of Technology, China).
 - 12) Oct. 2014-Dec. 2015: Supervised a visiting scholar (Zhen CHEN), Nipissing University, (Mr. Chen is now the director of the supervision office, Hunan International Economics University, China).
 - 13) 2013-2015: Co-Supervised a graduate student (Dalia Almaatani, Laurentian U.), Supervised two undergraduate students in research (David DuVal, Jason Moggridge), Nipissing University.
 - 14) Aug. 2013-Dec. 2014: Supervised a visiting PhD student (Yin Sheng) from Nanjing University, China, Nipissing University.
 - 15) Sept. 2013-Dec. 2013: Supervised a PostDoc research associate (Jiehan Zhou), Nipissing University.
 - 16) 2012-2013: Supervised a visiting graduate student (*Luming Feng from Laurentian University*).
 - 17) 2012: Interviewer, Int'l Exchange Student Programs, Nipissing University.
 - 18) 2010: Proposed a new stream of Service Systems Technology for Bachelor of Science and Technology, Nipissing University.
 - 19) 2009-2010: Negotiated and drafted a cooperation agreement between Nipissing University and Nanjing University of Science and Technology, China.
 - 20) 2009: Supervised a student for the OPIC Research (*S. Giroux who is hired by a local company based on her research experience*).
 - 21) 2008- 2011: Co-supervised a PhD student of *Nanjing University of Aeronautics and Astronautics (L.Y. Liu)*
 - 22) 2008: Supervised a student for the NSERC USRA Research (*M. Grenier who is hired before his graduation based on his research experience*).
 - 23) 2008: Organized the visiting of a group from Nanjing University of Science and Technology.
 - 24) 2007: Proposed a new 2+2 collaborative computer science program.
 - 25) 2007: Co-supervised a PhD student (*W. Q. Shang who is now an associate professor of China University of Communications*).
 - 26) 2006-2009: Supervised 4 student times for the NSERC USRA Research (*B. Verzijlenberg who was granted 2007 NSERC graduate scholarship and is now a graduate student at York University, and Alkins, R. who was granted the 2009 NSERC Graduate Scholarship and is accepted as the first Master student in Mathematics of Nipissing University, and Matthew Grenier*).
 - 27) 2005: Chair the faculty meetings for the external review for the computer science program of Nipissing University.
 - 28) 2004-2006: Supervised 3 visiting scholars from China (Mr. L. K. He, Mr. Y.L. Zhang, and Dr. D. Q. Xie).

- 29) 2003-2009: Supervised 4 graduate students (L.Y. Liu, P.R. Zhong, Zhen Li, and F.Y. Li) of Hunan University, China.
- 30) 2002-2006: Supervised 9 undergraduate students for two-semester research projects (M. Boyer, J. McDonald, S. Topham, *P. Seguin who obtains Ontario Graduate Scholarship and completes his graduate study at Calton University*, P. Kennedy, D. Plourde, M. Portrockey, J. Lacarte, and J. Hoskins), 5 students for one semester research project (Terry Vanderlinden, B. Verzijlenberg, B. Folber, Todd Vanderlinden, Matt Likuski), 12 students for one semester practicum project (T. Burrows, V. Timlison, A. Graf, S. Evers, G. Fryia, X. Zhen, M. Grenier, S. Stein, N. Eedy, D. Duhn, I. Gnuchiy, Paulo Marques).
- 31) 2004-2009: Helped initiate Int'l student recruiting.
 - a. Translated and commented on the Chinese document of Cooperation between Guangxi University and Nipissing University;
 - b. Met the Int'l officer, registrars of Nipissing University to discuss the initiatives to recruit Int'l students;
 - c. Met the Dean of Maiya Int'l College of Hunan University and the Int'l officer of Changsha University of Science and Technology to discuss the possibility to build cooperative computer science programs;
 - d. Translated the Introduction to Nipissing University into Chinese; and
 - e. Reviewed the Chinese web pages for Nipissing University.
- 32) 2004: Member, Education Faculty Search Committee, Nipissing University.
- 33) 2004-2005: Member, Academic Planning Committee, Nipissing University, Canada.
- 34) 2002-2004: Member, Academic Computing Committee, Nipissing University, Canada.
- 35) 2003: Information Session, "Attending OOPSLA 2003," Nipissing University, Canada, Nov. 2003.
- 36) 2000-2002: Coordinator, CIS601: Object-Oriented Programming in C++, CIS department, NJIT, USA
- 37) 1999-2002: Supervised/Co-supervised 28 MSc students, CIS, NJIT (F. Chen, J.Q. Chen, W.C. Chuang, W.Y. Fan, S. Feng, J. Han, Z. Han, W. Hang, Y.H. Huang, Q. Liu, H.L. Luo, T. Ma, K. Nadig, R. Patel, P. Raj, S. Shah, D. Song, S. Song, G. Sur, S. Vallepall, J. Wang, X.Y. Xiao, T. Yan, S. Yau, T.G. Yu, Z. Zhang, A.Q. Zhou, L. Zhu).
- 38) Spring'00: Filmed for 36 hours of Distance Learning Lectures: Object-oriented Programming with C++, CIS, NJIT, USA.
- 39) 1994-1999: Supervised 8 MSc students (H.X. Zhang, K. Wang, Z. Liu, H. Song, H.X. Liu, W.Q. Shang, Y.H. Luo, C.L. Huang), Co-Supervised one PhD student (F. Wu) and one Post-doc researcher (H.P. Hu), NUDT, China.
- 40) 1994-1999: Developed and revised curricula of three programs (Computer Engineering, Computer Science and Computer Applications) for the Dept. of Computer, NUDT, China (Co-PI's efforts: 1/5).

E SERVICES TO THE COMMUNITY-AT-LARGE

a) Related to Area(s) of Professional Expertise:

- 1) 2016-: Member, Information and Communications Technology Council (ICTC)-Small Business Digitization Initiative (SBDI) Advisory Committee, Ontario, Canada
- 2) Invited Lecture "Data Structure", Department of Mathematics and Computer Sciences, Laurentian University, Canada, Sept. – Dec. 2009.
- 3) Invited Lecture "Software Engineering", Software College, Shandong University, Jinan, China, July 14-20, 2007 and July 2-9, 2006.
- 4) Invited Lecture "J2EE Development and Applications", Software College, Hunan University, Changsha, China, May-June, 2004.

b) Not Related to Area(s) of Professional Expertise:

2005: Interpret Chinese Application to the Ministry of Education of China for a joint program between Canadore College and Guangzhou Aviation College.

F OTHER RELEVANT INFORMATION

Teaching Load at Nipissing University from Fall 2002:

- 1) Winter 2018: 6 hours/week (COSC 1567: 3 + COSC 2767: 3) + COSC3657 (Supervised Individual Study)
- 2) Fall 2017: 6 hours/week (COSC 1557: 2 + COSC 4406: 4)
- 3) Winter 2017: 6 hours/week (COSC 1567: 3 + COSC 2767: 3)
- 4) Fall 2016: 6 hours/week (COSC 1557: 2 + COSC 4406: 4)
- 5) Fall 2015/Winter 2016: On sabbatical leave.
- 6) Winter 2015: 6 hours/week (COSC 1567: 3 + COSC 2767: 3)
- 7) Fall 2014: 6 hours/week (COSC 1557: 2 + COSC 4406: 4)
- 8) Winter 2014: 6 hours/week (COSC 1567: 3 + COSC 2767: 3)
- 9) Fall 2013: 6 hours/week (COSC 1557: 2 + COSC 4406: 4)
- 10) Winter 2013: 6 hours/week (COSC 1567: 3 + COSC 2767: 3)
- 11) Fall 2012: 6 hours/week (COSC 1557: 2 + COSC 4406: 4)
- 12) Winter 2012: 6 hours/week (COSC 1567: 3 + COSC 2767: 3)
- 13) Fall 2011: 9 hours/week (COSC 1557: 2 + COSC 2006: 3 + COSC 4406: 4)
- 14) Winter 2011: 6 hours/week (COSC 1567: 3 + COSC 2767: 3)
- 15) Fall 2010: 9 hours/week (COSC 1557: 2 + COSC 2006: 3 + COSC 4406: 4)
- 16) Winter 2010: 8 hours/week (COSC 1567: 2 + COSC 2767: 3 + COSC 3807: 3)
- 17) Winter 2009: On sabbatical leave.
- 18) Fall 2009: 9 hours/week (COSC 1557: 2 + COSC 4406: 4 + COSC 3706: 3)
- 19) Fall 2008: 6 hours/week (COSC 1557: 2 + COSC 4406: 4)
- 20) Winter 2008: 9 hours/week (COSC 1567: 2 + LAB 1567: 2*2 + COSC 2767: 3)
- 21) Fall 2007: 6 hours/week (COSC 1567: 2 + LAB 1557: 2*2)
- 22) Winter 2007: 9 hours/week (COSC 1567: 2 + LAB 1567: 2*2 + COSC 2767: 3)
- 23) Fall 2006: 10 hours/week (COSC 1557: 2 + LAB 1557: 2*2 + COSC 4406: 4)
- 24) Winter 2006: 12 hours/week (COSC 1567: 2 + LAB 1567: 2*2 + COSC 2767: 3 + COSC 4607: 3)
- 25) Fall 2005: 14 hours/week (COSC 1557: 2 + LAB 1557: 2*2 + COSC 3657: 4 + COSC 4406: 4)
- 26) Winter 2005: 12 hours/week (COSC 1567: 2 + LAB 1567: 2*2 + COSC 2767: 3 + COSC 3306: 3)
- 27) Fall 2004: 13 hours/week (COSC 1557: 2 + LAB 1557: 2*2 + COSC 3657: 4 + COSC 4107: 3)
- 28) Winter 2004: 12 hours/week (COSC 1567: 2 + LAB 1567: 2*2 + COSC 3557: 3 + COSC 4607: 3)
- 29) Fall 2003: 16 hours/week (COSC 1557: 2 + LAB 1557: 2*3 + COSC 3657: 4 + COSC 4406: 4)
- 30) Winter 2003: 10 hours/week (COSC 1567: 4 + COSC 3557: 3 + COSC 3306: 3)
- 31) Fall 2002: 12 hours/week (COSC 1557: 4 + COSC 3567: 4 + COSC 4406: 4)

Practical Skills:

- 1) Strong leadership and administration ability in academics and engineering.
- 2) Strong competence as an instructor, researcher, analyst, manager, and administrator.
- 3) An experienced software developer and a certified C/C++/Java programmer, especially in Object-Oriented Analysis/Design (OOA/D) and Programming (OOP).
- 4) Optimization Tools: IBM CPLEX Optimization Studio and IBM ILOG Programming Package.
- 5) Programming Languages and Tools: Python, Dr. Racket, Matlab, XML, Eclipse, Visual Studio, C#/C++/C, Java, Smalltalk/Visual Age, Prolog, Lisp, VAX/Assembly, Access, ASP, PASCAL, BASIC, COBOL, FORTRAN, Client/Server, Socket, RPC, RMI.
- 6) Systems: UNIX/LINUX, MS-DOS, Windows'95/98/NT/00/XP/Vista/7, VAX/VMS.
- 7) Familiar with ISO/9000 for software development and analysis tools similar to the IBM Rational ROSE CASE toolkit.

APPENDIX 3

BUDGET/ BUSINESS PLAN

Business Plan for Data Science, Modest Growth Model (Assume a fall 2019/20 Start)

	Year 1 Hour s	Year 1 Weeks	Year 1 Term s	Year 1 BIU \$	Year 2 Hour s	Year 2 Weeks	Year 2 Terms	Year 2 BIU \$	Year 3 Hour s	Year 3 Weeks	Year 3 Terms	Year 3 BIU \$	Year 4 Hour s	Year 4 Weeks	Year 4 Terms	Year 4 BIU \$	Year 5 Hour s	Year 5 Weeks	Year 5 Terms
Program Enrollment																			
New Enrollment			10				12				14				16				18
Continuing Enrollment							9				19				30				40
Total Enrollment			10				21				33				46				58

Revenue	Rate	# students	Total	Rate	# students	Total	Rate	# students	Total	Rate	# students	Total	Rate	# students	Total
			66,16			143,10			231,62			332,55			431,88
Tuition	6616	10	0	6814	21	4	7019	33	4	7229	46	6	7446	58	9
Tuition -Returning Students						0			0			0			0
Other Fees															
Co-op fees	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Donation/endowments															
Govt operating grant (NEW: 1.0 WGU)	2903	10	0	2903	12	34,836	2903	14	40,642	2903	16	46,448	2903	18	52,254
												130,65			174,20
(RETURNING: 1.5 WGU)	4355	0	0	4355	9	39,191	4355	19	82,745	4355	30	0	4355	40	0

Other revenues			66,16			143,10			231,62			332,55			431,88
Total Revenues			0			4			4			6			9

Expenses																		
Salaries for new faculty & staff																		
Faculty Mid Range for Assoc Prof			22,00									127,33				160,44		
	0.2	110,000	0		0.2	115,500	23,100		0.4	121,275	48,510		1.0	127,339	9	1.2	133,706	7
Faculty Supervision Thesis/MRP	0	10,000	0		0	11,000	0		0	11,550	0		0	12,128	0	0	12,734	0
PD (for instructors)	1900	0.2	380		1900	0.2	380		1900	0.4	760		1900	1.0	1,900	1900	1.2	2,280
Student teaching assistants	1	5,000	5,000		1	5,250	5,250		1	5,512	5,512		1	5,788	5,788	1	6,077	6,077
Student research assistants	0	0	0		0	0	0		0	0	0		0	0	0	0	0	0
Curriculum development	0	0	0		0	0	0		0	0	0		0	0	0	0	0	0
Benefits			5,500				5,775				12,128				31,835			40,112
			32,88												166,86			208,91
Total Salary Expense			0				34,505				66,910				1			6

Other Expenses					
Materials and supplies	500	520	541	562	585
Faculty Office	1,500	1,500	3,000	3,000	3,000
Capital equipment					
Library resources	5,000	2,500	2,575	2,652	2,732
Research support (start up grants)	0	0	0	0	0
Information technology					
Printing	1,000	1,040	1,082	1,125	1,170
Advertising, marketing and promotion	1,000	1,040	1,082	1,125	1,170
Travel	0	0	0	0	
Recruiting costs	2,500	0	2,500	0	
Grad Financial Support - RA	0	0	0	0	0
Grad Financial Support - TA					
Student Access Guarantee	4,631	10,017	16,214	23,279	30,232
Professional Fees - Accreditation	0	0	0	0	0
Other admin costs					
Total other expenses	16,131	16,617	26,993	31,743	38,889
Total Expenses	49,011	51,122	93,903	198,605	247,804
Contribution Before Overhead	17,149	91,982	137,722	133,951	184,085
Admin Overhead	19,604	20,449	37,561	79,442	99,122
Surplus/ (Deficit)	(2,456)	71,533	100,161	54,509	84,963

Input Factors	
WGU Value	\$2,903
Benefits as a percentage of salary	25%
Tuition increase - First Year	3%
Tuition Increase - Second Year	3%
Factor new student enrollment	100%

Average change faculty salary/ben	5%
Admin overhead	40%
Ratio scholarship	10%
Rate of annual fee increase	3%
Student Access Guarantee	7.00%

APPENDIX 4

Library Review for New Program Proposal

Program: Data Science
Department: Computer Science and Mathematics
Faculty: Arts and Science
Institution: Nipissing University
Liaison Librarian: Laura Sinclair, MLIS
Date: September 2016

Library Collection

Overview

The library collection includes print and e-books, films and other audiovisual materials, kits, and journals in both print and online formats. Liaison librarians work with faculty to select resources for the collection to support coursework and research activities. Many resources are available online through the library website, <http://www.eclibrary.ca/library/>

Data Science is a proposed new program; however, many of the courses comprising the curriculum are currently offered at Nipissing University, and supported by the library collection. The library subscribes to several databases with content relevant to the proposed Data Science program, including MathSciNet, ACM Digital Library, Computer Database and IEEE Xplore. There is also some related content in databases with broader subject coverage, such as Science Citation Index Expanded and Annual Reviews, as well as some multidisciplinary databases including Academic Search Premier, Scholars Portal Journals and Academic OneFile. It is essential to maintain access to this variety of resources in order to offer a broad scope of content.

There are other collections that could be considered for acquisition in support of the Data Science program such as the Society for Industrial and Applied Mathematics (SIAM) Journals and Project Euclid: Mathematics and Statistics Online; however, these subscriptions are costly. Adding these resources may only be considered with faculty consultation and a corresponding increase to library funding.

Similarly, there are no essential journal additions required at this time; however, individual faculty members may suggest specific journal titles related to their areas of specialty. These requests would be considered on a case-by-case basis, with a major consideration being cost.

Although the library's print monograph collection is somewhat dated in the areas of Mathematics and Computer Science, there is an ebook collection, Safari Tech Books Online, that partially addresses that gap. This collection of several thousand titles contains current publications in the field of technology, ranging in coverage from general surveys of broad topics, to specific guides for specialized software. Data Science has not been a focus of library collection development to date; consequently, acquisition of some newer content such as handbooks and theoretical material specific to the discipline would complement the more practical content in Safari Tech Books Online.

The library also offers Nipissing University users access to various datasets through online resources such as <odesi> and Scholars GeoPortal.

Budget

The allocations below are for the acquisition of print and e-books, multimedia, and serials purchased outside of database subscription packages. These figures do not include database purchases, as those come from a central budget.

Please note that Physics is included in the budget for Computer Science and Math, so the budget numbers represent allocations for combined departments.

Budget Year	Total Allocation—Computer Science, Physics & Math combined
2015-16	\$ 5322
2014-15	\$ 5639
2013-14	\$ 6769
2012-13	\$ 4799
2011-12	\$ 4908

Recommendations

It is recommended that at a minimum, start-up funding of \$1,000 be provided for the purchase of new books specific to Data Science, with \$500 per year for future additions to the monograph collection to maintain currency. If courses will be offered online, then e-books would be the preferred format for purchase. Academic titles in e-book format tend to be more expensive than their print counterparts, so allowance would need to be made for this in budgetary decisions.

This program should be well supported with the current suite of databases; however, it is essential to maintain access to these resources. Typically, databases increase in cost by 3-5 % per year.

Other resources may be required, depending on course curricula and instructor methodology, and requests would be considered on a case-by-case basis, with library budget being one of the determining factors. Also, the fluctuating value of the Canadian dollar has an impact on the acquisitions budget and should be accounted for in funding decisions.

Start-up Costs: \$1,000 for monographs

Ongoing Costs: \$500/year for monographs

Collections Snapshot						Library Instruction, Services and Spaces					
Library Collections						Teaching and Learning					
	2014-15	2013-14	2012-13	2011-12	2010-11		2014-15	2013-14	2012-13	2011-12	2010-11
# print volumes	179,947	174,986	173,120	199,979	197,756	# reference questions	11,972	10,240	10,631	14,212	10,965
# print books	179,159	173,606	171,750	184,981	183,312	# instruction sessions	195	222	150	197	222
# e-books	261,657	296,095	112,368	344,673	317,829	# students in instruction sessions	7,098	5,906	3,574	3,940	5,550
# print journals	202	301	210	318	236						
# e-journals	70,346	70,331	70,342	49,820	44,564	Spaces for Learning and Research (Harris Learning Library)					
Expenditures						Seating capacity: 537					
	2014-15	2013-14	2012-13	2011-12	2010-11	# group rooms: 12					
Print books	\$73,853	\$68,679	\$73,199	\$74,646	\$91,354	# individual study rooms: 7					
E-books	\$46,559	\$33,483	\$37,233	\$47,159	\$46,598	Turnstile count (sample day)	2014-15 1,312	2013-14 1,405	2012-13 1,764	2011-12 1,638	2010-11 2,380
One-off serials	\$55,253	\$34,281	\$50,941	\$46,449	\$52,633						
Electronic serials	\$536,740	\$595,564	\$492,364	\$448,799	\$391,950	Services					
Total budget	\$762,756	\$756,078	\$672,680	\$789,621	\$733,404	Hours during academic year: 8:00 am to 10:30 pm (Mon.-Thurs.), 8:00 am to 6 pm (Fri.), and 10:00 am to 5:30 pm (Sat., Sun.)					
Use of Collections						Info Desk hours: same as building hours					
	2014-15	2013-14	2012-13	2011-12	2010-11	Research appointments					
Circulation	27,289	32,713	28,162	31,727	38,634	24/7 access via proxy					
Reserves circulation	4,783	3,422	2,762	3,982	3,993	URL resolver					
COUNTER full-text journal requests (calendar year)	TBD	TBD	TBD	TBD	194,462	Free interlibrary loan					
Library web site visits (calendar year)	188,419	216,615	236,854	221,408	195,829						
Use of other Collections											
	2014-15	2013-14	2012-13	2011-12	2010-11						
Books borrowed via interlibrary loan	877	559	1,373	1,604	2,024						
Articles (electronic or photocopy) via interlibrary loan	280	1,703	259	311	223						

PROGRAM PROPOSAL
ENVIRONMENTAL SCIENCE]
(Honours Specialization; Specialization; Major; Minor)

Date: Last Revised

Updated 31 January 2025

NEW PROGRAM PROPOSAL

NEW PROGRAM PROPOSAL

For Submission to:

- Nipissing University Board of Governors
- Ontario Ministry of Colleges and Universities

NAME OF PROPOSED PROGRAM	Environmental Science
DEGREE TO BE CONFERRED	Bachelor of Science Honours Specialization Bachelor of Science Specialization Bachelor of Science Major Bachelor of Science Minor
SHORT FORM FOR DEGREE TO BE CONFERRED	BSc Honours, BSc
LOCATION OF PROGRAM TO BE OFFERED	North Bay
ACADEMIC UNIT RESPONSIBLE FOR PROGRAM	Department of Biology, Chemistry and Geography
ANTICIPATED START DATE OF NEW PROGRAM	Fall 2026
DEAN(S) RESPONSIBLE FOR PROPOSAL	Dean of Arts and Science 
WORKING GROUP CHAIR & MEMBERS OF WORKING GROUP	April James (Chair, Dept of Biology, Chemistry and Geography) Jeff Dech (Biology) Mukund Jha (Chemistry) John Kovacs (Geography) Mark Wachowiak (Math and Computer Science) James Abbott (Geography)
DATE APPROVED BY Senate DATE APPROVED BY OUCQA	April 24, 2023 March 22, 2024

Appendices to be Included:

- Appendix 1. Library Services Report
- Appendix 2. Recent Ontario Institutional Enrollments in Environmental Science
- Appendix 3. Evidence of Social/Labour Market Need
- Appendix 4. Justifiable Duplication – List of Ontario Environmental Science Programs and comparison to proposed program
- Appendix 5. Faculty CVs

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1.0 Introduction and Overview

1.1.Program Description

COVID-19, flooding, drought, fire, heat domes, polar vortices, unprecedented glacial melting: 2020 and 2021 have been unparalleled in environmental-related challenges brought about by climate and environmental change that have disrupted the physical, social, economic and political fabric of our lives. Communities in northeastern Ontario and Canada's north have urgent questions and needs related to the impact of climate and environmental change as natural and human landscapes undergo unprecedented change in the North. Northern Ontario communities are typically rural, geographically isolated, with "...limited economic diversity and relatively high dependence on climate-sensitive sectors..." (Barros et al., 2014). This makes them more vulnerable to climate change impacts and more limited in adaptation strategies. Communities not accessible by permanent roads or rail are facing transportation challenges for food, fuel and other critical supplies due to shortened ice-road seasons. Changes to fish and game populations may affect a critical way of life for Indigenous communities reliant on traditional food sources.

Ontario's northern communities depend heavily on mining, hydropower, forestry, and agriculture and experts predict with high confidence the influence of extreme weather on most sectors with extremes in temperature, frequency and severity of weather events (ice storms, rainfall, heat, drought, wind) all projected for Ontario (ECO, 2012). In the Laurentian Great Lakes Basin, recent predictions are for increases in spring and winter precipitation (Zhang et al. 2019) and flooding during the spring of 2019 on the Ottawa river, Lake Nipissing and in the Muskoka region provide compelling regional examples how extreme events can affect communities. Further, case studies of climate change impacts in the Canadian mining sector include examples of how climate events like low water levels/drought have slowed or stopped production due to lack of water for dust suppression or other water intake requirements, and how power outages due to ice storms and road access due to either thawing under higher temperatures, or flooding under intense rains have translated into large financial losses (Marshall et al, 2009). These environmental problems put at risk food and water security, livelihoods, and profoundly emphasize their complexity. These are the 'big questions' of our generation.

Barros et al., 2014. Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects, Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Barros, VR, CB Field, DJ Dokken, MD Mastrandrea, KJ Mach, TE Bilir, M Chatterjee, KL Ebi, YO Estrada, RC Genova, B Girma, ES Kissel, AN Levy, S MacCracken, PR Mastrandrea, LL Whites (eds.)]. Cambridge University Press, Cambridge United Kingdom and New York NY, USA, pp. 688. ; **ECO 2012, READY FOR CHANGE? An assessment of Ontario's climate change adaptation strategy.** Special Report to the Legislative Assembly of Ontario, [March 2012. 24p.](#) ; **Zhang et al. 2019.** Projected extreme temperature and precipitation of the Laurentian Great Lakes Basin. *Global and Planetary Change.* 172, 325-335; **Marshall et al., 2009.** Climate Change and Canadian Mining: Opportunities for Adaptation. August 2009, David Suzuki Foundation, 160p.

To train the next generation with the skills, creativity and insight to address these critical environmental problems, Nipissing University must respond with programming that draws on existing expertise across the sciences to develop a deliberately interdisciplinary environmental science program rooted in northern community. A recent labour demand report from Eco Canada (September 2020) estimates 1 in every 30 people employed in Canada are environmental workers and while the

environmental job market has been affected by COVID-19, they expect environmental jobs are expected to rebound ahead of others, both because of job creation and anticipated retirement¹. A recent survey by Yale University's program on climate change communication found that Millennials and iGens saw global warming as personally more important and ranked it higher in importance for voting decisions as they approached the 2020 presidential election compared to older generations (Ballew et al. 2019). To attract the iGen generation to study the Environment at Nipissing University, programing and expertise addressing Climate and Environmental Change is no less than foundational in this proposed epoch of the Anthropocene.

The BSc Honours Specialization, Specialization, Major and Minor in Environmental Science will provide a multi- and interdisciplinary curriculum, building fundamental scientific knowledge in biology, chemistry, geography, physics and earth sciences, mathematics, and data sciences, and supporting advanced scientific and quantitative understanding of the environment, environmental problems and their solutions (Figure 1).

This program aligns with government actions like the Pan-Canadian Framework on Clean Growth and Climate Change, responding to the immediate need for action on climate change and engaging across government, industry and Indigenous communities for meaningful collaboration². The complex nature of many current environmental issues requires development of holistic understanding and skill developments that extend beyond disciplines to tackle what has been termed 'wicked' problems or "Big Questions". This program will provide foundational training for students to think differently about the nature of environmental problems, and how to consider alternative ways of studying and resolving these problems from across the sciences.

Sciences on the Land

With this program, Nipissing will be building on existing science programing rooted in the north, and serving northern communities, including First Nations. First Nation communities are natural partners for programing in environmental science. Recent studies such as Wong et al. (2020) and Bozhkov et al. (2020) highlight the common connection to the land that natural scientists and Indigenous communities share while also clearly illustrating the historical limitations and improvement needed for training of natural scientists on Indigenous history, rights, worldviews and ways to ethically conduct environmental research in relation with First Nation communities and traditional territories. At Nipissing University, faculty across both Environmental Science and Environmental Studies have built long term community engagement with regional First Nation communities of Dokis and Nipissing First Nations, collaborating in teaching and research. Discussion of environment and Indigenous worldviews and practices are embedded in existing courses like GEOG 2226 (Environment & Society) and GEOG 4437 Hazards Geography (e.g. Indigenous fire management). Botany field courses BIOL 2447 (Ecology of Northern Trees and Forests) and BIOL 3066 (Flora of Northern Ontario) highlight intersections of western science with Traditional Ecological Knowledge (TEK) with field assignments on plants important to Indigenous peoples. Courses like GEOG 3066 and 3066 (Remote Sensing of the Environment) showcase collaborative use of applied science with regional First Nation communities (e.g. application of remote sensing with Dokis FN partners. Courses such as BIOL 3066 and BIOL 3007

[Environmental Issues in Forestry]) often have a community service-learning component which have included partnerships with Wolf Lake First Nation and Nipissing First Nation and the Nipissing University Herbarium specializes in plants used by Indigenous people with specimens coded as medicinal and/or food plants.

*Bozhkov et al. 2020. Arte the natural sciences ready for truth, healing and reconciliation with Indigenous peoples in Canada? Exploring 'settler readiness' at a world-class freshwater research station, J Env. Studies and Science, 10:226-241; <https://doi.org/10.1007/s13412-020-00601-0>; Wong et al. 2020. Towards reconciliation: 10 Calls to Action to natural scientists working in Canada. FACETS, 5(1). <https://doi.org/10.1139/facets-2020-0005>.

¹ Eco Canada is a Not-for-profit organization established in 1992, that develops certification and training in support of Canada's environmental sector. Their most recent reporting on the environment labour market includes: From Recession to Recovery: Environmental Jobs and Hiring Trends in the Decade Ahead, September 2020, 36p.

² Environment and Climate Change Canada website includes reporting on the first annual report of this framework (Dec 2017). <https://www.canada.ca/en/environment-climate-change.html>

Ballew, M., Marlon, J., Rosenthal, S., Gustafson, A., Kotcher, J., Maibach, E., & Leiserowitz, A. (2019). Do younger generations care more about global warming? Yale University and George Mason University. New Haven, CT: Yale Program on Climate Change Communication. <https://climatecommunication.yale.edu/publications/do-younger-generations-care-more-about-global-warming/>

Interdisciplinary Land-Based Program Design & Experiential Learning

The program design draws on a core set of science requirements (environmental science, biology, chemistry, geography, mathematics, geomatics) common to all students. Students will select upper year courses from across science disciplines, organized in three groups:

- (A) Environmental Life Sciences,
- (B) Environmental Physical Sciences, and
- (C) Applied Environmental Sciences, Techniques and Experiential learning.

Experiential learning opportunities are supported by a broad range of existing options and established community partners. Experiential learning delivery involves several models: Lab-based experiments integrated into many science courses, in addition to thesis, directed study, professional internships and field camps. Course content introducing science students to Indigenous knowledge and relationships with the environment in parallel with western scientific methods and perspectives will be built into two upper year courses, supported by faculty and community partners. A certificate in Environmental Chemistry will allow students to obtain an additional qualification to satisfy academic or professional interests. We outline changes to the existing minor in Environmental Science for consistency with the proposed major, specialization and honours specialization. By integrating biology, chemistry, environmental science, and geography courses, future students will be equipped with skills relevant to solving environmental related problems from an interdisciplinary approach, a demand from across environmental-related sections.

While northern in location, the program will connect to the global community through international partnerships and a mix of domestic and international students. Despite challenges in growth projections in the region, new professional and science programing across northern Universities are showing positive growth. Societal demand suggests we could build enrollments from 40 to 70 students/yr over 5 years and generate ~ \$244K to \$1.23 million per year in revenue, attracting a new, complimentary STEM-based audience at Nipissing University.

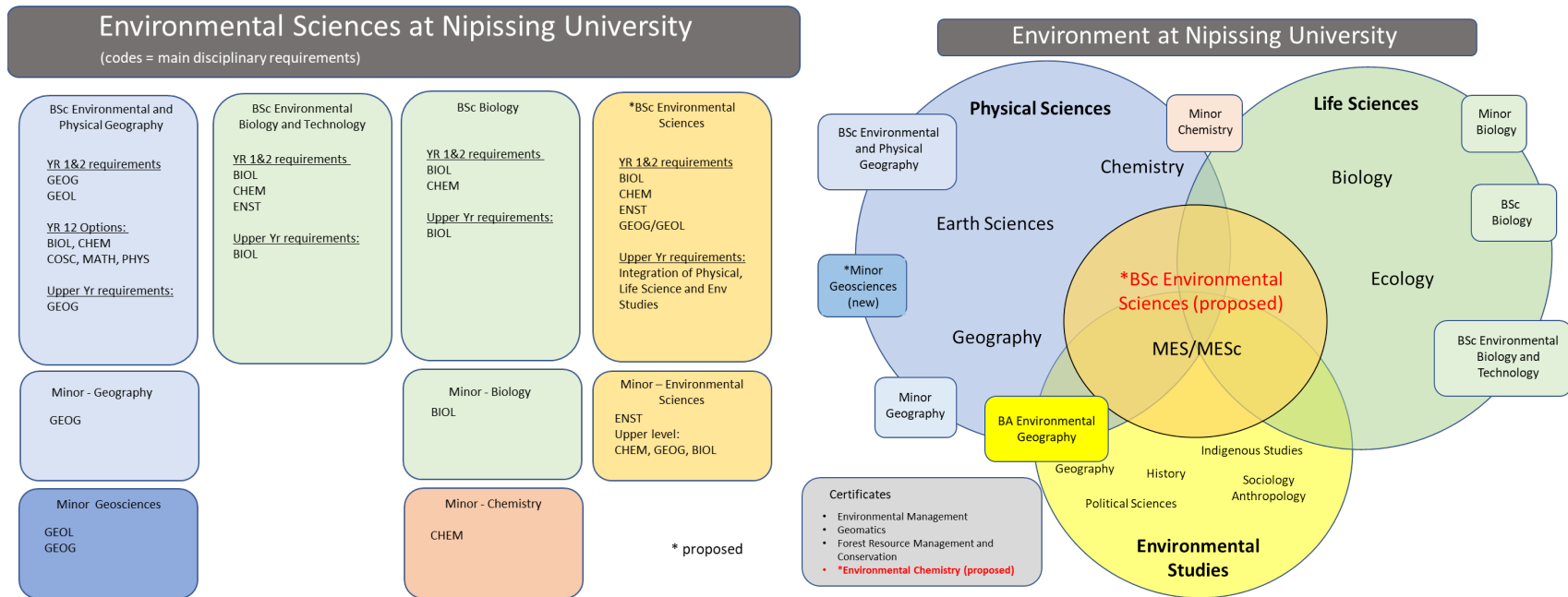


Figure 1. Existing majors and minors defining Environmental programs at Nipissing University (left) and conceptualization of the proposed BSc Environmental Science (right) in relation to existing environmental-science related programs. Asterisks indicate new or proposed programs.

1.2 Appropriateness of Degree Nomenclature

The degree name 'Environmental Science' reflects the focus on the biological, chemical, physical, earth sciences principles and processes, mathematics and data sciences as they apply to environmental problems, their solutions and preservation and management of natural resources³. It distinguishes itself from 'Environmental Studies', which, while related, explores the environment from humanities and social sciences perspectives and is the focus of a separate program proposal in development. As noted above, the interdisciplinary Environmental Science program will support qualification to satisfy academic or professional interest in Environmental Chemistry, a broad and interdisciplinary field that focuses on applying chemistry to the study of the environment.

The Environmental Science program is proposed as a distinct science program to complement existing NU science programs which are disciplinary-focused (Figure 1). The BSc in Biology allows students to specialize in ecological and environmental forms of Biology or health-related Biology. The BSc in Biology and Environmental Technology specializes in providing students with the knowledge and skills required to study Environmental Biology, and combines three years of study at Nipissing University with the one year practical and technical skills taught at Canadore College. The Bachelor of Science in Environmental and Physical Geography focuses on geography as an earth science with geography-specific courses to study environmental characteristics like water, landforms, vegetation and climate and the relationships between people and the environment. The most recent IQAP review of Environmental and Physical Geography showed a strong positive review with no recommendations on structural change to this degree program and consistently recruits majors. The BSc Environmental Science lies at the interface of these programs, distinct in its foundational requirements, and while allowing student flexibility in upper years, requires a much broader cross-disciplinary training than any of the existing programs (Figure 1). The addition of the BSc Environmental Science will attract a new student audience while supporting established programs by using existing faculty and repackaging of courses (almost 100% overlap).

1.3 Consistency of the Program with the Institution's Mission and Academic Plans

Over the last 15 years, Nipissing University has invested heavily in the areas of Environment, building excellence in both teaching and research. In addition to supporting discipline-based science programs, current programming includes a minor in Environmental Science and the Masters of Environmental Studies/Masters of Environmental Science joint program, approved in 2011, and resulting from a decade of ongoing interdisciplinary dialogue within the Departments of Geography, Biology and Chemistry, and History (Figure 1). The investment in these interdisciplinary programs are showcased in the 2019-2024 Research Plan highlighting the importance of equipping students with skills by which to consider environmental challenges through consideration of multiple perspectives. Since their inception, the MES/MESc graduate programs have generated over 50 theses and/or Master Research Projects (listing available on the graduate program website).

³Gregory. 2009. *Environmental Sciences in Environmental Sciences: A Student's Companion*. SAGE Publications, Ltd, p. 25-31. Online ISBN: 9781446216187. Gregory (2009) provides discussion of the definitions of Environmental Sciences. Here, we cite the definition of Matthews, 2001: "...The recently emerging, interdisciplinary field of scientific study examining the complex interactions of human beings with the natural environment in which they live...Because modern environmental problems cannot be satisfactorily remedied by the application of any one disciplines, environmental science is based on a number of scientific disciplines (including chemistry, biology, physics, geography, geology, hydrology, ecology, meteorology, and oceanography) and social science disciplines such as economics and social policy..."

Focus on the Environment has included attraction of two Tier II Canada Research Chairs in Watershed Hydrology (2010-2020) and Environment History (2014-2019), and A Forest Bioproducts Research Chair supported by the private sector (Tembec). In winter 2021, we selected a nominee for a third Tier II CRC in Climate and Environmental Change, with particular expertise in disturbance (e.g. climate, land-use, fire) in Boreal and Subboreal watersheds, water quality and reactive transport. Dr. Colin McCarter, the new CRC in Climate and Environmental Change, has joined the Departments of Geography and Biology and Chemistry (cross-appointment), starting in July 2022. Environment-related faculty have attracted federal (FedNor) and provincial (NOHFC) government funding partnerships, tri-council grants related to the environment (SSHRC, NSERC), addition/clustering of new faculty with environment-related interests, and expansion of laboratory facilities dedicated to the study of the environment. Overall, environmental-sciences faculty (contributing faculty listed in Table 7, with CVs provided in Appendix 5) have attracted ~\$5.2 million dollars in external grant funding since 2009-10⁴(note, totals excluding the new CRC).

The 2019-2024 Strategic Plan includes a commitment to providing students with a personalized learning experience and undergraduate research. The proposed Environmental Science program will provide undergraduate students with an interdisciplinary program bridging the existing (revised) Minor and preparing them for potential pathway for environment-focused professions. Environmental-science related jobs are expansive across sectors, regions and occupations across Canada and internationally (see Appendix 3 for an extensive listing, Section 8.2). The most recent labour demand report from Eco Canada (September 2020) estimates 1 in every 30 people employed in Canada are environmental workers, with “...nearly half requiring environmental-specific knowledge, skills or experience..”⁵. Regionally, training will prepare students to work with community partners such as provincial ministries (e.g. Ontario’s Ministry of Environment, Conservation and Parks and Ministry of Natural Resources, Forestry and Mining), Conservation Authorities (e.g. North Bay-Mattawa Conservation Authority, Conservation Sudbury), municipalities (e.g. North Bay Police), regional First Nation communities (Dokis First Nation, Nipissing First Nation, regionally-based environmental consultants and businesses (e.g. Near North labs) and others. Training will also be consistent with a pathway to graduate studies, including Nipissing’s MES/MESc program.

One of the NU’s goals involves strategic growth in enrollment. The Honours Specialization, Specialization, Major and Minor in Environmental Science have high potential of attracting a new cohort of students to Nipissing University focused on the environment. Development of environmental science carries a very high potential of attracting international students.† During the 2020-2025 SMA, Nipissing is investing significantly in both international recruitment and creation of international opportunities for domestic students. The new Postbaccalaureate Diploma in Environment and Sustainability began enrollment of international students in January 2023. Recent agreements with international universities with strong environmental science-related programing (e.g. Tec University in Coast Rica - TEC Tecnológico de Costa Rica, and University of Tocantins (Brazil) will support training of international students in the environmental science and will support internships and semesters abroad for Nipissing students.

Projected new total enrollments building from 40 to 70 students/yr over 5 years, would generate ~ \$244K/yr to \$1.23 million/year in revenue, and offset existing science programing costs in Biology, Chemistry and Geography by attracting a new, complimentary STEM-based audience at Nipissing University. . Development of an Environmental Science program could also further strengthen future

development in areas of Environmental Engineering and Sustainable Planning.

⁴ Information received from the Research office, 10 September, 2021.⁵ Eco Canada is a Not-for-profit organization established in 1992, that develops certification and training in support of Canada's environmental sector. Their most recent reporting on the environment labour market includes: *From Recession to Recovery: Environmental Jobs and Hiring Trends in the Decade Ahead*, September 2020, 36p.

[†]Recent (2018/19 to 2019/20) increases at Lakehead and Algoma in environment-related programming were 31 and 58 students, respectively, with 12% and 77% of changes attributed to international students.

1.4 Consultation

In December 2020, the ad hoc Environmental Science Program committee was formed with representatives from Geography, Biology and Chemistry, Mathematics and Computer Science to oversee the conceptual development and drafting of the Stage 1 LOI and subsequently the Stage 2 proposal. This team includes two Departmental Chairs (Geography and Biology and Chemistry), the MES/MESc graduate program coordinator, and five additional faculty directly involved in writing past submissions of LOIs and/or Stage 2 application for majors in both Environmental Science and in Environmental Chemistry. This proposal unites many common interests across contributing disciplines, including addressing low enrollments in upper level science courses in Chemistry and Physical Geography by building a broad program that allows students new opportunities for study of the environment. The new program will stand as a broad offering distinct from existing science programs in Biology and Geography and supports a new certificate in Environmental Chemistry (Figure 1). The program design was drafted during Spring/Summer 2021 with informal reviews/feedback from the Dean of Arts & Science Office. Consultation with the Institutional Planning Office, International Office, and Library Services have provided information supporting estimates of enrollments and program costs. Consultation with Graduate Studies and Research has provided summaries of external grant funding awarded to environmental-science faculty. Contributing science faculty have provided listing of recent and active community partners that have supported student training through experiential learning opportunities (e.g. internships, undergraduate research). Consultation with Indigenous Studies faculty has provided early ideas on integration of Indigenous worldviews and traditional ecological knowledge in two proposed new courses (field studies and 4th yr capstone course).

2.0 Admissions and Enrollment

1.1 Admission Requirement

Students must present The Ontario Secondary School Diploma (OSSD), with 6U/M courses in English, Mathematics (Calculus & Vectors or Advanced Functions), Chemistry, and one of Biology, Physics or Earth and Space Sciences. There are no prerequisites for introductory-level Biology, Geography and Environmental Science courses. The above requirements are appropriate as the core program requirements span biology, geography and chemistry. Students transferring from another university may apply for transfer credits. As well, pathways for students with college diplomas wishing to join the Environmental Science program will be made available (consultation with the registrars' office has been conducted). This may facilitate attracting mature students from northern colleges such as Canadore, Cambrian as well as colleges with strong Environmental technician programs (e.g. Fleming). The credits transferred will be assessed on an individual basis.

1.2 Enrollment Planning

- a) Table 1 provides the anticipated enrolment from the initial year through year 4 (maturity) as included in the business model prepared in consultation with the Planning office (Table 8b).

Table 1. Anticipated enrollment in the BSc Environmental Science (domestic + international)

	Cohort Yr 1	Cohort Yr 2	Cohort Yr 3	Cohort Yr 4 / Maturity	Cohort Yr 5	Total Enrolment	Yr. of Program Maturity
Yr 0: 2025-2026						0	
Yr 1: 2026-2027	40					40	4
Yr 2: 2027-2028	36	40				76	4
Yr 3: 2028-2029	35	36	50			121	4
Yr 4: 2029-2030	34	35	45	60		174	4
Yr 5: 2030-2031		34	44	54	70	202	4

- b) How proposed program plans supporting the anticipated class sizes shown in the Table above:
During the first several years of the program, the anticipated class sizes, in most cases, can be accommodated in the existing lecture-based courses. Some adjustment for courses with labs might be expected and could be done by addition of an extra lab section.
- c) How the enrolment fit within the University's total enrolment forecasts set out in the University's (Strategic Mandate Agreement)? Nipissing University's projected undergraduate enrollments (FTE) as drafted for the University's SMA4 Institution Profile (2025-2030) are provided in Table 2. In terms of institutional strength, Nipissing is proportionately the most nursing and education-intensive university in Ontario. Nipissing's student body is increasingly diverse with a significant proportion of Indigenous students, contributing to the strong Indigenous profile of the University. Although Nipissing has traditionally had one of the smallest international student cohorts in Ontario, it has recently embarked on a systematic internationalization process that will see the University meet its goal of responsible growth, aiming to reach the provincial average for international student enrolment (approximately 950 FTE) by 2029/30. This target is aligned with our plan for domestic growth of 6% year-over-year (5,750 FTE by 2029/30) which includes 1,000 FTE of enrollment in STEM related programming. The proposed Environmental Science program is strongly aligned with increasing STEM students. Recent agreements with international universities with strong environmental science-related programing (e.g. Tec University in Coast Rica - TEC Tecnológico de Costa Rica, and University of Tocantins (Brazil)) will support new student enrollments as well as international exchanges and internships.

Table 2. Projected Undergraduate Fiscal Full-Time Equivalents (FTE) (domestic)

	2025-26	2026-27	2027-28	2028-29	2029-30
Undergraduate FTE	3,805	3,960	4,115	4,280	4,450

3.0 Program Structure & Curriculum

Program structure has been designed with close examination of comparators across Ontario Universities and with assessment of Nipissing's existing strengths and unique connections to the region and community partners. Environmental Science programming across Ontario Universities have foundational requirements across the sciences at first and second year levels which supports interdisciplinary training distinct from existing disciplinary science programs. This is reflected in the proposed design of a total of 21 credits of science at the introductory level.

3.1 Program Requirements

For an **Honours Specialization** in Environmental Science, students must achieve a minimum of 70% overall average in 60 credits from core courses (see astericks* in Tables below), including at least six credits at the 4000-level, and an overall average of 60%. Students must complete a total of 120 credits as per listing below. The 12 courses from Groups A, B, and/or C must include a minimum of 1 from each Group, with a minimum of 6 credits at the 4000 level. Students in the program are required to take a minimum of 2 courses (6 credits) from the specified experiential learning opportunities (indicated by ** in approved Environmental Science Course List).

YR 1	BIOL 1007 - Introduction to Organismal and Evolutionary Biology	3 cr.
	CHEM 1006 - General Chemistry I	3 cr.
	CHEM 1007 – General Chemistry II	3 cr.
	*GEOG 1017 - Introduction to Physical Geography	3 cr.
	*ENSC 1006 - Introduction to Environmental Science	3 cr.
	<i>One of:</i>	3 cr.
	GEOL 1006 - The Earth's Interior	3 cr.
	GEOL 1007 - Surficial Geology	
	PHYS 1006 - General Physics 1: Mechanics	
	BIOL 1006 - Introduction to Molecular and Cell Biology	
	<i>One of:</i>	3 cr.
	MATH 1257 - Technical Statistics	
	MATH 1036 - Calculus 1	
	COSC 1557 - Introduction to Computer Science	
	COSC 1567 - Programming in C++	
	ACAD 1601	3 cr.
	1 Humanities	3 cr.
	1 Elective	3 cr.

YR 2	<u>Foundation of 'Spheres' (4):</u> *BIOL 2446 - Principles of Ecology *GEOG 2107 - Weather and Climate *One of: BIOL 2836 - Invertebrate Zoology BIOL 2837 - Vertebrate Zoology BIOL 2336 - Biology of Seedless Plants BIOL 2337 - Biology of Seed Plants *One of: GEOG 2126 - Physical Hydrology BIOL/GEOG 3397 - Intro Soil Science GEOG 2106 - Landscape and Surface Processes <u>Techniques (2)</u> *GEOG 2017 - GIS and the Earth from Space One of: BIOL 3117 Biostatistics GEOG 2026 Introduction to Quantitative Methods <u>Chemistry (2)</u> *CHEM 2106 - Analytical Chemistry - Introduction *One of: GEOG XXXX – Chemistry of Natural Waters CHEM 2046 - Environmental Analytical Chemistry CHEM 2056 - Introduction to Physical Chemistry CHEMC 2306 - Introduction to Organic Chemistry I *GEOG 2226 - Environment and Society 1 Elective	3 cr. 3 cr. 3 cr. 3 cr. 3 cr. 3 cr. 3 cr. 3 cr. 3 cr. 3 cr.
Yr 3	*ENSC 3XXX - Environmental Field Studies (NEW) *4 from Groups A (Physical Sciences), B (Life Sciences) and/or C (Applied/Techniques). Minimum of 1 from each group. 5 Electives	3 cr. 12 cr. 15 cr.
Yr 4	*ENSC 4XXX - Environmental Seminar (NEW) *4 from Groups A, B, and/or C with a minimum of 2 upper-level experiential learning courses (indicated by **). 5 Electives	3 cr. 12 cr. 15 cr.

For the **Specialization** in Environmental Science, students must achieve a minimum of 60% overall average in 54 credits from core courses (see astericks* in above Table) and an overall average of 60%. Students must complete a total of 120 credits. The course listing is identical to the above table with the exception of reducing core course requirements from 4 to 3 for Yrs 3 and 4 and increase electives from 5 to 6. The 6 courses from Groups A, B, and/or C must include a minimum of 1 from each Group. Students in the program are required to take a minimum of 1 from identified experiential learning (indicated by ** in approved Environmental Science Course List).

For the **Major** in Environmental Science, students must achieve a minimum of 60% overall average in 36 credits from core (asterisk in Table below) and an overall average of 60%. Students must complete a total of 90 credits as per listing below. The 6 courses from Groups A, B, and/or C must

include a minimum of 1 from each Group. Students pursuing an honours double major will include ENST 4XXX - Environmental Seminar in addition to the 36 credits from core listed above. The number of electives in upper years will be determined by a student's intended degree (e.g. 3 or 4 yrs, double or single major).

<u>YR 1</u>	BIOL 1007 - Introduction to Organismal and Evolutionary Biology CHEM 1006 - General Chemistry I CHEM 1007 – General Chemistry II *GEOG 1017 - Introduction to Physical Geography *ENSC 1006 - Introduction to Environmental Science <i>One of:</i> GEOL 1006 - The Earth's Interior GEOL 1007 - Surficial Geology PHYS 1006 - General Physics 1: Mechanics BIOL 1006 - Introduction to Molecular and Cell Biology <i>One of:</i> MATH 1257 - Technical Statistics MATH 1036 - Calculus 1 COSC 1557 - Introduction to Computer Science COSC 1567 - Programming in C++ ACAD 1601 1 Humanities 1 Elective	3 cr. 3 cr. 3 cr. 3 cr. 3 cr. 3 cr. 3 cr. 3 cr. 3 cr. 3 cr.
<u>YR 2</u>	*BIOL 2446 - Principles of Ecology *GEOG 2107 - Weather and Climate *GEOG 2017 - GIS and the Earth from Space *CHEM 2106 - Analytical Chemistry - Introduction *GEOG 2226 - Environment and Society <i>One of:</i> BIOL 3117 - Biostatistics GEOG 2026 - Introduction to Quantitative Methods 4 Electives	3 cr. 3 cr. 3 cr. 3 cr. 3 cr. 3 cr. 12 cr.
<u>Upper yrs</u>	*ENSC 3XXX - Environmental Field Studies (NEW) *4 from Groups A (Physical Sciences), B (Life Sciences) and/or C (Applied/Techniques). Minimum of 1 from each group. Number of electives determined by student's intended degree (e.g. 3 or 4 yr, double or single major)	3 cr. 12 cr. cr.

For the **Minor** in Environmental Science, students pursuing a program of study in a different discipline need to achieve a minimum 60% average in the 18 credits as per listing below. The four courses from Groups A, B, and/or C must include a minimum of 1 from each Group.

<u>YR 1</u>	ENSC 1006 (3 cr) One of (3 cr): BIOL 1007 Organismal/Evol CHEM 1006 – Gen Chem 1 GEOG 1017 Intro Phys Geog 4 from Groups A (Physical Sciences), B (Life Sciences) and/or C (Applied/Techniques). Minimum of 1 from each group.	3 cr. 3 cr. 12 cr.

For the **Certificate in Environmental Chemistry**, students must complete the following 15 credits:

Course	Title	Instructor	Cr.
CHEM 2106	An Introduction to Analytical Chemistry	Kariuki	3 cr.
CHEM 2306	Introduction to Organic Chemistry I	Jha	3 cr.
CHEM 2046	Environmental Analytical Chemistry	Kariuki	3 cr.
Plus six credits from the following list			
CHEM 2307	Introduction to Organic Chemistry II	Jha	3 cr.
CHEM 3017	Instrumental Analysis	Kariuki	3 cr.
CHEM 3026	Organic Structure Determination	Jha	3 cr.
BIOL/CHEM 4347	Chemistry in Life Sciences	Jha	3 cr.
CHEM 4206	Electroanalytical Chemistry	Kariuki	3 cr.
GEOG 4326	Environmental Hydrology	James	3 cr.
GEOG XXXX	Chemistry of Natural Waters (NEW)	McCarter	3 cr.

University Degree Requirements beyond the program requirements.

The program structure accommodates the breadth requirements listed below. The multi- and interdisciplinary nature of the Environmental Sciences program, incorporating courses from across the sciences also addresses the rule requiring ‘an additional minimum of 12 credits in a science discipline in an area other than that of the area of study’.

Breadth Requirements:	2 courses or 6 cr.
ACAD 1601	3 cr.
Humanities (Group I)	3 cr.

Additional requirements applicable to the program – Experiential Learning Courses.

- ENSC 4995(New) - Thesis will be restricted to students in the fourth year of an Honours program with a minimum 70% overall average and approval of the discipline is required prior to registration. Students wishing to take this course during the following Spring/Summer or Fall/Winter Session must apply in writing to the discipline no later than February 15.
- ENSC 4986 (New) - Directed Study will be restricted to students in the fourth year of an Honours program with a minimum 70% overall average and approval of the discipline is required prior to registration. Students wishing to take this course during the following Spring/Summer or Fall/Winter Session must apply in writing to the discipline no later than February 15.
- ENSC 4506 Professional Internship in Environmental Science (New) will be restricted to students in the third or fourth year of an Honours program with a minimum 70% overall average in the program. Approval of internship placement organizations are required prior to registration. Students wishing to take this course during the following Spring/Summer or Fall/Winter Session must apply in writing to the Department Chair no later than February 15.
- Three field camps are offered (GEOG 4976 - Physical Geography Field Camp; BIOL 4976 -Biology Field Camp; BIOL 4997 - Freshwater Biology Field Camp), in addition to application- based special topics courses.

New and Repurposed courses required for this program.

The program proposes development of six new courses (including the repurposing of one existing course). A new 3rd year Environmental Field Sciences course (ENST 3XXX) is proposed to integrate field methods, including Indigenous-based methods, in collaboration with Indigenous Studies and existing community partners such as Nipissing First Nation and Dokis First Nation. The former GEOG 3016 - Field Techniques in Geography will be redesigned and renamed for this purpose. A 4th year capstone seminar course (ENSC 4XXX – Environmental Seminar) will be designed, also in consultation with the above groups. A new Biogeochemistry course (GEOG/BIOL/CHEM 4516– Biogeochemistry of the Anthropocene) is proposed, in line with the addition of the expertise of Dr Colin McCarter, the new Tier II Canada Research Chair in Climate and Environmental Change (started 1 July 2022). New Thesis (ENSC 4995), Independent Studies (ENSC 4986), and Professional Internship (ENSC 4506) courses will be developed to support the new program, guided by existing and parallel versions in individual disciplines.

List of Approved Environmental Science Courses

[†] = also listed as a choice under additional requirements.

** = upper-level experiential learning courses (Internship, thesis, directed study, field camp, application-based courses).

Group A: Physical Environmental Sciences

GEOG 2126 Physical Hydrology[†]

GEOG 2106 Landscape and Surface Processes[†]

BIOL/GEOG 3397 Intro Soil Science[†]

GEOG 3436 Earth Resources

GEOG 4116 Pleistocene & Glacial Geomorphology

GEOG 3057 Environmental Geomorphology

GEOG 3126 Applied Hydrology Snow and Ice

GEOG 4437 Hazards Geography

GEOG 4247 Environment Modeling

GEOG 4326 Environmental Hydrology

GEOG 4976 Physical Geography Field Camp**

GEOG /BIOL/CHEM 4516L –

Biogeochemistry of the Anthropocene

CHEM 2207/BIOL 2207 Intro to Biochemistry

CHEM 2046 Environmental Analytical Chemistry[†]

CHEM 2056 Physical Chemistry[†]

CHEM 2306 Intro to Organic Chemistry I[†]

CHEM 2307 Intro to Organic Chemistry II

CHEM 2407 Inorganic Chemistry I

CHEM 3017 Instrumental Analysis

CHEM 4206 Electroanalytical Chemistry

Group B: Life Sciences

BIOL 2836 - Invertebrate Zoology[†]

BIOL 2837 - Vertebrate Zoology[†]

BIOL 2336 - Biology of Seedless Plants[†]

BIOL 2337 - Biology of Seed Plants[†]

BIOL 2447 Ecology of Ontario Trees and Forests

BIOL 3066 Flora of Northern Ontario

BIOL 3236 Plant Ecology

GEOG 3086 Principles of Biogeography

BIOL 3277 Animal Ecology

BIOL 3136 Ichthyology

BIOL 3147 Herpetology

BIOL 3596 Ornithology

BIOL 3696 Field Ornithology

BIOL 4107 Limnology

BIOL 4357 Chemical Ecology

BIOL 4437 Landscape Ecology

BIOL 4607 Environmental Biology Seminars

BIOL 4976 Biology Field Camp **

BIOL 4997 Freshwater Biology Field Camp **

Group C: Techniques, Applied Environmental Sciences and Experiential Learning

ENSC 2006 Global/ International Topics Env Sci

ENSC 2007 Canadian Topics Env Sci

BIOL 2346 Techniques Forest Ecol & Management

GEOG 3066 Remote Sensing of the Environment

BIOL/CHEM 4347 Chemistry in Life Sciences

CHEM 3026 Organic Structure Determination

BIOL 3436 Conservation Biology

BIOL 3447 Silviculture

BIOL 3717 Animal Behaviour

BIOL 4506 Special Topics in Applied Ecology**

GEOG 4057 Topics in GIS Applications**

GEOG 4066 Topics Remote Sensing App**

GEOG 4016 Terrain Analysis

GEOG 4027 Spatial Computing**

ENSC 4506 Professional Internship in Geography**

ENSC 4986 Directed Study**

ENSC 4995 Thesis **

BIOL 4706 Literature Research and Seminar **

3.2 Program Content

a) Evidence of a program structure that will ensure the intellectual quality of the student experience.

The BSc Environmental Science program is structured to include:

- A set of core requirements that allow students to build fundamental scientific knowledge in biology, environmental science, data science, chemistry, geography, physics and earth sciences, and mathematics.
- A sequence of interdisciplinary courses that prepare students to appreciate the inherently complex and interdisciplinary nature of environmental issues. This includes courses at the introductory level (e.g. ENSC 1006 – Introduction to Environmental Sciences), the second year (GEOG 2226 - Environment and Society), the third year (ENSC XXXX - Field Studies in the Environment) and a capstone seminar-based course (ENSC 4900 - Honours Seminar) .
- Dedicated experiential learning courses including field camps, internship opportunities, directed study and a thesis option, will allow students a range of experiences in projects, applications and research in environmental sciences.
- Electives that allow students freedom to build unique and complimentary elements based on their interests. These can include complimentary Environmental Studies courses but also recognizes that we cannot fully anticipate the linkages needed to support students in the workplaces of the future.

b) Identify ways in which the curriculum addresses the current state of the discipline or area of study.

In design, this program recognizes definition of Environmental Sciences as both the “..interdisciplinary field of scientific study examining the complex interactions of human beings with the natural environment in which they live...” and “...the sciences concerned with investigating the state and condition of the Earth...” (Gregory, 2009). Additional discussion provided here highlights the current state of interdisciplinary teaching and research. Our use of “interdisciplinarity” is tied to the idea of creating teaching opportunities and research programs that rely on the integration of ideas, methods, philosophies, and dissemination strategies between multiple “traditional” disciplines. Scholars working on global environmental change research are increasingly seeing the value of collaborating on projects involving integrative methodologies in the geophysical and biophysical sciences, social sciences, and humanities to solve environmental problems such as climate change, deforestation, soil erosion, water pollution, and loss of biodiversity.⁶

⁶ For examples, see: Pastore et al., “Tapping Environmental History to Recreate America’s Colonial Hydrology,” *Environmental Science and Technology* 44, no. 23 (2010): 8798–8803; Kelly, Morgan, Cormac Ó Gráda, Sam White, Ulf Büntgen, Lena Hellmann, and Jan de Vries. “The Little Ice Age: Climate and History Reconsidered.” *Journal of Interdisciplinary History* 44 (2014): 301–77; Carey, Mark, Olivia C Molden, Mattias Borg Rasmussen, M Jackson, Anne W Nolin, and Bryan G Mark. “Impacts of Glacier Recession and Declining Meltwater on Mountain Societies.” *Annals of the American Association of Geographers* 107, no. 2 (2017): 350–59.

⁶ Livingstone, David. *The Geographical Tradition: Episodes in the History of a Contested Enterprise*. Oxford; Cambridge, MA: Wiley-Blackwell, 1992. Withers, Charles W J. “Geography’s Narratives and Intellectual History.” In *The SAGE Handbook of Geographical Knowledge*, edited by John Agnew and David Livingstone, 39–50. London: SAGE, 2011

Prior to the term’s first official appearance in print in 1972, interdisciplinary approaches were being defined in higher-education texts in increasing numbers in the late 1960s and early 1970s.⁷

This was a time when, according to Asa Knowles, “existing patterns of higher education were being criticized by university teachers and students alike,” demanding radical changes to research practice and, more commonly, teaching methods. This was also when the fields of environmental studies and environmental sciences emerged as scholarly fields of inquiry within the context of the environmental movement.

When first conceived, “environmental studies” (ENST) grew out of “environmental sciences” (ENSc) as an interdisciplinary field of study which attempted to measure and evaluate the impact of humans on the structure and function of social and ecological systems, and which focused upon the management of these systems for their benefit and survival (Barrett and Puchy 1975)⁸. Today, the two environmental fields are often located in separate faculties divided by the Social Sciences and Humanities, and the Geophysical Sciences (Cooke and Vermaire 2015)⁹. This traditional boundary has also been reinforced by government funding opportunities, both in terms of university administration and granting agencies (e.g., in Canada the Social Sciences and Humanities Research Council versus the Natural Sciences and Engineering Research Council). At Nipissing, the Arts and Sciences are placed together in a single faculty, and faculty are clustered, but not exclusively located, according to the department they teach in. This facilitates communication among faculty teaching in different disciplinary areas.

Some of the keys to establishing successful interdisciplinary programming at Linköping University in Sweden and at the University of British Columbia were outlined by Oberg (2011)¹⁰ as follows: maintain an open and respectful climate, remove hierarchies that impair, acquire deep understanding of the research process, strengthen metacompetence, emphasize a dialogue and feedback approach. Ten of the 12 the faculty listed in support of this proposal (Table 7) are also associated with the Masters of Environmental Studies/Masters of Environmental Sciences graduate program, established in 2012 and have been actively involved in attempting to promote all of these aspects of research and teaching in our programs. While the Environmental Science program described here highlights strategies across “traditional” science disciplines, the program design integrates broader reach beyond the sciences and its world views in required courses in the second (GEOG 2226 Environment and Society), third (ENSC XXX – Field Studies) and 4th year capstone seminar course.

⁷ Asa S Knowles, “Interdisciplinarity,” *The International Encyclopedia of Higher Education* (ERIC, 1977), 2208. Other discussions on the history of the term include: Julie Thompson Klein, *Interdisciplinarity: History, Theory, and Practice* (Detroit: Wayne State University Press, 1990); Allen F Repko, *Defining Interdisciplinary Studies*, *Interdisciplinary Research: Process and Theory* (Thousand Oaks, CA: Sage Publications Inc., 2008)

⁸ Gary W. Barrett & Claire A. Puchy, “Interdisciplinarity: Process and Theory” (Thousand Oaks: Sage, 2012). *Environmental science: A new direction in environmental studies*, *Journal International Journal of Environmental Studies* 10, 2 (1977): 157-160

⁹ Steven J. Cooke & Jesse C. Vermaire, “Environmental studies and environmental science today: inevitable mission creep and integration in action-oriented transdisciplinary areas of inquiry, training and practice,” *Environmental Studies and Science* (2015) 5:70–78

¹⁰ Oberg, G. 2011. *Interdisciplinary Environmental Studies: a Primer*. Wiley-Blackwell. West Sussex, UK

c) Identification of any unique or program innovations or creative components.

The BSc. Environmental Science offers unique elements of interdisciplinary training across the environmental sciences and regional-specific experiential learning opportunities that are

supported by faculty and existing undergraduate programs. These include community engagement with regional First Nation Communities (e.g. Dokis and Nipissing First Nations), site visits with scientists/researchers at government-based organizations with which faculty have active research collaborations (e.g. North Bay-Mattawa and Sudbury District Conservation Authorities, Ministry of Environment, Conservation and Parks, Dorset Environmental Science Centre, Agriculture and Agri-Food Canada, Ministry of Natural Resources and Forestry, Living With Lakes Research Centre, Laurentian University, Ministry of Transportation) as well as guest speakers from a wide range of organizations (e.g. Ontario Power Generation) and University faculty from around the world (e.g. Michigan Technological University, Inner Mongolia Agricultural University, Hohhot China; University of North Karelia Joensuu, Finland). These opportunities are often integrated into existing undergraduate courses and the broad collaborative network supports a range of experiential learning opportunities such as practica, internships, international exchanges, study abroad programs, community outreach and involvement, and partnerships.

4.0 Experiential Learning Opportunities

Nipissing University's Academic plan emphasizes the student experience in the natural environment with outstanding spaces in which to live and learn, dedication to supporting scholarship and research, community engagement with strong connections between our campuses and community interests and our role as global citizens.¹¹

The dedicated experiential learning courses (Table 3) in the BSc Environmental Science integrate these strategic priorities giving students hands-on learning opportunities and meeting principles defining experiential learning and/or work-integrated learning¹². Courses include the required Environmental Field Studies (ENSC 3XXX) and upper-level options for thesis, directed study, internship and field camps (Table 3). New Thesis, Directed Study and Professional Internship courses are proposed to support this program. Field camps are offered on campus and students may also substitute field camps from other institutions. Additional undergraduate courses offered across the environmental sciences from Groups A, B and C may also include experiential learning activities.

¹¹ Nipissing University Annual Academic Action Plan, 2019-2022. 5.6.2019 AV-M.

¹² MAESD's (Ministry of Advanced Education and Skills Development) Guiding Principles for Experiential Learning; Work integrated learning has been defined by the Business/Higher Education Roundtable of Canada (BHER).

Requirements for supervision of thesis and research opportunities are well established for parallel existing courses (GEOG/BIOL/CHEM) and require students to be supervised or co-supervised by a full-time faculty member. Approval of internship placement organizations will be required prior to registration with students applying in writing to the Department Chair no later than February 15 for the following Spring/Summer or Fall/Winter session. Anticipated increases in enrollments through this new program will require a support from a dedicated placement coordinator that could be shared across Arts and Science programs, including the MES/MESc graduate program which includes a Masters Research Project option. Table 4 provides examples of past and future internship placements.

Table 3. Description of dedicated Experiential Learning Courses

ENSC 3XXX	Environmental Field Studies	New	This course will introduce students to hand-on field-based approaches research, having students work in groups defining and conducting field-based projects. With the approval of the discipline, the student will individually plan and conduct a field and/or laboratory research project under the supervision of an appropriate faculty member. The student will also be required to present a seminar on the research, and to write the project up in dissertation form. All research projects must be supervised or co-supervised by a full-time faculty member. Student project proposals and final seminars will be reviewed or evaluated by a Program Committee.
ENSC 4995	Thesis	New	Thesis is restricted to students in the fourth year of an Honours program with a minimum 70% overall average and approval of the discipline is required prior to registration. Students wishing to take this course during the following Spring/Summer or Fall/Winter Session must apply in writing to the discipline no later than February 15. 6 cr.
ENSC 4986	Directed Study	New	This course presents an opportunity for students to do special studies in the respective fields. The work is supervised by a faculty member who is qualified in the student's area of interest. Workload normally involves periodic discussions and a major essay. Directed Study is restricted to students in the fourth year of an Honours program with a minimum 70% overall average and approval of the discipline is required prior to registration. Students wishing to take this course during the following Spring/Summer or Fall/Winter Session must apply in writing to the discipline no later than February 15. 3 cr.
ENSC 4886	Professional Internship	New	This course will provide students with the opportunity to gain work experience with government, industry or non-governmental organizations having expertise in a relevant field of environmental science. Students will be supervised by a contributing faculty member to Environmental Science Program and are expected to maintain an activity log, submit a final written report, and give a presentation to the Program at the end of the internship. Internship is restricted to students in the third or fourth year of an Honours program with a minimum 70% overall average in the program. Approval of the internship placement organization is required prior to registration. Students wishing to take this course during the following Spring/Summer or Fall/Winter Session must apply in writing to the Department Chair no later than February 15. 3 cr.
BIOL 4976	Biology Field Camp		This course will consist of a one-week intensive field camp (held immediately prior to the fall session or during the spring or summer session) designed to familiarize students with organisms and environments. Emphasis will be placed on survey and sampling techniques. Materials and data collected in the field will be identified, analysed and used to develop a major report and presentation later in the term. The location and main theme of each camp (e.g. terrestrial or freshwater ecology) may vary with the instructor. Each student will be required to pay the costs of transportation, accommodation and meals associated with the field camp experience. Restricted to students in the third or fourth year of the Honours Biology or Environmental Biology and Technology programs.

GEOG 4976	Geography Field Camp	A specific area will be analysed from a geographic point of view in a one-week field camp. Follow-up readings, oral presentations and report writing are completed over the remainder of the term. This course will be held off campus. Each student is required to pay the costs of transportation, accommodation and meals. This course may be credited towards Science Restricted to students in the fourth year of an Honours program and approval of the discipline is required prior to registration. Prospective students must apply to the discipline by March of the preceding academic year. 3 cr.
BIOL 4997	Freshwater Biology Field Camp	This course offers students a one-week intensive, spring-time study of freshwater systems on the Nipissing University Alcan Environmental Research Preserve. Activities will include water and sediment sampling and analysis, aquatic community analyses, and instruction on study design and sampling methods. Data collected will be used to generate a major written report and public presentation. Each student will be required to pay the costs of transportation, accommodation, and meals associated with the field camp experience. Restricted to students in the third or fourth year of the Honours Biology or Environmental Biology and Technology programs. 3 cr.

Table 4. Past and Potential Placements for Internships

Organization/Company	Website Address	Potential Number of placements per term	Location
NB/Mattawa Conservation Authority	https://www.nbmca.ca/	2-4	North Bay, ON
Conservation Sudbury	https://conservationsudbury.ca/	1	Sudbury, ON
Canadian Ecology Centre	https://www.canadianecology.ca/	2	Samuel de Champagne Park, Mattawa, ON
NB Water Treatment Plant	https://www.northbay.ca/services-payments/water-wastewater/water-wastewater-facilities/wastewater-treatment-plant/	1	North Bay, ON
FRICORP Ecological Services	http://fricorp.com/team	2	North Bay, ON
Hilliardton Marsh Research & Education Centre	https://thehilliardtonmarsh.com/	1	New Liskeard, ON
Ontario Ministry of Natural Resources and Forestry		1	North Bay, ON
Fur Harvesters Auction Inc.	https://www.furharvesters.com/	1	North Bay, ON
Dorset Environmental Science Centre, Ministry of Environment, Conservation and Parks		1	Dorset, ON
Ontario Ministry of Transportation		1	North Bay, ON
Ontario Crops Research Centre	https://www.uoguelph.ca/alliance/research-facilities/research-stations/ontario-crops-research-centre-sites/ontario-crops-research-5	1	New Liskeard, ON
Nipissing Forest Resources Management Inc. (NFRM)	https://www.nipissingforest.com/	1	Callander, ON

5.0 Assessment of Student Learning

Tables 5 and 6 provided below provide description of program goals and learning objectives and curriculum mapping.

a) HONOURS SPECIALIZATION IN ENVIRONMENTAL SCIENCE

The minimum 70% overall average in 60 credits from core courses, including at least six credits at the 4000-level, and an overall average of 60% for the Honours Specialization appears a standard expectation with the requirements of other University's science Honours programs in Environmental Sciences. The expectation for a student to complete 120 credits is also in line with the University's expectation.

The proposed modes of delivery for the Honours Specialization program include lecture format, lab-based instruction in select classes across the sciences and experiential learning delivery which involves several delivery models (thesis, directed study, internship, field camps). The lab-based experiments and internships are particularly helpful in preparing students for the work-place. Students in the Honours program are provided with an option of fulfilling part of their 4th year requirements by doing a 4th year Thesis, particularly meaningful for students who intend to pursue graduate studies.

The standard methods for the assessment of student achievement depend on how each course instructor structures their class and include quizzes, tests, take-home assignments, and writing of lab reports. In some courses, students make group presentations in which comments are provided by the instructors and the rest of the audience. Such comments help students to improve on how they communicate their ideas in a clear and logical manner. Experiential learning opportunities require assessments from placement partners as well as self-assessment through reflective writing by the students themselves. For those students who do a thesis and/or internships, they will be assessed on how well they can make an oral-presentation of their research and/or work-experience.

b) SPECIALIZATION IN ENVIRONMENTAL SCIENCE

An overall average of 60% in 54 cr from core courses and an overall average of 60% for the Specialization in Environmental Science appears a standard expectation with the requirements of other University's science Specialization programs. The expectation for a student to complete 120 credits is also in line with the University's program expectations.

The proposed modes of delivery for the Specialization program include lecture format, lab-based instruction in select classes across the sciences and experiential learning delivery which involves several delivery models (directed study, internship, field camps). The lab-based experiments and internships are particularly helpful in preparing students for the work-place.

The standard methods for the assessment of student achievement depend on how each course instructor structures their class and include quizzes, tests, take-home assignments, and writing of lab reports. In some courses, students make group presentations in which comments are provided by the instructors and the rest of the audience. Such comments help students to improve on how

they communicate their ideas in a clear and logical manner. Experiential learning opportunities require assessments from placement partners as well as self-assessment through reflective writing by the students themselves.

c) MAJOR IN ENVIRONMENTAL SCIENCE

The minimum overall average of 60% in 36 cr from the core and additional requirement courses presented for the Major in Environmental Science is a standard expectation with the requirements of other University's science Major programs, as does the requirement of 90 credits.

The proposed modes of delivery for the Major include lecture format, lab-based instruction in select classes across the sciences and experiential learning delivery which involves several delivery models (directed study, internship, field camps). The lab-based experiments and internships are particularly helpful in preparing students for the work-place.

The standard methods for the assessment of student achievement include quizzes, tests, take-home assignments, and writing lab reports. Experiential learning opportunities require assessments from placement partners as well as self-assessment through reflective writing by the students themselves. The lab-based experiments and internships will help prepare students for the work-place.

The standard methods for the assessment of student achievement depend on how each course instructor structures their class and include quizzes, tests, take-home assignments, and writing of lab reports. In some courses, students make group presentations in which comments are provided by the instructors and the rest of the audience. Such comments help students to improve on how they communicate their ideas in a clear and logical manner. Experiential learning opportunities require assessments from placement partners as well as self-assessment through reflective writing by the students themselves.

d) MINOR IN ENVIRONMENTAL SCIENCE

The proposed modes of delivery for the Minor (18 credits, 60% average) include lecture format, lab-based instruction in select classes across the sciences and experiential learning delivery which involves several delivery models (directed study, internship, field camps). The lab-based experiments and internships are particularly helpful in preparing students for the work-place.

The standard methods for the assessment of student achievement include quizzes, tests, take-home assignments, and writing of lab reports. Experiential learning opportunities require assessments from placement partners as well as self-assessment through reflective writing by the students themselves. The lab-based experiments and internships will help prepare students for the work-place.

The standard methods for the assessment of student achievement depend on how each course instructor structures their class and include quizzes, tests, take-home assignments, and writing of lab reports. In some courses, students make group presentations in which comments are provided by the instructors and the rest of the audience. Such comments help students to improve on how they communicate their ideas in a clear and logical manner. Experiential learning opportunities

require assessments from placement partners as well as self-assessment through reflective writing by the students themselves.
minimum

TABLE 5a: Program Goals & Learning Outcomes Aligned with Environmental Science Honours Specialization Degree Expectations

PROGRAM GOAL (PG)	RELATED UNDERGRADUATE DEGREE LEVEL EXPECTATION (UDLE)*	STUDENT LEARNING OUTCOMES AT COURSE LEVEL	ILLUSTRATIVE EXAMPLES FOR EACH HONOURS SPECIALIZATION PROGRAM GOAL – SHOWING ASSESSMENT METHODS
PG-1. To graduate students who can critically examine environmental processes and recognize their relevance to environmental issues	UDLE 1: Depth and Breadth of Knowledge ULDE 2: Knowledge of methodologies	- Define key terms and concepts relevant to the environment and individual environmental processes (abiotic, biotic). - Demonstrate an understanding of the fundamental characteristics, structure and composition of different elements of the environment (abiotic, biotic) - Demonstrate an understanding of key processes that affect the environment (abiotic, biotic), and their variability (spatial, temporal)	Goal to be assessed through: - Written lab reports - Tests and Quizzes - Class discussions Example 1: In GEOG 2107 Weather and Climate, students are introduced to properties of the atmosphere, their dynamics and their regional expression (e.g. energy and moisture balances along with their associated spatial and temporal variations around the globe). By the end of this course, students are able to analyze meteorological data and identify real-world weather phenomena. Assessment takes the form of lab assignments, quizzes and exams. As examples, labs require students to interpret surface and upper atmosphere weather maps, their symbology, and spatial patterns of meteorological variables, identifying phenomena such as air masses and fronts. Specific labs include developing an understanding of the surface energy and water balance interpreting and calculating daily energy and water fluxes (e.g. net short wave and longwave radiation, latent and sensible heat fluxes), and exploring the importance of atmospheric aerosol transport using NASA's (USA) Global Modeling and Assimilation Office animations. Example 2: BIOL/GEOG/ENSC-3397 Introductory Soil Science. Students examine the soil as an integral part of our physical environment, studying soil profile characteristics in the context of soil-forming factors, pedogenic processes, and soil classification systems. In laboratory sessions students analyze typical soil profiles in the field and methods of physical, chemical, and biological analysis of soil samples in the wet lab. The course uses both traditional testing to ensure students have the fundamental knowledge but a greater focus on their ability to interpret experimental results from 4 distinct disciplines (soil structure, soil physics, soil chemistry, and soil biology). Assessment of their experimental work involves not only communicating and linking their results to the broader themes in soil science (and environmental science), while making clear evidence-based statements akin to what may be expected in an environmental consulting role.
PG-2. To develop graduates who have a thorough understanding of how various forms of environmental change are arising, impacts being felt and how they can be mitigated	UDLE 1: Depth and Breadth of Knowledge ULDE 2: Knowledge of methodologies. UDLE 3: Application of knowledge.	- Evaluate and analyze interactions between elements of the environment - Define key types/aspects of environmental change, both natural and man-made, and their impacts - Apply understanding of mitigation approaches and their relevance to contemporary environmental issues	Goal to be assessed through: - Written lab reports - Tests and Quizzes - Class discussions Example 1: In GEOG 2107 Weather and Climate, students are introduced to our changing atmosphere. Students develop knowledge of natural and anthropogenic-derived changes in the atmosphere from geological to contemporary time scales. This includes regionally relevant examples (e.g. Sulphur emission reductions in the Sudbury) to larger scales (e.g. Ozone Hole and the Montreal Protocol) that include mitigation. Students identify sources of natural climate change (changes in solar output, atmospheric compositions, surface albedo), sources and predictions of anthropogenic climate change due to greenhouse gases, aerosols and landuse change. Assessment takes the form of lab assignments, quizzes and exams. As an example, an

			interactive activity has students researching and presenting on new stories targeting discussion of atmospheric processes. Example 2: BIOL 3436. Conservation Biology. Students explore conservation biology as a crisis-based and mission-oriented science. Key concepts such as biodiversity, habitat destruction, invasive species, and extinction provide a biological basis from which to expand and address global, national, and regional conservation strategies from an interdisciplinary perspectives. Students are evaluated based on participation in a weekly online discussion forum of key developments in conservation science, writing micro-concept papers on innovative conservation approaches, and participating in a virtual poster symposium highlighting an at-risk element of biodiversity in Canada.
PG-3 To train graduates who can use an interdisciplinary scientific approach to the understanding and interpretation of their world	UDLE 1: Depth and Breadth of Knowledge ULDE 2: Knowledge of methodologies. UDLE 3: Application of knowledge. ULDE 4: Communication Skills.	• Locate, interpret and appropriately use environmental observations. • Describe appropriate field and lab techniques used for data collection in the environment • Create and construct basic environmental sampling designs • Analyze different types of environmental data. • Apply understanding of environmental observations/measurements to current environmental problems.	Goal to be assessed through: • Written lab reports • Tests and Quizzes • Class discussions Example 1: ENSC 1005. Students are exposed to a basic background of various sciences - such as Ecology, Biology, Chemistry, and Geography - that are integrated as "Environmental Science" and used to study the environment and to solve environmental problems. Students use this knowledge to: learn about natural and altered ecosystems, consider issues stemming from human population growth & impact, and comprehend a host of problems associated with biodiversity, extinctions and invasive species. Students are evaluated on participation in quizzes/discussions using classroom response systems, as well as by more traditional methods including exams. The lab section of the course emphasizes practical skills for which the students are evaluated based on assignments. Example 2: CHEM-2046. Environmental Chemistry. Student study the theory of environmental chemical analysis including sampling methods, chemical preparation of the sample, and the final analysis. Instrumental methods of analysis are emphasized including spectroscopic methods (visible spectroscopy and atomic absorption) and electrochemical methods (pH and ion specific electrode, conductivity, and dissolved oxygen methods). Student conduct laboratory experiments involving these techniques. Assessment involves quizzes, exams and lab reports. Example 3: GEOG 2226 Environment & Society introduces students to key concepts and themes that help us to understand the relationship between humans and nature from a geographical perspective. It examines this interface through a variety of theoretical lenses (such as economic geography, resource geography, hazards geography, and environmental justice) that form geography's broader human-environment tradition. For example, students might be asked to show, in essay format, how river management challenges and options might differ according to market, collective action and environmental justice perspectives.
PG-4 To graduate students who are prepared to be independent researchers	UDLE 3: Application of knowledge. ULDE 4: Communication Skills. Awareness of limits of knowledge.	• Demonstrate a sufficient ability to carry out research while observing laboratory and field safety protocols • Apply theory and practice in assigned lab or field-based experiments and/or investigations with accuracy,	Goal to be assessed through: • Planning and conducting a research project • Writing reports of findings • Presentation of findings to peers Example 1: BIOL 4995. With the approval of the discipline, a student will individually plan and conduct a field and/or laboratory research project under the supervision of an appropriate faculty member. The student will also be required to present a seminar on the research, and to write the project up in dissertation form. All research projects must be supervised or co-

	ULDE 6: Autonomy and professional capacity.	precision and appropriate design • Apply written and oral communication skills, appropriate for the various projects, necessary for the dissemination of research results	supervised by a full-time faculty member of the Biology Department. Student project proposals and final seminars will be reviewed or evaluated by Departmental Committee. Students are evaluated based on their defence of the thesis at an annual poster symposium (open to the entire community) and on the quality of the dissertation they produce as a result of the work. Students are advised by a supervisor and a committee member through all stages of the project. Example 2: BIOL/GEOG/CHEM-4516- Biogeochemistry of the Anthropocene. Students explore the cycling, transport and fate of nutrients, carbon, and contaminants in surface and groundwater systems. Humans are disrupting nutrient and carbon cycling on ecosystems at various scales. Students focus on the physical and chemical processes in natural waters, as well as how wetlands, landscape disturbances, and climate change impact water quality. This course has a strong focus on integrating multiple environmental processes and cumulative impacts to give students a firm grasp on the interconnected nature of environmental problems. Within the course the students are evaluated by traditional tests, multiple presentations on current environmental issues, and a major research paper on any topic covered by biogeochemistry of their choosing.
PG-5. To develop graduates who have the full potential for pursuing further education, and also those that can pursue various careers with ease	ULDE 4: Communication Skills. ULDE 5: Awareness of limits of knowledge. ULDE 6: Autonomy and professional capacity.	• Clearly explain practical applications of the various projects/experiments • An accurate assessment of research-projects that have relevance to work place • Demonstrate ability to communicate ideas in a clear and logical manner • Apply and display technical skills (e.g. use of spreadsheets, statistical programs and/or computer programing) to analyze data collected from research.	• Planning and conducting a research project • Writing reports of findings • Oral presentations Example 1: BIOL-4886 Internship I. This course provides students with the opportunity to gain work experience with government, industry or non-governmental organizations having expertise in a relevant field of biology. Students are supervised by a faculty member in the Department of Biology and Chemistry and are expected to maintain an activity log, submit a final written report, and give a presentation to the Department at the end of the internship. Students provide weekly logs of their experiences in the workplace, a seminar detailing the experience they gained through the internship, and a final report which highlights the contributions they made to organization they held the internship in. Both university faculty and the community partner consult on the student performance. Example 2: GEOG 3056 Spatial Analysis-GIS. This systematic technique course is a lecture-lab course that covers advanced geographic information systems (GIS) operational techniques including the use of overlay analysis operations, hot spot analysis and numerous data enrichment operational tools. Students learn how to integrate raster based remotely sensed data into vector based GIS for environmental monitoring and assessment purposes. Additionally, students examine how spatially referenced socio-economic and environmental data can be integrated and analyzed for decision support systems. Issues that are examined include: the generation of spatial databases using socio-economic and environmental data; advantages and disadvantages of raster and vector GIS models; and selected algorithms for decision making in a GIS environment.

*Reference to Appendix 1 Ontario Council of Academic Vice-Presidents' Undergraduate and Graduate Degree Level Expectations, Quality Assurance Framework & Guide, Updated October 2019. We note that the description of UDLEs vary slightly between bachelor's degree and honours.

TABLE 5b: Program Goals & Learning Outcomes Aligned with Environmental Science Specialization Degree Expectations

PROGRAM GOAL (PG)	RELATED UNDERGRADUATE DEGREE LEVEL (UDLE)*	STUDENT LEARNING OUTCOMES AT COURSE LEVEL	ILLUSTRATIVE EXAMPLES FOR EACH HONOURS SPECIALIZATION PROGRAM GOAL – SHOWING ASSESSMENT METHODS
PG-1. To graduate students who can critically examine environmental processes and recognize their relevance to environmental issues	UDLE 1: Depth and Breadth of Knowledge ULDE 2: Knowledge of methodologies	- Define key terms and concepts relevant to the environment and individual environmental processes (abiotic, biotic). - Demonstrate an understanding of the fundamental characteristics, structure and composition of different elements of the environment (abiotic, biotic) - Demonstrate an understanding of key processes that affect the environment (abiotic, biotic), and their variability (spatial, temporal)	Goal to be assessed through: - Written lab reports - Tests and Quizzes - Class discussions Example 1: In GEOG 2107 Weather and Climate, students are introduced to properties of the atmosphere, their dynamics and their regional expression (e.g. energy and moisture balances along with their associated spatial and temporal variations around the globe). By the end of this course, students are able to analyze meteorological data and identify real-world weather phenomena. Assessment takes the form of lab assignments, quizzes and exams. As examples, labs require students to interpret surface and upper atmosphere weather maps, their symbology, and spatial patterns of meteorological variables, identifying phenomena such as air masses and fronts. Specific labs include developing an understanding of the surface energy and water balance interpreting and calculating daily energy and water fluxes (e.g. net short wave and longwave radiation, latent and sensible heat fluxes), and exploring the importance of atmospheric aerosol transport using NASA's (USA) Global Modeling and Assimilation Office animations. Example 2: BIOL/GEOG/ENSC-3397 Introductory Soil Science. Students examine the soil as an integral part of our physical environment, studying soil profile characteristics in the context of soil-forming factors, pedogenic processes, and soil classification systems. In laboratory sessions students analyze typical soil profiles in the field and methods of physical, chemical, and biological analysis of soil samples in the wet lab. The course uses both traditional testing to ensure students have the fundamental knowledge but a greater focus on their ability to interpret experimental results from 4 distinct disciplines (soil structure, soil physics, soil chemistry, and soil biology). Assessment of their experimental work involves not only communicating and linking their results to the broader themes in soil science (and environmental science), while making clear evidence-based statements akin to what may be expected in an environmental consulting role.
PG-2. To develop graduates who have a thorough understanding of how various forms of environmental change are arising, impacts being felt and how they can be mitigated	UDLE 1: Depth and Breadth of Knowledge ULDE 2: Knowledge of methodologies. UDLE 3: Application of knowledge.	- Evaluate and analyze interactions between elements of the environment - Define key types/aspects of environmental change, both natural and man-made, and their impacts - Apply understanding of mitigation approaches and their relevance to contemporary environmental issues	Goal to be assessed through: - Written lab reports - Tests and Quizzes - Class discussions Example 1: In GEOG 2107 Weather and Climate, students are introduced to our changing atmosphere. Students develop knowledge of natural and anthropogenic-derived changes in the atmosphere from geological to contemporary time scales. This includes regionally relevant examples (e.g. Sulphur emission reductions in the Sudbury) to larger scales (e.g. Ozone Hole and the Montreal Protocol) that include mitigation. Students identify sources of natural climate change (changes in solar output, atmospheric compositions, surface albedo), sources and predictions of anthropogenic climate change due to greenhouse gases, aerosols and land use change. Assessment takes the form of lab assignments, quizzes and exams. As an example, an interactive activity has students researching and presenting on new stories targeting discussion of atmospheric processes.

			Example 2: BIOL 3436. Conservation Biology. Students explore conservation biology as a crisis-based and mission-oriented science. Key concepts such as biodiversity, habitat destruction, invasive species, and extinction provide a biological basis from which to expand and address global, national, and regional conservation strategies from an interdisciplinary perspectives. Students are evaluated based on participation in a weekly online discussion forum of key developments in conservation science, writing micro-concept papers on innovative conservation approaches, and participating in a virtual poster symposium highlighting an at-risk element of biodiversity in Canada.
PG-3. To train graduates who can use an interdisciplinary scientific approach to the understanding and interpretation of their world	UDLE 1: Depth and Breadth of Knowledge ULDE 2: Knowledge of methodologies. UDLE 3: Application of knowledge. ULDE 4: Communication Skills.	• Locate, interpret and appropriately use environmental observations. • Describe appropriate field and lab techniques used for data collection in the environment • Create and construct basic environmental sampling designs • Analyze different types of environmental data. • Apply understanding of environmental observations/measurements to current environmental problems.	Goal to be assessed through: • Written lab reports • Tests and Quizzes • Class discussions Example 1. ENSC 1005. Students are exposed to a basic background of various sciences - such as Ecology, Biology, Chemistry, and Geography - that are integrated as "Environmental Science" and used to study the environment and to solve environmental problems. Students use this knowledge to: learn about natural and altered ecosystems, consider issues stemming from human population growth & impact, and comprehend a host of problems associated with biodiversity, extinctions and invasive species. Students are evaluated on participation in quizzes/discussions using classroom response systems, as well as by more traditional methods including exams. The lab section of the course emphasizes practical skills for which the students are evaluated based on assignments. Example 2: CHEM-2046. Environmental Chemistry. Student study the theory of environmental chemical analysis including sampling methods, chemical preparation of the sample, and the final analysis. Instrumental methods of analysis are emphasized including spectroscopic methods (visible spectroscopy and atomic absorption) and electrochemical methods (pH and ion specific electrode, conductivity, and dissolved oxygen methods). Student conduct laboratory experiments involving these techniques. Assessment involves quizzes, exams and lab reports. Example 2: GEOG 2226 Environment & Society introduces students to key concepts and themes that help us to understand the relationship between humans and nature from a geographical perspective. It examines this interface through a variety of theoretical lenses (such as economic geography, resource geography, hazards geography, and environmental justice) that form geography's broader human-environment tradition. For example, students might be asked to show, in essay format, how river management challenges and options might differ according to market, collective action and environmental justice perspectives.
PG-4. To graduate students who are prepared to be independent researchers	UDLE 3: Application of knowledge. ULDE 4: Communication Skills. Awareness of limits of knowledge.	• Demonstrate a sufficient ability to carry out research while observing laboratory and field safety protocols • Apply theory and practice in assigned lab or field-based experiments and/or investigations with accuracy,	Goal to be assessed through: • Planning and conducting a research project • Writing reports of findings • Presentation of findings to peers. Example 1: BIOL 4995. With the approval of the discipline, a student will individually plan and conduct a field and/or laboratory research project under the supervision of an appropriate faculty member. The student will also be required to present a seminar on the research, and to write the project up in dissertation form. All research projects must be supervised or co-supervised by a full-time faculty member of the Biology Department. Student project proposals

	ULDE 6: Autonomy and professional capacity.	precision and appropriate design • Apply written and oral communication skills, appropriate for the various projects, necessary for the dissemination of research results	and final seminars will be reviewed or evaluated by Departmental Committee. Students are evaluated based on their defence of the thesis at an annual poster symposium (open to the entire community) and on the quality of the dissertation they produce as a result of the work. Students are advised by a supervisor and a committee member through all stages of the project. Example 2: BIOL/GEOG/CHEM-4516- Biogeochemistry of the Anthropocene. Students explore the cycling, transport and fate of nutrients, carbon, and contaminants in surface and groundwater systems. Humans are disrupting nutrient and carbon cycling on ecosystems at various scales. Students focus on the physical and chemical processes in natural waters, as well as how wetlands, landscape disturbances, and climate change impact water quality. This course has a strong focus on integrating multiple environmental processes and cumulative impacts to give students a firm grasp on the interconnected nature of environmental problems. Within the course the students are evaluated by traditional tests, multiple presentations on current environmental issues, and a major research paper on any topic covered by biogeochemistry of their choosing.
PG-5. To develop graduates who have the full potential for pursuing further education, and also those that can pursue various careers with ease	ULDE 4: Communication Skills. ULDE 5: Awareness of limits of knowledge. ULDE 6: Autonomy and professional capacity.	• Clearly explain practical applications of the various projects/experiments • An accurate assessment of research-projects that have relevance to work place • Demonstrate ability to communicate ideas in a clear and logical manner • Apply and display technical skills (e.g. use of spreadsheets, statistical programs and/or computer programming) to analyze data collected from research.	• Planning and conducting a research project • Writing reports of findings • Oral presentations Example 1: BIOL-4886 Internship I. This course provides students with the opportunity to gain work experience with government, industry or non-governmental organizations having expertise in a relevant field of biology. Students are supervised by a faculty member in the Department of Biology and Chemistry and are expected to maintain an activity log, submit a final written report, and give a presentation to the Department at the end of the internship. Students provide weekly logs of their experiences in the workplace, a seminar detailing the experience they gained through the internship, and a final report which highlights the contributions they made to organization they held the internship in. Both university faculty and the community partner consult on the student performance. Example 2: GEOG 3056 Spatial Analysis-GIS. This systematic technique course is a lecture-lab course that covers advanced geographic information systems (GIS) operational techniques including the use of overlay analysis operations, hot spot analysis and numerous data enrichment operational tools. Students learn how to integrate raster based remotely sensed data into vector based GIS for environmental monitoring and assessment purposes. Additionally, students examine how spatially referenced socio-economic and environmental data can be integrated and analyzed for decision support systems. Issues that are examined include: the generation of spatial databases using socio-economic and environmental data; advantages and disadvantages of raster and vector GIS models; and selected algorithms for decision making in a GIS environment.

*Reference to Appendix 1 Ontario Council of Academic Vice-Presidents' Undergraduate and Graduate Degree Level Expectations, Quality Assurance Framework & Guide, Updated October 2019. We note that the description of UDLEs vary slightly between bachelor's degree and honours.

TABLE 5c: Program Goals & Learning Outcomes Aligned with Environmental Science Major Degree Expectations

PROGRAM GOAL (PG)	RELATED UNDERGRADUATE DEGREE LEVEL EXPECTATION (UDLE)*	STUDENT LEARNING OUTCOMES	ILLUSTRATIVE EXAMPLES FOR EACH HONOURS SPECIALIZATION PROGRAM GOAL – SHOWING ASSESSMENT METHODS
PG-1. To graduate students who can critically examine environmental processes and recognize their relevance to environmental issues	UDLE 1: Depth and Breadth of Knowledge ULDE 2: Knowledge of methodologies	- Define key terms and concepts relevant to the environment and individual environmental processes (abiotic, biotic). - Demonstrate an understanding of the fundamental characteristics, structure and composition of different elements of the environment (abiotic, biotic) - Demonstrate an understanding of key processes that affect the environment (abiotic, biotic), and their variability (spatial, temporal)	Goal to be assessed through: - Written lab reports - Tests and Quizzes - Class discussions Example 1: In GEOG 2107 Weather and Climate, students are introduced to properties of the atmosphere, their dynamics and their regional expression (e.g. energy and moisture balances along with their associated spatial and temporal variations around the globe). By the end of this course, students are able to analyze meteorological data and identify real-world weather phenomena. Assessment takes the form of lab assignments, quizzes and exams. As examples, labs require students to interpret surface and upper atmosphere weather maps, their symbology, and spatial patterns of meteorological variables, identifying phenomena such as air masses and fronts. Specific labs include developing an understanding of the surface energy and water balance interpreting and calculating daily energy and water fluxes (e.g. net short wave and longwave radiation, latent and sensible heat fluxes), and exploring the importance of atmospheric aerosol transport using NASA's (USA) Global Modeling and Assimilation Office animations. Example 2: BIOL/GEOG/ENSC-3397 Introductory Soil Science. Students examine the soil as an integral part of our physical environment, studying soil profile characteristics in the context of soil-forming factors, pedogenic processes, and soil classification systems. In laboratory sessions students analyze typical soil profiles in the field and methods of physical, chemical, and biological analysis of soil samples in the wet lab. The course uses both traditional testing to ensure students have the fundamental knowledge but a greater focus on their ability to interpret experimental results from 4 distinct disciplines (soil structure, soil physics, soil chemistry, and soil biology). Assessment of their experimental work involves not only communicating and linking their results to the broader themes in soil science (and environmental science), while making clear evidence-based statements akin to what may be expected in an environmental consulting role.
PG-2. To develop graduates who have a thorough understanding of how various forms of environmental change are arising, impacts being felt and how they can be mitigated	UDLE 1: Depth and Breadth of Knowledge ULDE 2: Knowledge of methodologies. UDLE 3: Application of knowledge.	- Evaluate and analyze interactions between elements of the environment - Define key types/aspects of environmental change, both natural and man-made, and their impacts - Apply understanding of mitigation approaches and their relevance to contemporary environmental issues	Goal to be assessed through: - Written lab reports - Tests and Quizzes - Class discussions Example 1: In GEOG 2107 Weather and Climate, students are introduced to our changing atmosphere. Students develop knowledge of natural and anthropogenic-derived changes in the atmosphere from geological to contemporary time scales. This includes regionally relevant examples (e.g. Sulphur emission reductions in the Sudbury) to larger scales (e.g. Ozone Hole and the Montreal Protocol) that include mitigation. Students identify sources of natural climate change (changes in solar output, atmospheric compositions, surface albedo), sources and predictions of anthropogenic climate change due to greenhouse gases, aerosols and landuse change. Assessment takes the form of lab assignments, quizzes and exams. As an example, an interactive activity has students researching and presenting on new stories targeting discussion of atmospheric processes.

			Example 2: BIOL 3436. Conservation Biology. Students explore conservation biology as a crisis-based and mission-oriented science. Key concepts such as biodiversity, habitat destruction, invasive species, and extinction provide a biological basis from which to expand and address global, national, and regional conservation strategies from an interdisciplinary perspectives. Students are evaluated based on participation in a weekly online discussion forum of key developments in conservation science, writing micro-concept papers on innovative conservation approaches, and participating in a virtual poster symposium highlighting an at-risk element of biodiversity in Canada.
PG-3. To train graduates who can use an interdisciplinary scientific approach to the understanding and interpretation of their world	UDLE 1: Depth and Breadth of Knowledge UDLE 2: Knowledge of methodologies. UDLE 3: Application of knowledge. UDLE 4: Communication Skills.	• Locate, interpret and appropriately use environmental observations. • Describe appropriate field and lab techniques used for data collection in the environment • Create and construct basic environmental sampling designs • Analyze different types of environmental data. • Apply understanding of environmental observations/measurements to current environmental problems.	Goal to be assessed through: • Written lab reports • Tests and Quizzes • Class discussions Example 1. ENSC 1005. Students are exposed to a basic background of various sciences - such as Ecology, Biology, Chemistry, and Geography - that are integrated as "Environmental Science" and used to study the environment and to solve environmental problems. Students use this knowledge to: learn about natural and altered ecosystems, consider issues stemming from human population growth & impact, and comprehend a host of problems associated with biodiversity, extinctions and invasive species. Students are evaluated on participation in quizzes/discussions using classroom response systems, as well as by more traditional methods including exams. The lab section of the course emphasizes practical skills for which the students are evaluated based on assignments. Example 2: CHEM-2046. Environmental Chemistry. Student study the theory of environmental chemical analysis including sampling methods, chemical preparation of the sample, and the final analysis. Instrumental methods of analysis are emphasized including spectroscopic methods (visible spectroscopy and atomic absorption) and electrochemical methods (pH and ion specific electrode, conductivity, and dissolved oxygen methods). Student conduct laboratory experiments involving these techniques. Assessment involves quizzes, exams and lab reports. Example 3: GEOG 2226 Environment & Society introduces students to key concepts and themes that help us to understand the relationship between humans and nature from a geographical perspective. It examines this interface through a variety of theoretical lenses (such as economic geography, resource geography, hazards geography, and environmental justice) that form geography's broader human-environment tradition. For example, students might be asked to show, in essay format, how river management challenges and options might differ according to market, collective action and environmental justice perspectives.
PG-4. To graduate students who are prepared to be independent researchers.	UDLE 3: Application of knowledge. UDLE 4: Communication Skills. Awareness of limits of knowledge. UDLE 6: Autonomy and professional capacity.	• Demonstrate a sufficient ability to carry out research while observing laboratory and field safety protocols • Apply theory and practice in assigned lab or field-based experiments and/or investigations with accuracy, precision and appropriate design	Goal to be assessed through: • Planning and conducting a research project • Writing reports of findings • Presentation of findings to peers. Example 1: BIOL/GEOG/CHEM-4516- Biogeochemistry of the Anthropocene. Students explore the cycling, transport and fate of nutrients, carbon, and contaminants in surface and groundwater systems. Humans are disrupting nutrient and carbon cycling on ecosystems at various scales. Students focus on the physical and chemical processes in natural waters, as well as how wetlands, landscape disturbances, and climate change impact water quality. This course

		• Apply written and oral communication skills, appropriate for the various projects, necessary for the dissemination of research results	has a strong focus on integrating multiple environmental processes and cumulative impacts to give students a firm grasp on the interconnected nature of environmental problems. Within the course the students are evaluated by traditional tests, multiple presentations on current environmental issues, and a major research paper on any topic covered by biogeochemistry of their choosing.

*Reference to Appendix 1 Ontario Council of Academic Vice-Presidents' Undergraduate and Graduate Degree Level Expectations, Quality Assurance Framework & Guide, Updated October 2019. We note that the description of UDLEs vary slightly between bachelor's degree and honours.

Table 6. Curriculum Mapping

Required Courses		Related Undergraduate Degree Expectations					
		1	2	3	4	5	6
Course Code	Course Title	Depth & Breadth of Knowledge	Knowledge of Methodologies	Application of Knowledge	Communication Skills	Awareness of Limits of Knowledge	Autonomy and professional Capacity
CHEM 1006	General Chemistry I	X	X	X			
CHEM 1007	General Chemistry II	X	X	X			
BIOL 1006	Introduction to Molecular and Cell Biology	X	X	X			
BIOL 1007	Introduction to Organismal and Evolutionary Biology	X	X	X			
GEOG 1017	Introduction to Physical Geography	X	X	X			
ENSC 1006	Introduction to Environmental Science	X	X	X			
BIOL 2446	Principles of Ecology	X	X	X			
GEOG 2107	Weather and Climate	X	X	X			
GEOG 2017	GIS and the Earth from Space	X	X	X			
CHEM 2106	Analytical Chemistry - Introduction	X	X	X			
GEOG 2226	Environment and Society	X	X	X	X	X	
ENSC 3XXX	Environmental Field Studies	X	X	X	X	X	X
ENSC 4900	Environmental Seminar	X	X	X	X	X	X
One of the following							
Math 1257	Technical Statistics	X	X	X			
Math 1036	Calculus 1	X	X	X			
COSC 1557	Introduction to Computer Science	X	X	X			
One of the following							
GEOL 1006	The Earth's Interior	X	X	X			
GEOL 1007	Surficial Geology	X	X	X			
PHYS 1006	General Physics I: Mechanics	X	X	X			
COSC 1567	Programming in C++	X	X	X			
One of the following							
GEOG 2026	Introduction to Quantitative Methods	X	X	X	X	X	
BIOL 3117	Biostatistics	X	X	X	X	X	
One of the following							
BIOL 2836	Invertebrate Zoology	X	X	X			
BIOL 2837	Vertebrate Zoology	X	X	X			
BIOL 2336	Biology of Seedless Plants	X	X	X			
BIOL 2337	Biology of Seed Plants	X	X	X			
One of the following							
GEOG 2126	Physical Hydrology	X	X	X			
GEOG/BIOL 3397	Introductory Soil Science	X	X	X			
GEOG 2106	Landscape and Surface Processes	X	X	X			
One of the following							
CHEM 2046	Environmental Analytical Chemistry	X	X	X			
CHEM 2056	Introduction to Physical Chemistry	X	X	X			
GEOG/BIOL/CH EM 4516	Biogeochemistry of the Anthropocene	X	X	X	X	X	X
CHEM 2306	Introduction to Organic Chemistry I	X	X	X			
A minimum of 3 upper-level experiential learning courses							
BIOL 4976/4997/GOEGL 4976	Biology Field Camp / Freshwater Biology /Physical Geography Field Camp		X	X	X	X	X
BIOL 4886	Internship I		X	X	X	X	X
GEOG 4986	Professional Internship in Geography		X	X	X	X	X

BIOL/GEOG 4995	Thesis	X	X	X	X	X	X
BIOL/GEOG 4986	Directed Study	X	X	X	X	X	X
BIOL 4706	Literature Research and Seminar	X	X	X	X	X	X

6.0 Faculty: Resources & Quality Indicators

There is excellent and broad environmental sciences expertise and course offerings represented on campus, as illustrated in the Environmental Course List. This will facilitate long term sustainability of this new program. Individual science faculty have research or other partnerships that facilitate unique field experiences, research, experiential learning opportunities that are integrated into individual courses and/or internships and thesis research (Tables 7 and 8a). Faculty CVs are provided in Appendix 5.

Table 7. Faculty Expertise and Research (*4 additional faculty profiles to be added)

Faculty Name	Department	Education	Status (Tenured, Tenure-Track, LTA)	Area(s) of Specialization/Expertise	Publications		
					Refereed	Non-refereed	Refereed Abst/Con Prc.
Colin McCarter	Geography and Biology/ Chemistry	PhD	Assistant Professor, Tenure-track (CRC Tier II)	Ecohydrology, trace metals, (bio)geochemistry, reactive transport, ecosystem restoration, soil science	26		36
Jeff Dech	Biology/ Chemistry	PhD	Professor, Tenured	Forest ecology; community ecology; dendrochronology; ecological modeling; silviculture	32	3	1
Peter Nosko	Biology/ Chemistry	PhD	Associate Professor, Tenured	Biology	15	6	40
Tony Parks	Biology/ Chemistry	PhD	Associate Professor, Tenured	Biology	12	8	13
Mukund Jha	Biology/ Chemistry	PhD	Professor, Tenured	Organic Chemistry (Chemical Synthesis, Green Chemistry, Medicinal Chemistry, Microbiology, Enzymology)	35		59
Stephen Kariuki	Biology/ Chemistry	PhD	Associate Professor, Tenured	Analytical Chemistry (Hydrometallurgy, Bioleaching, Analysis of sulphur compounds in water)	26	22	22
April James	Geography	PhD	Professor, Tenured	Hydrology, Streamflow generation, Environmental Tracers, Modeling	32	15	63
John Kovacs	Geography	PhD	Professor, Tenured	Environmental monitoring; environmental mapping; remote sensing; biogeography	53	19	67
Odwa Atari	Geography	PhD	Associate Professor, Tenured	Health geography; Geographic Information Systems (GIS); environmental management	20	19	21
James Abbott	Geography	PhD	Associate Professor, Tenured	Highly variable natural and human landscapes; rural livelihoods; Africa; Small-scale fisheries; environmental indicators; non-state institutional actors	9	3	2
Dan Walters	Geography	PhD	Professor, Tenured	Water governance; First Nations drinking water and wastewater risk; harmful algae	35	4	40

				blooms; agricultural decision support			
Mark Wachowiak	Math and Computer Science	PhD	Professor, Tenured	Biomedical Computing, Geospatial Computation, Visualization, Digital Humanities	37		54 (Referred conf. proceed.)

Table 8a. Faculty Instruction and Supervision (*(*4 additional faculty profiles to be added)*)

MEMBER	Supervised		Committees		Other	Courses
	Master	PhD	Master	PhD		
Colin McCarter			6	2	7 (UG); 5(Co-op)	2
Jeff Dech	9	1	3		1 (PDF), 16(UG)	
Peter Nosko	4				1 (PDF); 48 (UG)	29
Tony Parks			3			13
Mukund Jha	2	2	3	2	1 (PDF)	10
Stephen Kariuki	2		2		17	8
April James	13	2	10	5	4 (PDF); 6(UG)	13
John Kovacs	5	1	2	1	3 PDF	4
Odwa Atari	3		1		1(UG)	43
James Abbott	3		2			17
Dan Walters	11		7		10	17
Mark Wachowiak	3		2		10 (UG – RA supervision)	15

7.0 Program Costs and Resource Planning

7.1 Program Costs

In consultation with the appropriate internal offices, six-year program costs (including year 0) and anticipated revenues have been estimated and are provided in Table 8b. Instructional costs (existing and new) are estimated and provided as separate line items (line 26 and 27 in Table 8b). Funding for a Placement coordinator to be shared across Arts & Science programming is included (10% of a full time salary) starting in YR 1. Funding for thesis supervision is included starting in Yr 4. Annual support for honorariums for First Nation participants is included, as is materials, field and lab equipment maintenance to support experiential learning courses. Teaching assistantships are included to support larger class sizes (e.g. existing labs) and the Environmental Science Field Studies course.

Table 8b. Program Costs and Anticipated Revenue.

Environmental Science Business Plan - Updated Business Plan																		
	2025/26			2026/27			2027/28			2028/29			2029/30			2030/31		
	Year 1 Hours	Year 1 Weeks	Year 1 Terms	Year 1 Hours	Year 1 Weeks	Year 1 Terms	Year 2 Hours	Year 2 Weeks	Year 2 Terms	Year 3 Hours	Year 3 Weeks	Year 3 Terms	Year 4 Hours	Year 4 Weeks	Year 4 Terms	Year 5 Hours	Year 5 Weeks	Year 5 Terms
Program Enrollment																		
New Enrollment (Domestic)							40			40			50			60		70
New Enrollment (International)																		
Continuing Enrollment (Domestic)										36			70			113		132
Continuing Enrollment (International)										0			0			0		0
Total Enrollment							40			76			120			173		202
Revenue																		
Tuition (Domestic)																		
Tuition (International)																		
Other Fees																		
Co-op fees																		
Donation/endowments																		
Govt operating grant (NEV/RETURNING: 2.8 w/GU)																		
Other revenues																		
Total Revenues																		
Expenses																		
<i>Salaries for faculty & staff</i>																		
Existing Faculty & Lab Instructors (+ benefits)																		
New Faculty & Lab Instructors (+benefits)																		
Faculty Undergrad Thesis/DS Supervision																		
Student teaching assistants																		
Curriculum development																		
Total Salary Expense																		
Other Expenses																		
Materials and supplies																		
Faculty Office																		
Capital equipment																		
Library resources																		
Research support (start up grants)																		
Information technology																		
Printing																		
Advertising, marketing and promotion																		
Travel																		
Honoraria																		
Recruiting costs																		
Grad Financial Support - RA																		
Grad Financial Support - TA																		
Student Access Guarantee (Tuition set aside)																		
Professional Fees - Accreditation																		
PD (for instructors)																		
Other admin costs																		
Total other expenses																		
Total Expenses																		
Contribution Before Overhead																		
Admin Overhead																		
Surplus/ (Deficit)																		

7.2 Resources

a) Administrative support.

It is proposed that a School of Environment, with a dedicated (an out-of-scope) Director be created to support the new BSc Environmental Sciences, along with the proposed BA Environmental Studies and existing MES/MESc graduate program. This administrative structure would support day-to-day operations of the interdisciplinary undergraduate programs, the affiliated certificate and the joint MES/MESc graduate program, allowing for coordination across the various contributing departments. This structure would also support a dedicated Placement Coordinator shared across A&S programs.

a) Library Support

An assessment of information resources and services has been prepared and provided by the Library Services, provided in Appendix 1.

b) Technology and Physical Space

Any increases in technology support and physical resource requirements would be aligned with generating new enrollments. For many physical, life science and chemistry courses, labs are an important component and have limited class sizes. If the intake numbers and the number of the students in the proposed program significantly exceed existing classrooms, there will be need for expanded lab sections and/or space for select courses.

8.0 Demand for Program

8.1 Evidence of Student Demand

Using provincial data made available through the Nipissing University Planning office, demand for environmental sciences-related undergraduate degree training in 2019-20 in all of Ontario is estimated around ~ 42,000¹³ students per year (~4,700 international) with ~ 2,500 (~ 250 international) of these students enrolled in northern Ontario Universities (Algoma, Lakehead, Laurentian, Nipissing) (Appendix 2). Recent increases in Environmental-Science enrollments at Lakehead and Algoma (26% and 48% increases respectively for 2019/20 compared to 2018/19) illustrate demand for additional Environmental Science programming at northern Ontario Universities. Some of this appears to be attracting new domestic but also international students. The data suggests that 12% and 77% of the increases at Lakehead and Algoma, respectively, are attributed to international students. A new Environmental Science program at Nipissing, attracting both domestic and international students could contribute to Nipissing growing towards its capacity of 6,500 students, as identified in its' Academic Plan. Recent international agreements signed between Nipissing University and Universities in Brazil, Costa Rica, India, and the Philippines support strong demand for environmental science programming.

¹³ Ontario Headcount data for 2019/20 using only environment-related program titles from five broad program categories 1) Agricultural/Animal/Plant/Veterinary Sciences and Related fields, 2) Biological and Biomedical Sciences, 3) Multidisciplinary Studies, 4) Natural Resources and Conservation, 5) Physical Sciences.

Demand for additional programming in Environmental Sciences and academic and professional interest in further qualification in Environmental Chemistry is clearly apparent from feedback from our existing students and their pursuit of environmental chemistry related graduate programming and employment upon their graduation from Nipissing (Table 9). The proposed Environmental Sciences program with a certificate in Environmental Chemistry will be supported by existing faculty and offerings and the addition (in July 2022) of Dr Colin McCarter, Canada Research Chair in Climate and Environmental Change with expertise in landscape biogeochemistry including the fate and transport of mercury. A certificate in Environmental Chemistry will benefit student transition to both professional post Baccalaureate employment and environmental chemistry related graduate programs.

Table 9. Representative List of NU Graduates pursuing chemistry-related pathways.

Recent NU Students	Graduate Program (MS/PhD)	Current Whereabouts
Matthew Edwards	University of Waterloo (PhD)	Separation Science Product Manager, Markes International, Cardiff, UK
Cody Butler	Trent University (MS)	Lab Technician, Water Quality Centre, Trent University
Darian Blanchard	University of Guelph (MS)	Application Specialist, Syngenta
Kate-Lyn Lund	Dalhousie University (MS)	Chemistry Instructor, Nipissing University
Michael Edmunds	University of Guelph (MS)	Biostatistician, Health Canada
Jordan Evans	University of Toronto (MS)	Medicinal Chemist, Novartis, Cambridge, MA, USA
Michael Ross	DDS, University of Toronto	Dentist, North Bay, ON
Stephanie Guy	Queen's University (PhD)	Postdoctoral Fellow at Ottawa Hospital Research Institute, Ottawa
Nathan Wray	Simon Fraser University (MS)	QC Analyst, STEMCELL Technologies, Vancouver, Canada
Spencer Short	University of Ottawa (PhD in progress)	
Jennifer Tropiano	McMaster University (MS in progress)	

8.2 Evidence of Society/Labour Market Need

Universities across Canada have developed Environmental Science programs in addition to traditional disciplinary programs in recognition of the need for multidisciplinary and interdisciplinary approaches to solving environmental problems. Eco-Canada (Environmental Careers Organization Canada, a non-for-profit founded in 1992 to support Canada's growing environmental sector) identifies 88 entries for Canadian Environmental post secondary programs (includes undergraduate and college programs) and has accredited 33 of these programs from across Canada (www.eco.ca). Increasingly, society expects those engaged in careers that deal with human-environment interactions to make informed decisions about complex multi-faceted problems; however, traditional disciplinary approaches to

undergraduate education do not provide knowledge and experience required to do this effectively.

There has been a growing demand for experts in all areas of Environmental Sciences, including Environmental Chemistry. Employment of skills and knowledge in environmental sciences and chemistry include collecting and analyzing air, water, and soil samples; involvement in the remediation programs; development of strategies to reduce sources of pollution and treatment of waste that cannot be eliminated; designing of processes, systems, and equipment for quality assurance and quality control; conducting research based on improvement of the health and safety of the environment; and training of technical staff. Environmental science and chemistry majors are employed across sections, including waste management firms, environmental consulting firms, forensic labs, oil and gas industries, agrochemical companies, universities and research institutes, and federal/provincial/municipal government departments.

Examples of Environmental Science and Environmental Chemistry related employment were obtained from several web-based resources, include Environmental Careers Organization Canada's job board (www.eco.ca), and a web-search on Environmental Chemistry Jobs in Canada (posted April 2019) (<https://ca.indeed.com/Environmental-Chemistry-jobs?vjk=d487a06f5c95af98>) and are provided in Appendix 3. Table 10 provides details on 4 exemplars from the Job Bank of Canada (retrieved 7 November 2024). Environmental-science related jobs are expansive across sectors, regions and occupations across Canada. The most recent labour demand report from Eco Canada (September 2020) estimates 1 in every 30 people employed in Canada are environmental workers and while the environmental job market has been affected by COVID-19, they expect environmental jobs are expected to rebound ahead of others, both because of job creation and anticipated retirement¹⁴. Eco Canada's report estimates that "...nearly half of the hiring needs will be for core environmental workers or these in roles requiring environmental-specific knowledge, skills or experience...". Survey specific to environmental chemistry indicates that there is an overwhelming demand for environment-related employment in the labour market in areas that include: Environmental consultants, Environmental supervisors, Laboratory technologists, Environmental protection analysts, Chemical wastes technologists, Environmental chemists, Laboratory supervisors, Laboratory analysts, Laboratory plant Chemical plant operators, Air quality monitors, and Teachers.

Select (known) listing of current employers for students graduating from Nipissing University's affiliated MES/MESc graduate program since 2012 include: Ontario Parks · Ontario Power Generation · Ontario Ministry of Natural Resources and Forestry · Anishnabek Nation · Dorset Environmental Science Centre, Ontario Ministry of Environment, Conservation and Parks · Canadore College · Dokis First Nation · Nipissing First Nation · Guelph Research Station, University of Guelph · Municipal Member of Parliament, New Liskeard · McIntosh Perry Engineering Firm · City of North Bay · SNC Lavalin Group Inc. · Greenstar Forest Solutions · Lawyer · Michigan Department of Environment, Great Lakes and Energy · Story Environmental, North Bay ON.

Table 10. Exemplars of Labour Market Need from the Canada Job Bank (updates from 7 November 2024). See also Appendix 4 for a more detailed list of examples of environmental science and environmental chemistry related employment.

Environmental Chemist: The employment outlook will be very good for Chemists (NOC 21101) in Ontario for the 2023-2025 period. The following factors contributed to this outlook: • Employment growth will lead to several new positions. • Several positions will become available due to retirements. There are a small number of unemployed workers with recent experience in this occupation/ Types of Employers • Chemical manufacturers mainly in pharmaceutical and medicine manufacturing • Scientific research and development firms Main Trends Affecting Employment • Investments in the biomanufacturing and life sciences sector, including in pharmaceutical research and production • Need for chemical products and processes to support environmental planning, food sciences, construction materials, and agricultural production • Some opportunities may arise in the petrochemical and industrial chemical manufacturing, particularly in the Windsor-Sarnia area of Ontario
Ecologists The employment outlook will be good for Biologists and related scientists (NOC 21110) in Ontario for the 2023-2025 period. The following factors contributed to this outlook: • Employment growth will lead to several new positions. • A moderate number of positions will become available due to retirements. • There are a moderate number of unemployed workers with recent experience in this occupation. Types of Employers • Employed in a variety of sectors, but the leading share is in scientific research and development services • Public administration, mainly federal government departments • Manufacturing, mostly pharmaceutical and medicine production • Health care, mainly hospitals Main Trends Affecting Employment • Investments in life sciences and research, including the strengthening of the biomanufacturing sector • Funding commitments to expand local vaccine manufacturing capabilities post pandemic • Initiatives related to advancements in agriculture, to address the impact of climate change, wildlife management and to support the aquatic ecosystem • The high levels of infrastructure projects planned to be undertaken across the province should bode well for environmental biologists to support impact assessments
Environmental Science Manager: The employment outlook will be good for Architecture and science managers (NOC 20011) in Ontario for the 2023-2025 period. The following factors contributed to this outlook: • Employment growth will lead to several new positions.

- Several positions will become available due to retirements

Types of Employers

- Employed across various industries with the leading share in professional, scientific and technical services, mainly architectural, engineering and related activities, and scientific research and development
- Manufacturing, especially pharmaceutical and medicine production

Main Trends Affecting Employment

This occupational group includes different specializations therefore the level of job opportunities and sources of employment will vary. For example:

- Architectural, and landscape architecture managers should benefit from high levels of residential and infrastructure construction, and to support green building designs
- Managers associated with life sciences should have favorable employment prospects due to significant investments in the field, including in the biomanufacturing sector

Environmental Officer:

The employment outlook will be moderate for Public and environmental health and safety professionals (NOC 21120) in Ontario for the 2023-2025 period. The following factors contributed to this outlook:

- Employment growth will lead to a moderate number of new positions.
- A moderate number of positions will become available due to retirements.
- There are a moderate number of unemployed workers with recent experience in this occupation.

Types of Employers

- Employed in all major industry categories, but the leading share is in public administration, mainly federal and provincial government departments
- Health care service providers, mostly out-patient care centres

Main Trends Affecting Employment

- Ongoing concerns and regulations related to food, environmental, and workplace safety should support demand for these inspectors
- Mandatory inspections at restaurants, hotels, schools, hospitals and other public facilities or institutions to maintain enhanced public health standards

¹⁴ Eco Canada. From Recession to Recovery: Environmental Jobs and Hiring Trends in the Decade Ahead, September 2020, 36p.

8.3 Evidence of Justifiable Duplication

Many universities across Canada offer undergraduate programs in Environmental Sciences. However, development of Environmental Sciences at Nipissing University will provide new opportunities to train students in the north about northern environmental problems and their solutions. Existing strength across the contributing sciences at Nipissing highlights that with little investment, an important addition to Environmental Science training rooted in the north can be added. Appendix 4 provides a list of comparator programs offered by other provincial postsecondary institutions and specifically in northern Ontario. While large and mid-size universities offer BSc programs specific to Environmental Chemistry, in Northern Ontario this specialized program is lacking. Given that we are a smaller University, an Environmental Science program paired with a certificate in Environmental Chemistry at Nipissing University would be a strong attractor for new students and provide new opportunities to make a positive change for the Northern Ontario.

9.0 Institutional Fit

This new program will be submitted to the Ministry for funding.

9.1 Alignment with Strategic Mandate Agreement

As highlighted by the 2020-2025 SMA, “Nipissing University was created by a provincial act to specifically address the needs of Northern Ontario and continues to have a special focus on serving the North in the North”. The addition of new Environmental Science programming at Nipissing University is strongly aligned with improving capacities in Northern Ontario and will positively contribute to SMA performance metrics.¹⁵ It will further build Nipissing’s capabilities for integrated land-based teaching. Graduates from Environmental Science programs are typically employed across both private and public sectors with potential for pursuing professional designations (e.g. Environmental Professional, Professional Forestry, Professional Geoscientist¹⁶) after gaining environmental work experience, leading to higher graduate employment earnings. Contributing NU faculty have long established records of working with community-based partners, generating environment-related research that is both regionally of value as well as of interest to broader academic and applied audiences, also evidenced by strong Tri-Agency funding (~ \$5.2 million since 2009-10) and Research Chair Awards (1 industrial, 2 Tier 2 CRCs, including 1 renewal). The Environmental Sciences program will build on strong existing capacities for hands-on experiential learning opportunities that will be further supported by a recent teaching chair in STEM.

¹⁵ 2020-2025 Strategic Mandate Agreement: Nipissing University, <https://www.ontario.ca/page/2020-2025-strategic-mandate-agreement-nipissing-university>

¹⁶ www.eco.ca; www.opfa.ca; www.pgo.ca

The Environment and Natural Resources is an area of strength with existing programming with Nipissing offering (Figure 1):

- a BSc in Biology
- a BSc in Environmental Biology and Technology,
- a BSc in Environment and Physical Geography,
- Minors in Environmental Sciences (est. 2016/17), Chemistry, Geography, Biology
- and a joint Masters of Environmental Studies/Masters of Environmental Sciences (MES/MESc) graduate program hosted by three founding departments (Geography, Biology and Chemistry, History) that has been offered since 2012.

Environmental sciences at Nipissing University can be a program area of important expansion. At Nipissing University, there is currently no Major or Honours Specialization in Environmental Science and no Major specific to Environmental Chemistry. The proposed BESC Environmental Sciences program with a new certificate in Environmental chemistry will fill an important gap in current programming, increasing visibility on how students can study the environment at Nipissing University, building from the existing minor and providing pathways to professional and graduate studies opportunities. It will differ from existing BSc. programing by offering broader interdisciplinary science and experiential learning requirements, consistent with cross-sector professional interests. Content in Environmental Chemistry highlighted by the new certificate will allow students to satisfy additional academic and professional interests. An interdisciplinary program in Environmental Sciences carries a very high potential of attracting international students to NU. It is also a very strong stepping stone for future considerations in development of Environmental Engineering.

9.2 Program Prioritization/Program transformation Initiatives

The new BSc Environmental Sciences program draws on several existing programs in Biology, Geography, and Chemistry, to maximize interdisciplinary connections and provide new and unique opportunities for students interested in pursuing a degree in environmental sciences. Using Nipissing University's common-degree structure, the program integrates existing courses to offer excellence in interdisciplinary environmental science training consistent with competitor programming across the province. The interdisciplinary nature of the program will lend itself to furthering Nipissing University's community outreach and land-based research specific to northeastern Ontario, with commitment to training the next generation of environmental scientists consistent with the Truth and Reconciliation Commission recommendations, with awareness and engagement across northern communities (First Nations, northern municipalities) and sectors including northern industries (forestry, mining, hydropower generation). Supporting science on the land and community engagement, this degree program will train students in the north about northern environmental problems and their solutions. These design features will differentiate Nipissing's Environmental Science program from its competitors. It will also provide new opportunities to connect students globally with interdisciplinary study of the environment. The addition of the BSc Environmental Sciences will attract a new student audience while supporting established programs by using existing faculty and courses (almost 100% overlap).

Library Statement



Program: Bachelor of Science in Environmental Science,
Certificate in Environmental Chemistry

Faculty: Arts and Science

Institution: Nipissing University

Librarians: Laura Sinclair, BSc, MLIS, BEd (wrote initial report AUG2021)
Rebecca Kasperavicius, BA, MLIS (updated report NOV2024)

Date: November 2024

0.1 Introduction

The Library is a shared service between Canadore College and Nipissing University. The majority of staff and collections are based in the Harris Learning Library (HLL) located at the North Bay College Drive campus. The Library website can be accessed at www.nipissingu.ca/library. The Library collection includes books, e-books, print and online journals, and audiovisual materials such as films and kits. Liaison librarians collaborate with faculty to select resources for the collection to support coursework and research activities. As a result of the pandemic and a shift to more online courses, there has been an even greater priority given to the acquisition of digital resources.

Library Resources for the Environmental Science Program and Environmental Chemistry Certificate

Although the BSc in Environmental Science will be a new program, the curriculum consists of many courses that are currently offered which are supported by the library collection with the following resources: Web of Science, Science Direct, GeoBase, BioOne, and Nature.

The library also licenses databases for the related fields of Biology, Geography, Chemistry, and Health Sciences all of which include relevant content for the proposed program. Comprehensive multidisciplinary databases such as Academic Search Premier, Academic OneFile and Scholars Portal Journals also contain literature that is relevant to courses offered for the Environmental Science program and Environmental Chemistry certificate. It is essential to maintain access to this broad scope of resources, especially when some courses, such as those for thesis work and directed studies, could potentially be multidisciplinary in content.

Recommended resources in support of this program include: Environment Complete, SciFinder, and/or Reaxys. The American Chemical Society publications and the Royal Society of Chemistry database would also support the proposed program and certificate; subscriptions to these resources are costly and increase roughly 5% annually.

The Library has a robust journal collection, containing more than 60,000 publications. There are over 2,500 titles in the “Earth and Environmental Sciences” category of journals in the Library system. Additionally, in excess of 500 journals are classified as “Chemistry” titles. There are many multidisciplinary publications containing content related to Environmental Sciences as well. Faculty members may request specific journal titles, which would be considered on a case-by-case basis, with cost being a major consideration.

The monograph collection for Environmental Sciences is modest, with priority given to faculty requests. Both print books and e-books are collected, depending upon faculty preference, expense, and format availability. With the increase in online instruction and learning, ebooks have become the preferred format. The addition of some newer content is recommended.

Films related to Environmental Sciences are purchased selectively and usually only upon faculty request, due to cost; however, the Library has some streamed video databases with relevant titles. For instance, curio.ca (streamed content from the Canadian Broadcasting Corporation) is a multidisciplinary collection, and includes more than 300 films classified as “Environmental Science” content. The National Film Board collection also has some related streamed content, particularly in the “Environment and Sustainability” curated playlist. No further film expenditures are recommended at this time.

The Library maintains a Kit collection, and some of these items may be relevant to Environmental Sciences and Environmental Chemistry courses. Molecule building sets, periodic table activities, rock and mineral collections and other manipulatives could potentially be useful for teaching and learning in these disciplines. Faculty requests for additions to the kit collection are welcome, but no specific resources are recommended at this point.

Budget

The acquisition of databases and one-off journals come from a central budget for licensed resources. Materials such as books and multimedia are purchased through a central budget designated for unlicensed resources, subject allocations being made internally by Collection Librarians, who consider factors such as: the number of students in a department, the number of faculty in a department (this can be difficult due cross appointments), and the number of courses taught by a department. Other factors considered, some of which are not as easily measured include: departmental demand, the use of library resources, gaps identified in collection areas (including departmental reviews), the use of Interlibrary loan by department, and new programs of study. Although collection building rests with librarians, our collections team welcomes and encourages acquisition suggestions from faculty and students (recommendations can be requested in a variety of ways, one being the Purchase Request feature, available directly in OMNI).

The allocation amounts listed in the following table are for Environmental Science/Studies or Geography* and are used to purchase books, multimedia, and any journals purchased outside of database subscription packages.

Budget Year	Total	Licensed	Unlicensed
2024	\$1,500	\$0	\$1,500
2023	\$1,500	\$0	\$1,500
2022	\$1,500	\$0	\$1,500
2021	\$750	\$0	\$750
2020*	\$3,046	\$939	\$2,107

*Prior to the 2020-21 budget year, budget allocations for Geography and Environmental Science/Studies were combined. The Library allocations were revised in 2020-21 to provide a separate line for Environmental Science/Studies resources. This table shows allocations for the combined budget for 2020, and the allocations for Environmental Science/Studies for 2021, forward.

Recommendations

It is recommended that at a minimum, start-up funding of \$1,500 be provided for the acquisition of current Environmental Sciences and Environmental Chemistry monograph titles such as handbooks, reference and methodology materials, as well as some updated environmental content. Ebooks are the preferred format; however, academic ebook titles tend to be more expensive than their print counterparts, so ongoing funding of \$1,000 per year is recommended to maintain collection currency.

Access to journal literature for this program would be best supported through acquisition of databases such as Environment Complete, SciFinder, or Reaxys. These products are expensive: Reaxys, for example, would require a minimum increase of \$15,000 to the library's licensed acquisition budget. On average, licensed resources increase annually by 5%, and the fluctuating value of the Canadian dollar has an impact on our budget and should be accounted for in funding decisions. American Chemical Society journals and Royal Society of Chemistry journals range from \$1,500 to \$5,000 per title, annually.

Other resources may be necessary, depending on course curricula and instructor requirements, and requests for new resources would be considered on a case-by-case basis, with library budget being one of the determining factors.

Start-up Costs: \$1,500 for monographs, \$15,000 for databases / \$5,000 for one-off journals

Ongoing Costs: \$1,000/year for monographs, 5% annual increase on licensed resource

Collections Snapshot

Library Collections*

	2023-24	2022-23	2021-22	2020-21	2019-20
print books	182,845	182,448	181,520	180,335	179,639
e-books	254,745	316,957	225,914	125,180	333,465
print journals	69	80	89	111	125
e-journals	138,582	112,166	53,594	9,767	68,528

Expenditures

	2023-24	2022-23	2021-22	2020-21	2019-20
print books	\$56,578	\$82,037	\$50,997	\$32,262	\$62,013
e-books	\$29,488	\$34,640	\$27,459	\$48,662	\$26,380
individual serials	\$37,445	\$31,372	\$28,667	\$28,815	\$28,585
databases	\$770,157	\$841,484	\$755,395	\$874,436	\$645,543
total	\$893,668	\$989,533	\$862,518	\$977,400	\$964,000

Use of Collections

	2023-24	2022-23	2021-22	2020-21	2019-20

Library Instruction, Services, and Spaces

Teaching and Learning

	2023-24	2022-23	2021-22	2020-21	2019-20
reference questions	13,100	9582	5,649	4,489	11,614
instruction sessions	246	179	95	98	213
students in instruction sessions	8,283	4850	2,969	2,118	5,549

Spaces for Learning and Research

Learning Library

seating capacity: 537
group rooms: 12
individual study rooms: 7

	2023-24	2022-23	2021-22	2020-21	2019-20
turnstile count - sample day	889	734	251	149	815

circulation	8,092	7,309*	4,177	3,427	6,024
reserves circulation	4,158	666	503	51	905
Loans to external bodies	1717	1368	1075		

Use of other Collections

	2023-24	2022-23	2021-22	2020-21	2019-20
Books and articles borrowed from other libraries	337	881	260	5	830

Services

Hours of operation during academic year:

8:00 am to 10:30 pm Monday to Thursday

8:00 am to 6:00 pm Friday

10:00 am to 5:30 pm Saturday and Sunday

Info Desk hours of operation:

same as building hours

Research appointments:

- In-person
- Phone
- Video conference

24/7 access via proxy

URL resolver

Interlibrary Loan (ILL)

Library Collections – the manner in which data was collected and counted changed in 2020-21 due to a library system migration in December 2019. Comparisons with earlier years may not be direct.

- e-books & e-journals
 - Beginning in 2020-21 this metric counts titles which eliminates overlap and duplication between the contents of different electronic collections
 - 2019-20 – this year shows a higher number of ebooks due to migration errors
 - 2020-21
- Low e-book figures reflect the start of work *ongoing* correcting migration errors
- E-journal figures are very low as many electronic collections were not activated in our system yet. All subscribed journal contents remained available by going directly to the electronic collection / database
- 2021-22 increase in figures reflect *ongoing* work to correct migration errors and ensure electronic collections are properly set up and discoverable. Expect work to be completed in 2023-24
- Use of Collections – Circulation –includes loans to AFN- Omni users
- Use of Other Collections – As the library transitions to different means of fulfilling interlibrary loans, it is no longer possible to differentiate between books and articles. Totals include both books and articles

Appendix 2. Recent Ontario Institutional Enrollments in Environmental Sciences

Ontario Headcount data for 2019/20 using only environment-related program titles from five broad program categories 1) Agricultural/Animal/Plant/Veterinary Sciences and Related fields, 2) Biological and Biomedical Sciences, 3) Multi/Interdisciplinary Studies, 4) Natural Resources and Conservation, 5) Physical Sciences and only environmental sciences-related program titles. Data made available through Nipissing University's Office of Institutional Planning and Research.

Provincial Comparison - Headcount



Fall

Spring

Summer

Winter

FACAS

Northern

UG Diploma

UG Degree

GR Diploma

Master and 1st PhD

2nd stage PhD

Eligible

Ineligible

University Name	2015-16	2016-17	2017-18	2018-19	2019-20
Algoma University	126	127	111	117	192
Lakehead University	793	777	774	852	1,107
Laurentian University	1,007	1,056	1,028	950	981
Nipissing University	194	193	187	180	195
Total	2,120	2,153	2,100	2,099	2,475

Program Category

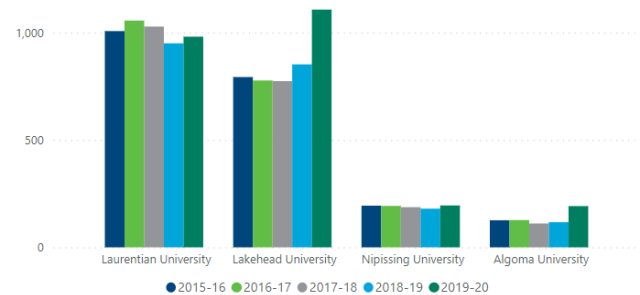
Multiple selections

CIPCode

All

Program Title

Multiple selections



Office of Institutional Planning and Research

Provincial Comparison - International Student Headcount



Fall

Spring

Summer

Winter

FACAS

Northern

UG Diploma

UG Degree

GR Diploma

Master and 1st PhD

2nd stage PhD

Eligible

Ineligible

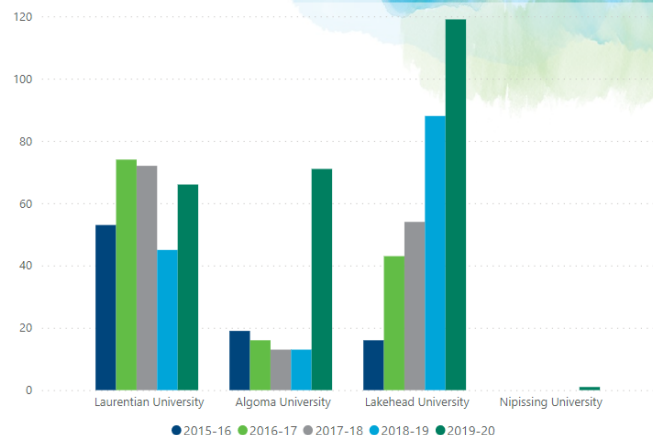
University Name	2015-16	2016-17	2017-18	2018-19	2019-20
Algoma University	19	16	13	13	71
Lakehead University	16	43	54	88	119
Laurentian University	53	74	72	45	66
Nipissing University					1
Total	89	135	139	147	257

Program Category

Multiple selections

Program Title

Multiple selections



Office of Institutional Planning and Research

Appendix 3. Evidence of Social/Labour Market Need

Evidence of Social/Labour Market Need. Examples of environmental science and environmental chemistry related employment were obtained from several web-based resources, include Environmental Careers Organization Canada's job board (www.eco.ca)¹⁷, and a web-search on Environmental Chemistry Jobs in Canada (posted April 2019) (<https://ca.indeed.com/Environmental-Chemistry-jobs?vjk=d487a06f5c95af98>).

¹⁷ ECO Canada (Environmental Careers Organization of Canada) is an online resource for environmental jobs, certification and training established in 1992 as part of [Canada's](#) sector council initiative. Sector councils are organizations that address human resource challenges facing the Canadian economy With the support of private sector investors and the [Government of Canada's](#) Department of [Human Resources and Social Development](#), ECO Canada works to determine the skills and human resource needs of Canada's [environment industry](#).

Job Title	Job Description
Agriculture specialist	Agriculture specialists provide assistance and advice to farmers and livestock producers. They consult on a number of areas, including crop choice and rotation, cultivation and harvesting, soil and water issues, and animal husbandry and nutrition. Agriculture specialists often specialize in a specific area, for example animal science, economics, agricultural mechanics, soil science, or field crops. Agriculture specialists work closely with farmers and livestock producers to ensure the success of their businesses.
Agriculture technician	An agricultural technician combines knowledge of engineering with biological science to the field of agriculture to improve sustainable agriculture production. Agricultural engineers are involved in many diverse projects, including the design of machinery and structures and the development of methods to conserve soil and water to improve the processing of agricultural products.
Agronomist	An agronomist works in the field of agronomy which is a branch of agriculture that deals mainly in field-crop production, soil and land management, and water resources. Agronomy integrates all disciplines of crop production, from variety selection to harvesting, and from soil management to entomology. It is a science that finds ways to grow crops effectively and commercially while protecting the environment.
Air quality specialist	Air quality specialists ensure emissions and other airborne pollutants do not violate provincial or federal air pollution laws. They see to it that pollutants, for example, those generated through chemical reactions and combustion, are not released into the air at harmful levels according to emission-impact assessments and without first being treated with proper contaminant-removal technologies. Air quality specialists also review environmental assessments for proposed factories and manufacturing plants and make recommendations for air pollution control equipment.
Air quality technician/ technologist	As an air quality technician/technologist, you deal with all types of air pollution that can affect every aspect of our environment. Air quality technicians/technologists monitor, assess, and report on ambient air quality in both urban and rural areas, as well as air quality in environmental emergency situations such as fires or chemical spills. Air pollutants are often considered insidious because they can be harmful even when many people can't see them and don't know they are there. Your job is to measure air pollutants so that accurate assessments can be made with respect to the effects of the pollutants on humans and the environment.
Analytical chemist	Analytical chemists' study and test the chemical composition and reaction of many different substances. Using complex equipment and procedures, such as chromatography, electrophoresis, mass spectrometry, and optical spectroscopy, they test samples, identify, and quantify their components. In addition to the environment, they work in industries such as oil and gas, pharmaceutical research, and forensics.
Aquaculture support worker	As an aquaculture support worker, you assist aquaculturists and fisheries technicians/ technologists in the operation of hatcheries and finfish, shellfish, and aquatic plant farms. You are responsible for maintaining stock, tanks, and other equipment and are involved in activities such as scuba diving, handling feed, repairing pumps, and changing nets. Because the job involves many hours spent outdoors, working conditions for aquaculture support workers are as variable and challenging as the weather.

Aquaculturist	As an aquaculturist, you are in charge of the farming of aquatic organisms, including culturing and growing freshwater and marine finfish, shellfish, and aquatic plants. Aquaculturists specialize in operating, monitoring, and maintaining aquatic farms, including rearing fish classes in natural or controlled environmental such as tanks, ponds, or net cages. Aquaculturists require a broad range of knowledge such as fish health, water chemistry, and mechanical skills, and can work on land-based operations or large freshwater and marine grow-out sites. Aquaculturists play a key role in ensuring the sustainability and quality management of aquatic farms.
Arborist	Arborists are tree professionals and that require extensive certifications. Arborists are trained professionals who have studied how to plant, maintain, care, and diagnose trees, shrubs, and other woody plants. They are specialized in all species of trees and shrubs to offer expert advice to grow and develop trees.
Avalanche forecaster	As an avalanche forecaster, you play a critical role in protecting the public and raising avalanche awareness. You combine skills in mountaineering with knowledge of mountain conditions, weather, and snow science to evaluate the risk of avalanches in a given area.
Biochemist	Biochemists study biological processes in micro-organisms, plants, and animals. They look at how living organisms function at the subcellular and molecular levels and apply their research to a number of industries, including agriculture, medicine, energy, and manufacturing. Biochemists often work in interdisciplinary teams and are involved in a wide range of activities, from research and teaching to patent law.
Biological technician	As a biological technician, you work closely with a team of supervising biologists to conduct tests, record observations, and research information in relation to the environment. You work in concert with biologists and are often responsible for carrying out detailed experiments to support research. You set up, operate, and maintain laboratory equipment, monitor experiments while recording the results. In addition, biological technicians develop and adapt laboratory procedures and devise solutions under the direction of biologists.
Biotechnologist	As a biotechnologist, you apply the knowledge to select, manipulate, or modify organisms to produce strains uniquely suited to making a product or driving a process. You play a large role in finding new and innovative solutions to environmental problems, for example using organisms such as bacteria to clean up contaminated sites, investigating new energy sources, or producing environmentally friendly raw materials. In addition to the environment, you could also work in industries such as food production, medicine and health, and manufacturing.
Botanist	Botanists work in the field of botany, the study of plants and their surrounding ecosystems. It spans from forests and trees to the smallest microscopic components of the ecosystem. Types of botany jobs include botanical research and botanical research. The skills and expertise of botanists are beneficial in numerous sectors. This means botanists can work in agriculture, horticulture, land use planning, conservation, forestry, and medicine.
Cartographer	Cartographers are mapmakers. They gather, evaluate, and visualize geographic information and analyze geographical data to create charts and reports. They combine creativity with technical aptitude to produce, for example, topological maps, aeronautical charts, natural resource maps, or nautical charts and other hydrographic maps. In addition, they may work on demographic maps such as population characteristics, economic maps such as land use, or social maps such as crime rates and poverty.
Chemical technician	Chemical technicians/technologists perform chemical sampling and analysis and are involved in a variety of projects, for example, analytical testing, quality control protocols, and product research and development. They often work as members of multidisciplinary teams with chemists, chemical engineers, and other related professions. Chemical technicians/technologists can specialize in a number of disciplines, including environmental testing, mining and exploration, pharmaceuticals, and hazard waste, and opportunities for technicians/technologists can be very diverse depending on the industry and their education.
Chief sustainability officer	Chief Sustainability Officers (CSOs) are the highest-level of executives in an organization who oversee their company's sustainability activities. As part of the "C-suite" of chief officers, CSOs provide visionary leadership and coordinate with management, shareholders, and employees to develop and maintain an effective corporate strategy for sustainability. In order to be successful in their executive role, CSOs need strong public relations skills, extensive staff management experience, good strategic planning skills and a firm grasp of financial operations and budgeting. Since a wide range of skills and knowledge are required for this role, most CSOs come from diverse backgrounds, including external affairs, environmental

	management, research, operations management, marketing, business development, finance, or legal affairs.
Clean energy researcher	Clean energy researchers are environmental scientists or engineers who specialize in discovering alternative and renewable energy sources. Like other environmental engineers, they often work in teams with other professionals. They analyze energy needs and plan renewable, environmentally friendly solutions. For example, they may help people have lower per-unit energy costs and also help preserve the environment.
Climate change specialist	Climate change specialists study the changes in weather over time. They do this by looking at the winds, temperatures, lightning, sunshine, and rainfall. This information helps them to make sense of climate trends and changes, and allows specialists to see how human activity affects the weather. Climate change specialists look at how society can adapt to and lessen the impacts of climate change, and how citizens can positively impact and protect the environment.
Climatologist	A climatologist studies the earth's climate and the weather patterns and processes that cause them. They use long-term meteorological data such as temperature, wind speed, and precipitation to study trends, understand causes, and make predictions.
Compliance promotion specialist	As a compliance promotion specialist, you provide technical, scientific, regulatory, and management advice to public and private industry in relation to compliance with federal acts and regulations. You are involved in a variety of activities aimed at awareness and education, including writing and publishing information, conducting and participating in public outreach activities, and researching and promoting best practices. You are an expert on the acts and regulations that govern the protection of environmental and human health and address issues ranging from hazardous waste to species at risk.
Conservation biologist	Conservation biologists protect and restore biodiversity and aim to understand and minimize human impacts on the natural world as well as on scarce animal populations. Through research and observation, conservation biologists help establish plans for maintaining habitats and animal populations at sustainable levels.
Conservation officer	As a conservation officer, you have a variety of responsibilities, including promoting compliances with environmental legislation through public education, public involvement, and awareness. You are often responsible for enforcing provincial and federal environmental regulations governing the protection of wildlife, fisheries, and natural resources, and have the authority afforded that of a peace officer as outlined under the criminal code of Canada. You are always on call to respond to public complaints and protect our natural resources.
Ecologist	As an ecologist, you study ecology and observe environmental patterns. Your observations and analyses provide insight into the ways that changes in the environment - both natural and human-caused - dictate the behaviours of different species. Your work also helps show how interactions between ecosystems, species, and the environment impact the planet.
Eco-tourism operator	As an ecotourism operator, you specialize in leading clients on tours to learn about an area's natural and cultural history while preserving its natural environment.
Eco-toxicologist	Eco-toxicologists specialize in toxicology studying the harmful effects of chemical, biological, and physical agents on living organisms, including humans. Eco-toxicologists draw on a variety of scientific disciplines to predict, measure and explain the frequency and severity of adverse effects of environmental toxins on living organisms. Their work improves environmental protection by bringing a greater understanding of the hazards and risks to which organisms are exposed.
Energy auditor	Energy auditors use a systemized approach to measure, record, and evaluate the flow of energy. They determine if it is being used efficiently and pinpoint where it is being wasted. Individuals in this occupation come from varying backgrounds. You could be an accountant with an interest in the energy sector, or an engineer who received an auditor designation, anyone and everyone could become an energy auditor.
Entomologist	As an entomologist, you study insects. You use science to identify, classify, and study insects and their relationships to plants and animal life. Your research plays a huge role in understanding ecosystems: how they function, how they are changing, and how best to protect them. You also play a large role in industries such as agriculture and forestry, and in managing insect populations to protect public health.
Environmental assessment analyst	An environmental assessment analyst researches and analyzes environmental data and information for the preparation of environmental assessment reports following federal and provincial environmental assessment legislation.
Environmental auditor	An environmental audit is a detailed analysis of an organization's products and processes that evaluates its performance from an environmental perspective.

	Environmental auditors can conduct two different types of audits: a compliance audit measures if a business is meeting internal and external environmental guidelines and legislation, and a management performance audit measures if a business is meeting the criteria for management systems.
Environmental chemist	Environmental chemists work to improve environmental health and safety using their knowledge of the chemical properties of substances. They study the formation of chemicals, how chemicals interact with the environment and what effects they have. They also apply chemical theory to calculate the impact of human activity on the environment
Environmental communications officer	An environmental communications officer oversees the dissemination of information on environmental issues and events on behalf of the organization they work for. Environmental communications officers are responsible for developing awareness and outreach programs for local communities living in protected areas and they monitor and supervise outreach activities including conducting surveys and organizing fundraising events.
Environmental coordinator	Environmental coordinators develop and implement environmental programs for companies and organizations that are not necessarily environmentally-based themselves. Coordinators are responsible for overseeing these programs and for reporting to upper management on their progress. For example, an environmental coordinator might work for a large manufacturing company to test nearby land and water for contaminants and to ensure that equipment is working safely. Environmental coordinators work for private companies, government departments, educational institutions, research organizations, and consulting firms. They can also be self-employed.
Environmental economist	Environmental economists specialize in a branch of economics that incorporates environmental implications into economic analysis. They study the environmental impacts, both positive and negative, of projects and policies from an economic perspective and use this to advise industry and government on the environmental impacts of decisions.
Environmental educator	Environmental educators are teachers, coordinators, facilitators, communicators, mentors, and community leaders. They work in a variety of locales and with a variety of audiences: some work in schools and post-secondary institutions, some teach adults through workshops and conferences, and others work in places such as zoos and parks. Environmental educators teach others about issues of conservation, preservation, and sustainability and play a significant role in developing environmental awareness.
Environmental enforcement officer	Environmental enforcement officers enforce provisions of the Fisheries Act and the Canadian Environmental Protection Act, 1999. They conduct inspections to verify compliance with environmental legislation and investigate cases where violations are discovered. Environmental laws and regulations are designed to protect and foster a healthy and sustainable environment; environmental enforcement officers ensure these laws are not broken.
Environmental epidemiologist	Environmental epidemiologists are medical professionals who investigate the relationship between health and the environment. Problems frequently investigated by environmental epidemiologists include environmental toxins, for example, soil contaminants; health problems caused by poor air and water quality; and occupational hazards, for example, asbestos in old buildings. In addition to diagnosing these problems, environmental epidemiologists recommend strategies and interventions to fix or improve harmful situations and are critical to maintaining public health.
Environmental geologist	Environmental geologists study the structure of the earth with a direct focus of understanding human interactions with the land, particularly to predict or anticipate geological issues and provide information to help minimize impacts on the environment. This occupation is an extension of various scientific disciplines such as physics, chemistry, and biology.
Environmental geophysicist	Geophysicists study the structure and composition of zones below Earth's surface using techniques that employ seismic, electrical, and magnetic signals. They use non-invasive methods to study subsurface conditions, for example contamination and oil and gas exploration.
Environmental health officer	Environmental health officers are responsible for carrying out measures for protecting public health, including administering and enforcing provincial legislation related to environmental health and providing support to minimize health and safety hazards.
Environmental lawyer	An environmental lawyer works to represent clients in legal issues such as with clean technology, water pollution, climate change, the management of land subject to

	Indigenous communities and other public lands. Other areas of focus include environmental rights, international environmental law, the law of the sea and international resources law. Environmental lawyers advocate for balanced regulations regarding pollution and the handling of materials, fight to protect biodiversity, agriculture, and ecosystems and confront issues of waste management.
Environmental manager	Environmental managers work in both the public and private sectors and are responsible for managing projects to lessen environmental impacts and ensure that all applicable legislative requirements are fulfilled. They are also involved in activities such as environmental awareness projects, sustainable development, fundraising, and public consultation programs. Often responsible for managing the work of others, environmental managers may also be involved in training personnel on environmental issues. To be a good environmental manager, you need a broad understanding of environmental issues combined with the expertise and a lot of experience in project development and management.
Environmental marketing specialist	Environmental marketing specialists work to promote environmental products, services, and programs. These specialists conduct market research and develop strategies for environmental organizations and firms. They are responsible for public relations activities such as gauging public opinion, developing partnerships with other stakeholders, and interacting within a team environment. Environmental marketing specialists also contribute greatly to product evaluation by identifying target audiences and goals, developing the project schedule and budgets, coordinating resources to implement the work plans, assessing and assuming risk management, and promoting and marketing the product.
Environmental monitor	As an environmental monitor, it's your job to study the natural world and to make sure that human activities don't harm the environment. For example, an environmental monitor working for a mine would spend most days outdoors collecting samples of water, air, land, and plants. They would measure the dirt roads, making sure the roads don't erode into the nearby creek and create silt in the creek (which would probably kill any fish in the creek). They'd collect all of this data out in the field and send it back to labs for analysis. Environmental monitors generally work for government departments, environmental boards, large corporations, and consulting companies.
Environmental monitoring technician	Environmental monitoring technicians observe the environment and the impacts of human and industrial activities. There are two areas of specialization for environmental monitoring technicians: regulatory and research. Regulatory monitors are responsible for monitoring the activities of the industry to ensure project terms and conditions are met, whereas research monitors assist technicians and technologists in monitoring factors of the environment, for example, wildlife counts, surveys, or sampling. Environmental monitoring technicians communicate valuable information to stakeholders to work toward mitigating negative environmental impacts.
Environmental planner	Environmental planners are responsible for developing short- and long-term plans for land use in urban and rural areas while balancing considerations such as social, economic, and environmental issues. They also contribute to environmental impact assessments. Environmental planners can be involved in a range of fields, including strategic, commercial, and industrial development, as well as heritage, tourism, and integrated resource planning. Environmental planners work on a range of scales, from local planning to regional and national strategies.
Environmental policy analyst	Environmental policy analysts define how environmental concerns are approached from an organizational or government perspective. They review and analyze trends and impacts to develop environmental policies. Working both in the private and public sector, they establish environmentally responsible business practices, advise decision-makers and develop regulations. Environmental policy analysts define how environmental concerns are approached from an organizational or government perspective. They review and analyze trends and impacts to develop environmental policies. Working both in the private and public sector, they establish environmentally responsible business practices, advise decision-makers and develop regulations.
Environmental psychologist	Environmental psychologists study the relationship between the physical environment and human behaviour. They focus on both natural and constructed environments on a scale ranging from individual homes and offices to entire urban areas and geographic regions. Their research looks at issues of attention and how people notice and perceive their environment, why people prefer different environments, and how people cope with environmental stress. Environmental psychologists play an active role in examining human behaviours that have caused

	environmental problems such as global warming and resource depletion, as well as in initiating the necessary substantial changes to human lifestyles to achieve a sustainable future.
Environmental reporter	Environmental reporters are journalists who specialize in gathering and presenting environmental information that is newsworthy and timely. Like all journalists, they write, film, and transcribe news reports, commentaries, and features for a variety of media, including print, television, radio, and the Internet.
Environmental scientist	Environmental scientists support environmental projects in their workplace with scientific analysis. They conduct scientific studies, prepare reports, and develop management plans to help make sure the environment is preserved. For example, an environmental scientist might visit an industrial plant and test the area's air quality. If the tests show that the company has been polluting the air, then the environmental scientist would work with the company's management to make the plant more environmentally friendly. The scientist may also organize training programs for the staff, so they know how to test the air quality and fix any problems. Environmental scientists work for a large number of organizations, including community environmental offices, band and hamlet councils, consulting companies, and federal and provincial governments.
Environmental technical salesperson	As an environmental technical salesperson, you know this product is a good fit for the needs of hazardous waste professionals, particularly those who respond to emergency spills. The product is a new kind of sand-filled spill barrier designed to contain and divert hazardous spills. You discuss the product with the supervisor, initially focusing on the unique adhesive feature of these barriers, which temporarily bond with any smooth surface, such as a road or cement floor, making them very quick to position in emergency situations, where time is critical. You also highlight other advantages of these barriers: they are reusable, easy to move and position, and resistant to most hazardous materials.
Environmental technician/technologist	Environmental technologists/technicians support the environmental sector from a more hands-on approach and work with environmental scientists, lawyers, and researchers.
Environmental training specialist	Environmental training specialists design and deliver environmentally focused training to a wide variety of clientele in both the public and private sectors. They develop specific courses to enhance environmental skills and knowledge using a number of formats and delivery techniques. They often collaborate with other qualified individuals to deliver training that requires a specific skillset and expertise. Environmental training specialists combine technical knowledge and research ability with strong communication skills and a talent for working with many kinds of people in order to convey information and teach others.
Fisheries specialist	Fisheries specialists study fish populations to improve disease control, maintain habitat quality, and develop conservation methods and safe industry practices. They often specialize in fish biology, habitat management, or population dynamics. A large part of the job involves working to consult with and educate the public on a variety of environmental issues that affect agriculture, forestry, and watersheds.
Fisheries technician	Fisheries technicians/technologists study fish and their environment and can work with both wild populations and hatchery-raised stock. Working with a variety of fish species and habitats, fisheries technicians/technologists are often responsible for sampling and gathering data and supporting research and fisheries management. They play a key role in the conservation and protection of Canada's fisheries resources.
Forest firefighter	Forest firefighters move towards the source of fire to suppress it and minimize damages both to the environment, workspaces and homes, and protect potential victims such as humans and wildlife. Their role is becoming ever more important as we see an increasing number of forest fires in the summer months with periods of unbreathable air and 'stay home' orders.
Forester	Foresters apply scientific expertise to land and natural resource management and are responsible for implementing and supervising natural resource programs in forestry and land use. They combine their knowledge of the biotic components of a forest, namely the trees and other vegetation, with the abiotic components of air, water, and soil to make sound management and planning decisions. There are also a number of urban foresters working for municipalities to manage tree stands and small forested areas within Canada's towns and cities.
Forestry technician/technologist	Forestry technicians/technologists work closely with other forestry professionals to manage, conserve, and harvest forests. Forestry technicians/technologists play a key role in the management of Canada's forest resources, contributing to the balance of sustainability and demand for wood products.

Geographer	Geographers study the physical world and examine the connections between people, places, and the earth. They examine social aspects, such as human demography, and physical aspects, such as geomorphology, drawing on a number of other disciplines, for example, biology, oceanography, and sociology. Geographers contribute to the understanding of social and environmental issues regarding land use and resource management by examining how different spatial elements are related to one another.
Geomatics technician	Geomatics technicians/technologists determine the exact locations and positions of natural and man-made features by collecting data from maps, surveys, remote sensing, and GIS databases. They work with sophisticated software to model and analyze visible surface features, as well as what is hidden underground and underwater.
GIS analyst	Geographic information system (GIS) is a digital mapping technique that links computer-generated maps with databases. GIS analysts use this technology to integrate biophysical, ecological, and socio-economic data that can be analyzed for purposes such as tracking wildlife, mapping erosion, monitoring air and water quality, or measuring logging rates.
Glaciologist	Glaciologists analyze the formation, movement, and effects of the different kinds of glaciers, for example, alpine and arctic glaciers, ice caps, ice sheets, and ice shelves. A large part of the research conducted by glaciologists analyzes how glaciers and ice caps move and change in response to climate change and how these changes in turn influence climate and the surrounding environment.
Hazardous waste technician	Hazardous waste technicians are responsible for handling, processing, packaging, and tracking hazardous waste for shipment, treatment, and disposal. They can also be involved in coordinating hazardous waste programs for both private industry and the public sector. They can be employed by waste recycling and treatment facilities or with large companies, packaging and shipping their hazardous waste. Hazardous waste technicians have specialized training on how to safely handle and dispose of chemical, biohazard, and radioactive wastes.
Horticulturist	Horticulturists are agricultural scientists whose focus is finding a better way to develop, grow, harvest, store, process, and ship fruits, vegetables, and decorative plants. They work with orchard, field, garden, nursery, and greenhouse plants to research and conduct tests related to breeding, spraying, and harvesting plants. Horticulturists also use their expertise to develop new plant varieties, such as varieties that can better resist insects or disease or are better adapted to growing in a range of climates and soils.
Hydrologist	A hydrologist studies the dynamic nature of water, the forces that cause water to move around and what effects this movement has on the surrounding environment. Hydrologists examine issues such as precipitation pathways, the relationship between rainfall and runoff, and the effects of precipitation on soils and various landscapes. They are also involved in projects to determine and promote sustainable usage of water sources and water conservation.
Industrial waste inspector	Industrial waste inspectors are watchdogs who routinely check companies to make certain they are adhering to regulations. They use keen observation skills, sampling, and laboratory skills in combination with an understanding of industrial practices, corporate environmental policy, environmental liability, and procedures for proper handling, storage, and disposal of waste. Above all else, industrial waste inspectors rely on their knowledge of environmental regulations to ensure that companies are in compliance with applicable laws and the environment is protected.
ISO 14000 consultant	ISO 14000 consultants plan and implement an organization's ISO 14000 (International Organization for Standardization) systems. These systems allow the organization to better manage its environmental risks by providing standard, established, and documented procedures to follow. ISO 14000 consultants focus on a number of areas, including environmental management systems, environmental auditing, evaluation of environmental performance, environmental labeling, and life cycle assessment.
Laboratory assessor	Laboratory assessors examine and private and public laboratories. They evaluate a lab's operation to ensure compliance with government and environmental regulations, as well as licensure and certification requirements. Their assessments include checking critical equipment and operational characteristics, evaluating demonstrations of testing procedures, and reviewing Quality Control systems within the lab. Laboratory assessors ensure laboratories achieve and maintain the highest levels of scientific and management excellence as a means to protect human and environmental health.

Land use planner	Land use planners decide how to build communities based on environmental and human needs. After taking the time to understand what residents, community groups, politicians, and businesspeople want in their communities, land use planners develop a strategy for action. For example, if a land use planner were creating a plan for a new neighborhood, he or she would design roads, parks, homes, and stores. Land use planners work for real estate agencies, not-for-profit organizations, architectural companies, and the government.
Landscape architect	Landscape architecture takes a holistic view of the design, planning, management, and stewardship of the land. Landscape architects often work as members of a multidisciplinary team, for example, with planners, ecologists, and engineers, on projects that can range from designing residential yards and parks to constructing wetlands to treating polluted runoff from former industrial sites. Landscape architects use art and science to create a balance between the needs and wants of people and the limitations of the environment.
Limnologist	Limnologists are scientists who study the physical, chemical, and biological properties of lakes, rivers, and streams. They study abiotic characteristics, such as stratification and water chemistry, as well as biotic elements, such as aquatic vegetation, algae, microbes, and invertebrates. Limnologists and their work play a vital role in protecting freshwater resources, and Canadian researchers are global leaders in the field.
Marine biologist	Marine biologists study species that inhabit bodies of water and observe any changes to bodies of water. They also focus on different aspects of marine life, including the process of marine development, how organisms interact with one another and the ecosystem and how pollution may affect marine environments.
Meteorologist	Meteorologists are atmospheric scientists. They continually analyze vast amounts of data, including surface and upper air observations of temperature, wind, pressure, and humidity, as well as weather satellite data, radar data, lightning strikes, and data from weather models. Based on this information, they might issue a warning or produce a public, aviation, or marine forecast. But not all meteorologists forecast the weather: other specialties include research into atmospheric chemistry, biological impacts, and computer modelling.
Microbiologist	Microbiologists study organisms that are too small to be seen by the naked eye, including bacteria, fungi, viruses, and protozoa. Microbiologists that specialize in the environment are typically involved in projects that address issues of contamination, for example, identifying and quantifying pathogens, as well as bioremediation, which uses micro-organisms such as bacteria to clean up toxic substances. In addition to the environment, microbiologists are employed by industries such as pharmaceuticals and medicine, food production, and agriculture.
Naturalist	Naturalists are experts in natural history. They study not only living things, such as plants and wildlife but non-living things, such as minerals and fossils. Naturalists often use their knowledge to educate others, for example, visitors to parks, through nature hikes and interpretive centres. Naturalists may also work for environmental organizations planning special events or write for newsletters, television, and radio. The opportunities for naturalists are varied, but all naturalists have the common goal of sharing their knowledge of the environment to preserve our natural history.
Occupational hygienist	Occupational hygienists maintain workplace health and safety by identifying, evaluating, and controlling exposure to chemical, physical, ergonomic, and biological hazards. The responsibilities of an occupational hygienist vary depending on the industry, workplace, and the types of hazards affecting employees. Occupational hygienists most often work in companies to reduce stresses on the worker and to implement control measures that will reduce the incidences of impaired health and sickness and identify inefficiencies in the workplace.
Oceanographer	Oceanographers are scientists who apply biological, chemical, physical, and geological principles to the study of the world's oceans. They study flow patterns such as currents, circulation, and tides; the relationship between the oceans, weather, and climate; chemical factors such as contaminants; and ocean interactions, for example with air, ice, and land formations. Oceanography is a combination of validating existing ideas and research and finding new ways to explore the ocean and explain new findings.
Ornithologist	Ornithology is the study of birds, including bird physiology, behaviour, population structure, and how they live in their environment. Ornithologists can be found working on a variety of projects, for example protecting endangered species, such as the whooping crane and peregrine falcon, from extinction or addressing practical problems, such as keeping scavenger birds away from landfill sites or stopping geese

	from nesting near airports. Given the migratory nature of many bird species, the knowledge and expertise contributed by ornithologists to the management and preservation of ecosystems has local, provincial, and international impact.
Park interpreter	Park interpreters research, develop, and conduct education programs for visitors to national, provincial, and municipal parks and conservation areas. They use a variety of methods for educating visitors, for example nature walks, theatre presentations, or bulletins and pamphlets. Park interpreters are always studying different aspects of their environment and sharing what they learn.
Park warden	Park wardens are responsible for implementing natural resource management, public safety, and law enforcement programs within Canada's national parks system. They are involved in a variety of activities, including assisting scientists with research, monitoring wildlife, capturing, and relocating animals when necessary, making public presentations, liaising with visitors, and providing first aid and search and rescue support. Park wardens use their educational background and work experience to monitor ecological concerns and maintain the environmental health of Canada's national parks.
Pollution control technologist	A pollution control technologist focuses on identifying pollution sources, monitoring pollutants, and addressing issues of contamination and pollution.
Post secondary instructor	Post secondary instructors of environmental programs teach students at universities and other degree-granting institutions. They also conduct scientific research and publish their findings in professional and academic journals and magazines. For example, someone wanting to understand how geese find the same location every year would study geese throughout university and then become a professor to share their knowledge. Most professors work at universities and other degree granting institutions. Others work for the government.
Recycling coordinator	Two critical environmental issues overuse of natural resources and shortage of places to dispose of waste have necessitated the role of recycling coordinator. There are many opportunities for recycling in Canada, and recycling coordinators must be aware of all of them. Recycling coordinators have a variety of backgrounds, but all share a commitment to environmental sustainability and lessening the impact of society's consumption on the environment.
Remediation specialist	Environmental remediation is the treatment and removal of contamination from soil, groundwater, and other media. Remediation specialists design and implement remedial action plans to clean up sites affected by substances such as automotive fuels, pesticides, and heavy metals.
Remote sensing technologist	Remote sensing technologists use aerial photos, imaging radar, digital image analysis, and Global Information Systems (GIS) to study the Earth's surface—without ever needing to visit the location they study. For example, a remote sensing specialist might interpret images to understand how a forest fire is moving and whether a nearby community will need to be evacuated. Remote sensing specialists work for natural resources companies, forestry consulting firms, other consulting firms, environmental organizations, and the government.
Restoration biologist	A restoration biologist works to renew degraded, damaged, or destroyed ecosystems and habitats that have been disturbed by human action and climate change. They provide expertise and guidance in planning and conducting habitat, watershed, and stream channel restoration projects and monitor endangered species and coordinate conservation activities.
Science camp coordinator	Science camp coordinators are responsible for all aspects of camp programming. One moment they could teach an interactive lesson to the kids and the next, they might be in the kitchen preparing them dinner. They will need to know a lot about science and the natural world, because they will be developing lesson plans and programs. Camp coordinators spend a lot of time with children, so they will need to be understanding, patient, and energetic. Many science camp coordinators are self-employed, while others work for government agencies, libraries, schools, heritage centres, and other recreational institutions.
Science teacher	High school science teachers plan and teach science courses. Teachers in cities often teach classes in only one or two subject areas. In smaller, rural areas, teachers often have to teach a broader range of material. High school teachers need to have a broad understanding of the subjects they teach and should be patient, enthusiastic, and creative in their approaches. For example, you could plan a lesson about the properties of water and ice by having your students design and build an igloo. Most teachers work for public or private school boards. Others work in vocational schools or for the department of education.
Soil conservationist	Soil conservationists help farmers and other land managers make the best use of the land without causing harm. They identify and work to minimize threats to soil

	health, for example, wind erosion, storm runoff, and nutrient depletion. Soil conservationists improve management practices to protect land and implement strategies for sustainable use. Soil conservationists help farmers and other land managers make the best use of the land without causing harm. They identify and work to minimize threats to soil health, for example, wind erosion, storm runoff, and nutrient depletion. Soil conservationists improve management practices to protect land and implement strategies for sustainable use.
Soil scientist	Soil scientists study the chemical, physical, and biological properties of the first few metres of Earth's crust. More specifically, they study soil formation, classification, and soil characteristics such as the organisms found in the soil and the relationship between soil types and plant growth. The information provided by soil scientists is vital to industries such as agriculture and forestry, as well as policymakers addressing issues of public health and environmental protection.
Survey technician	Survey technicians operate survey instruments and computer equipment to measure distance, angles, elevations, and contours. They use this information to establish geographical locations and boundaries. For example, a survey technician might survey and lay out sub-divisions for rural development. Survey techs work for construction companies, aerial photographers, natural resource firms, and the government. Some survey technicians are self-employed.
Sustainability consultant	A sustainability consultant works within the environmental sustainability discipline which explores the ways in which human activity and the environment can interact to meet the needs of today without jeopardizing the future. Sustainability is built on three pillars – economic, social, and environmental – each of which is important.
Sustainability educator	Sustainability Educators are university or college professors who research and teach specialized topics in sustainability. In order to qualify for this role, Sustainability Educators must demonstrate high levels of education and experience: the vast majority of these professionals have post-graduate degrees and at least eight years of professional experience. Similar to Sustainability Researchers, Sustainability Educators act as thought-leaders and innovators for the theory, practice and research behind sustainability. These practitioners spend many years learning about key sustainability factors, including environmental, social, cultural, political, economic and ethical issues. While Sustainability Educators must develop extensive knowledge about diverse sustainability topics, they also need to communicate this expertise clearly and effectively to post-secondary students. In fact, this opportunity to educate the next generation of sustainability professionals is one of the most exciting and rewarding aspects of a career as a Sustainability Educator.
Sustainability officer	Sustainability officers oversee a comprehensive suite of activities related to reducing environmental impacts and applying sustainability principles. They develop, implement, and evaluate programs for their employers that support social, environmental, and economic sustainability objectives.
Sustainability researcher	Sustainability researchers conduct studies to develop sustainability models, indicators and best practices. They often hold advanced degrees in fields related to environmental, economic and social sustainability. Some sustainability researchers also support policy development in federal, provincial or municipal governments.
Sustainability specialist	Sustainability specialists help their organizations comply with national, provincial and local environmental regulations, while also ensuring their organization functions in a financially viable and socially responsible manner. These practitioners interpret and develop procedures to meet environmental regulatory requirements, establish sustainability strategies and programs, communicate with stakeholders about environmental concerns, and address the risks associated with environmental degradation. This occupation is ideal for mid-career professionals who have significant experience in their employer's operations, since sustainability specialists often need a comprehensive understanding of all facets of their company, along with a strong knowledge of sustainability principles and practices.
Sustainability trainer	Sustainability trainers develop and deliver training programs to help corporations implement sustainable business practices in an efficient and cost-effective manner. These practitioners build a solid understanding of the latest trends in economic, social and environmental sustainability, then create courses, seminars and workshops that present these trends to business audiences using engaging, concise and informative formats. As a result, the role of a sustainability trainer is one part sustainability researcher and one part sustainability educator – sustainability trainers need strong subject matter expertise on sustainability issues, as well as a talent for teaching according to different learning styles and needs. By educating businesses about sustainability best practices, sustainability trainers help numerous

	individuals work more effectively, reduce costs, conserve resources and mitigate environmental harm.
Sustainable interior designer	A sustainable interior designer creates interior spaces using design principles such as functionality, accessibility and aesthetics and expands their focus to include environmental considerations.
Tree planter	Tree planters plant seedlings and often select and prepare sites for tree planting. For example, a tree planter might use a shovel to clear away debris before planting young trees in the soil. Tree planters work for logging companies, tree planting companies, and contractors.
Waste management specialist	Waste management specialists plan, implement, and coordinate comprehensive waste management systems that are designed to maximize waste prevention, reuse, and recycling opportunities. They can be involved in all stages of a project, for example establishing a company's waste management goals and objectives, working with employees to help implement waste management policies, and evaluating the success of management plans. Waste management specialists play a key role in minimizing the impact of waste and protecting the environment.
Wastewater collection and treatment operator	Wastewater collection and treatment operators work on systems that collect and treat municipal wastewater. Depending on the size of the system and the municipality, this can be two different jobs: in smaller systems, one person often does both treatment and collection, but in larger centres, a different operator handles each function. Wastewater collection operators work on storage and storm sewer systems, specifically piping, pumping, and lift stations, whereas wastewater treatment operators work in treatment plants, treating and disposing municipal wastewater. These operators also take samples for lab analysis, work with chemicals and equipment used to disinfect wastewater, and maintain equipment, making minor repairs to piping, pumps, and valves.
Water and wastewater laboratory technologist	Water and wastewater laboratory technologists manage technical processes used for water purification and wastewater disposal. They ensure that these processes are environmentally safe and are compliant with industry standards and methods. Water and wastewater laboratory technologists manage technical processes used for water purification and wastewater disposal. They ensure that these processes are environmentally safe and are compliant with industry standards and methods.
Water quality technician	Water quality technicians are responsible for monitoring and operating control systems and ensuring that the equipment in water filtration and treatment plants are functioning properly so that water is safe for use. These individuals perform a variety of technical duties, including inspecting, sampling, monitoring, and testing, and work with both groundwater and surface water sources.
Water treatment and distribution operator	Water treatment and distribution operators oversee the activities and processes that go into treating and distributing municipal drinking water. Water treatment and distribution operators oversee the activities and processes that go into treating and distributing municipal drinking water.
Wetland biologist	A wetland biologist manages and protects wetland resources. To do this they implement wetland conservation techniques, enforce regulations, and provide consultation on construction projects in wetland sensitive areas. Your work in this occupation involves performing environmental field studies, monitoring plants and species at risk of becoming endangered.
Wildlife biologist	Wildlife biologists maintain and conserve Canada's wildlife populations. They examine factors such as disease, nutrition, habitat relationships, and population dynamics. Wildlife biologists study the impact of environmental change on species survival and growth rates and the interactions between wildlife and their ecosystems, and they predict how land use decisions will impact wildlife and the ecosystems they depend on.
Wildlife technician/ technologist	Wildlife technicians/technologists provide support and services to scientists working in wildlife management and animal biology. The responsibilities of wildlife technicians/technologists are wide-ranging, depending on where in Canada they work. Generally, the work of wildlife technicians/technologists consists of collecting and analyzing samples, operating and maintaining laboratory field equipment, inputting and managing data, and preparing reports of findings.
Wind energy developer	Wind energy developers search out opportunities and appropriate sites to build large-scale wind energy developments. They also manage design, construction, and marketing of the product. Wind energy developers must not only understand the technical aspects of wind farms and energy generation, but also have strong negotiation and sales skills to broker deals with landowners, suppliers, and potential buyers.

Zoologist	A Zoologist is a sub-division of biologists. Zoology is the scientific study of the animal kingdom and encompasses a comprehensive variety of organisms, from small invertebrates such as earthworms to giant mammals such as blue whales. This occupation is sometimes used interchangeably with wildlife biologists or animal biologists.
Job Title	Job Description – Specific examples from web survey in 2019
Environmental Consultant (Pollutech Environmental Limited Oakville, ON)	The Pollutech Group of Companies Inc., is an independent Canadian consulting firm providing services nationally and internationally in the fields of environmental consulting, chemistry and biology. Pollutech Environmental Limited has immediate employment opportunities in its Oakville, Ontario office to join its professional staff of environmental consultants.
Environmental Supervisor (SynergyAspen Environmental Inc. Fort St. John, BC)	The Environmental Supervisor performs significant field work including site investigation, remediation, reclamation and natural sciences projects. This role provides assistance to the Environmental Scientist, both in the field, and in the office.
Laboratory Technician Environmental SGS Canada, Lakefield, ON	Duties may include: sample reception, sample identification, sample preparation, sample dilutions, setting up analytical batches and analysis, batch Quality Control, approving and releasing results to the data centre and filing of lab results/data.
Environmental Specialist – Various Fields Government of Canada, Montreal, QC	Duties: Environmental Services lends its expertise to Public Services and Procurement Canada (PSPC) and other federal departments in carrying out their mandates, including environmental issues. Under general supervision, specialists manage projects, studies, investigations, compliance assessments and audits on a variety of issues in addition to proposing appropriate actions in support of compliance of both departmental, federal, provincial, territorial, and municipal regulations and standards. EDUCATION: You must have a degree from a recognized postsecondary institution with specialization in biology, physics, chemistry, geology, engineering or another science related to the duties of the position.
Laboratory Assistant - Food and Environmental Integrated Explorations Inc Guelph, ON	The ideal candidate will be involved in all areas of the company including the microbiology, chemistry, investigative and environmental sectors. Laboratory duties will include but are not limited to: Chemistry - TS/VS, TP, TN, BODs, CODs
Environmental Consultant (Contract) Chinook Environmental Services Ltd. Red Deer, AB	Chinook Environmental Services Ltd. (CESL) is in need of an individual to assist in daily field duties. The Candidate MUST have a Post-Secondary background in Environmental Science.
Environmental Health Officer First Nations Health Authority - Kamloops, BC Permanent	In this position you will be helping First Nations leadership manage a wide range of public health risks associated with both natural and built environments. As an Environmental Health Officer, you will promote and enhance the health and wellness of First Nations Communities through the implementation, assessment, and evaluation of environmental public health programs and services in communicable disease control, drinking water, health and housing, food safety, solid waste, public buildings, emergency preparedness and response, risk assessment, environmental contaminants research, wastewater disposal, and pest management.
Environment Protection Analyst Yukon Government - Whitehorse, YT	The ideal candidate for this position will have experience in development and interpretation of environmental policy and legislation, strong motivation to find collaborative solutions to environmental challenges, strong analytical and communication skills, and is able to work well independently and as part of a close-knit team. Education: post-secondary degree with a major in chemistry, hydrogeology, environmental or other related sciences, or in chemical, environmental or civil-environmental engineering
Chemical Waste Technician Photech Environmental Solutions Inc. - Ottawa, ON	Photech Environmental Solutions Inc is a hazardous waste management company located in Niagara Falls, Ontario. We are contracted to provide daily chemical waste collection and handling services to the University of Ottawa. The successful candidate must possess a strong post-secondary background in Chemistry.
Environmental Chemist Contrecoeur, QC	Triumvirate Environmental, one of the largest environmental services firms in North America, is looking for an Environmental Chemist to work in our Contrecoeur facility. As an Environmental Chemist, you will be able to work closely with our senior staff, building out your career at a hazardous waste company. Qualifications: BS in Environmental Science, Chemistry, Biology or equivalent preferred
Chemist Baxter - Alliston, ON	Specific Skills: Analyze, synthesize, purify, modify and characterize chemical or biochemical compounds; Conduct programs to identify and quantify environmental toxicants ; Conduct research to develop new chemical formulations and processes and devise new technical applications of industrial chemicals and compounds;

	Investigate chemical aspects of the mechanisms of drug action, the diagnosis and treatment of disease and the organ function; Participate in interdisciplinary research and development projects; Conduct research to discover, develop, refine and evaluate new products such as those used in nanomedicine, nanoelectronics and other applications of chemistry
Part-time Laboratory Technician Environmental SGS Canada https://ca.indeed.com/cmp/Sgs-Canada/reviews - Lakefield, ON	Duties may include: sample reception, sample identification, sample preparation. Ideal Candidate: A post secondary education (degree and/or diploma) in a Science related program (Chemistry, Biochemistry, Environmental Science) is a strong asset.
Laboratory Supervisor - Specialty Analysis – Air & LC/MS/MS AGAT Laboratories - Mississauga, ON	Duties and Responsibilities include: Ensure that all quality/safety/environmental/corporate policies and procedures are being followed Qualifications include: Diploma or Bachelor of Science in Chemistry or related field
Chemical Plant Operator GFL Operator - Brampton, ON	JOB DUTIES INCLUDE : The successful candidate will have 3 to 5 years' experience in the Environmental Field, with a background in chemistry (preferred). Experience: Waste management: 1 year (Preferred); Chemicals/Hazardous wastes: 1 year (Preferred)
LABORATORY ANALYST ALS Group Thunder Bay, ON	About the Position: Reporting to the Supervisor, the Lab Analyst is responsible for preparing and processing environmental samples for extraction including maintaining adequate production, quality control and turnaround times. The ideal candidate would have: Post-secondary diploma/degree in chemistry or related field an asset; Laboratory Experience.
Laboratory Technician SGS Canada https://ca.indeed.com/cmp/Sgs-Canada/reviews - London, ON	Duties may include: sample reception, sample identification, sample preparation, sample dilutions, setting up analytical batches and analysis, batch Quality Control, approving and releasing results to the data centre and filing of lab results/data. Ideal Candidate includes: A post secondary education (degree and/or diploma) in a Science related program (Chemistry, Biochemistry, Environmental Science) is a strong asset.
Depot Technician Terrapure Environmental - Georgina, ON	Terrapure Environmental is a leading Canadian provider of innovative, cost-effective environmental and industrial services, and recycling solutions that help address industry's complex environmental challenges. Headquartered in Burlington, Ont., Terrapure employs 2,000 people and operates an integrated network of over 60 locations from coast to coast. Position Description: As a Depot Technician, your primary responsibility will be to receive, sort and pack household hazardous waste from area residents at the Georgina Depot. In the role you will report to the MHSW Programs Coordinator. Education: Post-secondary degree, diploma in the field of chemistry or environmental would be an asset
Laboratory Assistant ALS Group- Waterloo, ON	About the Position: The Lab Assistant position will be working with client samples providing preparations, extractions and analysis of these samples for routine organic chemistry parameters.
Elementary Science Teacher Richmond Hill Montessori and Elementary Private School - Richmond Hill, ON \$77,000 - \$87,000 a year	Responsibilities include: Teach Science to primary students (grades 1-2) following, and building upon the Ontario curriculum. Qualifications: Bachelors' degree in Science, with Honours; Bachelor of Education in Science, with primary/junior qualifications.
Air Quality Monitoring Technologist WSP - Grande Prairie, AB	Overview of the Opportunity: WSP is currently seeking an Air Quality Monitoring Technologist to join our Air Quality team, located at our Grand Prairie office. Reporting to the Team Lead this position will be responsible for air monitor sampling, calibrations and data collection.

Appendix 4. List of Ontario Environmental Science Programs and Comparison to Proposed Program

(To be completed). The Table below provides a comparison of the program that we seek to introduce and examples of what is offered by other postsecondary institutions within the province (not an exhaustive list).

University	Degree	Admission Requirements	Structure and Comments
U of Toronto	BSc. Honours Environmental Science	<u>6 Grade 12 U/ M courses (or equivalent) including 12U English. Required: Advanced Functions, Biology and Chemistry or Physics.</u> A minimum 70%* overall final average.	- Each year features an Environmental Science Foundational course that is coupled with selected courses chosen from a list of related sciences from various disciplines. - First Yr 24 cr. requirements (Environmental Foundation - full year course; pick 6 courses from a list of BIOL, CHEM, GEOG, MATH & Physics; 2 electives).
Carlton U.	BSc. Honours Environmental Science	<u>6 Grade 12 U/ M courses (or equivalent) including: Advanced Functions and two of Biology, Chemistry, Earth and Space Sciences or Physics. (Calculus and Vectors is strongly recommended).</u>	- First Yr requires: 2 biology, 2 chemistry, 2 math, Environmental Science Seminar, 1 earth science, Environmental Impacts, 1 elective.
Lakehead University	BSc. Environmental Science (Biology, Earth Science or Geography majors)	A minimum of 6 Grade 12U or M courses including English	- Structure includes a core of common course, plus courses required for a major in 1 of 3 disciplines: Biology, Earth Science, Geography. First Yr required credits including MATH, 2 CHEM, 2 BIOL, 1 Env Studies.
Algoma University	BSc. Honours Environmental Science	<u>4 Grade 12 U or M courses (or equivalent) including Advanced Functions, 2 U/M Sciences (BIOL/CHEM recommended);</u> minimum 70% overall average.	- First Yr requirements: Intro Env. Sciences, 2 Biology, 2 Chemistry, 1 Geology, 1 Math, Critical Thinking, 2 electives. Structure in upper years a combination of required courses and electives specified by Groups in an approved list.
Laurentian University	N/A		- Laurentian folded their BSc Environmental Sciences program and their School of Environment with financial cuts in spring 2021. This leaves a significant gap in programming in Northeastern Ontario.
Wilfred Laurier University		6 U/M Courses; English, CHEM, Advanced Functions (60%); Biology (70%)	-The program offers an integration of Biology, Chemistry and Geography courses. First yr requirements include 2 Biology, 2 Chemistry, Intro to Physical Geography, Anatomy of Earth, Environmental Sustainability and Society, 2 Maths.
University of Guelph	BSc. Honours Environmental Science	<u>6 4U/M courses including ENG4U and specific subject requirements:</u> Advanced Functions, and two of the following three courses: Biology, Chemistry, Physics. English is also recommended.	-The School of Environmental Sciences at the University of Guelph has an agricultural emphasis in keeping with its strengths such as agri-food sciences, human & animal nutrition, and rural development.
McMaster University	Multiple programs		Multiple Environment Science programs (e.g Earth and Environmental Science; Environmental Science; Biodiversity and Environmental Science).
Bishop's	BSc. Environmental Sciences	<u>5 4U/M courses including English, math, 2 of biology, chemistry and/or physics (e.g. Ontario).</u>	- Defines a core group of courses (13 courses or 39 credits) from 1st and 2 nd yr); then options from 2 additional groups of courses. - First Yr: 27 required cr. (9 courses: 2 MATH, 2 PHYSICS, 2 CHEM, 1 BIOL, 1 ENV STUDIES; 1 PHYS GEOG).
University of Guelph	BSc Indigenous Environmental Science and Practice	- 6 U/M courses: English, Advanced Functions Math; Biology, Chemistry and two additional 4U or 4M courses.	- Includes Coop and experiential learning. - First Yr: 24 cr. Requires Intro to Indigenous Environmental Stewardship, Discovering Biodiversity, Calculus I, General Chemistry, Introductory Financial Accounting, Natural History of the Great Lakes Region, Indigenous Knowledge for Environmental Stewardship, Indigenous Language and Culture. - Unique courses related to Indigenous Environmental Stewardship, Right Relations, Indigenous language and culture.

Western	BSc Environmental Sciences	6 U/M Courses: English, Calculus and Vectors; 2 courses from (Advanced functions, Biology, Chemistry, Computer and Information science, Earth and Space Sciences, Math and Data Management, Physics); 2 Grade 12 U/M Courses. Note – Biology and Chemistry needed to support first year requirements.	- Courses organized into 3 groups (Life Science, Physical Science, Env Studies related (non science)). - First Yr: 24 required cr. 2 Biology, 2 Chemistry, 1 Env. Science, 1 Geography, Earth Science or Physics; 2 Math.
Trent U (multiple options)	Multiple programs – see comments.		- B.E.S.S: Degree teaches full integration of science and policy, ecological and political, preventive and interventionist approaches to environmental problems. - BSc or BA Environmental and Resources Sciences/Studies (Eco Accredited) - BSc Environmental and Life Sciences - Indigenous Environmental Studies and Sciences Program

Appendix 5. Faculty CVs

Colin McCarter, PhD

Postdoctoral Fellow

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Hamilton, ON, L8S 4K1

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mccartec@mcmaster.ca

mccarterc@gmail.com

ORCID: 0000-0002-7308-0369

Citizenship: Canadian

Curriculum Vitae

Highlights

- ❖ Broad interdisciplinary field, laboratory, and modelling research experience combining ecohydrology, trace metals, (bio)geochemistry, reactive transport, ecosystem restoration, and soil science
- ❖ 26 published (14 first or co-first author), 3 in review, 3 published data products, and 45 conference oral or poster presentations
- ❖ Secured \$1,150,984 CND in funding as Principal or Co-Principal Investigator
- ❖ Mentored 12 graduate and 12 undergraduate students, resulting in 4 co-authored publications
- ❖ Received NSERC PDF and CGS-D, and 7 best student paper/presentation awards from academic societies and conferences
- ❖ Taught both graduate (Winter 2018 & 2012, avg. instructor excellence score 4.7/5) and undergraduate (Spring 2015, avg. instructor excellence score 4.0/5) courses

Education

Doctor of Philosophy, Geography and Environmental Management (2012-2016), *University of Waterloo, Dr. Jonathan Price*

- ❖ Thesis Title: Hydrochemical fate and transport of treated domestic wastewater contaminants during a wastewater polishing experiment in a sub-arctic ladder fen peatland.

Full-text available at: <http://hdl.handle.net/10012/10937>

Master of Science, Geography and Environmental Management (2010-2012), *University of Waterloo, Dr. Jonathan Price*

- ❖ Thesis Title: The hydrology of the Bois-des-Bel peatland restoration: A tale of two scales

Full-text available at: <https://uwspace.uwaterloo.ca/handle/10012/7007>

Bachelor of Environmental Studies, University of Waterloo

2005 - 2010

- ❖ Honours Major: Geography and Environmental Management – Specialization in Physical Geography
- ❖ Excelled in all Geographic Information System courses (1st – 4th year)

- ❖ *Diploma in Ecological Restoration & Rehabilitation*
- ❖ Thesis Title: Ecohydrology of *Sphagnum* moss hummocks: mechanisms of capitula water supply and simulated effects of evaporation. <http://dx.doi.org/10.1002/eco.1313>

Work Experience

McCall MacBain Postdoctoral Fellow – Wildfire and Trace Metal Ecohydrology (September 2020 – present), *School of Earth, Environment & Society, McMaster University, Dr. James Michael Waddington & Dr. Karen Kidd*

- ❖ Successfully co-led an international collaboration to obtain seed funding focused on the intersection between climate change, peatland wildfires, toxic metals, ecosystem toxicity and human health (McMaster University Global Science Initiative, direct funding - \$200,000 CND, external leveraged funding - \$439,626 CND, total budget - \$639,626 CND)
- ❖ Developing a conceptual model to understand the linkages and feedbacks between peatland wildfire, climate change, toxic metals and aquatic ecotoxicity
- ❖ Strengthening my leadership and teaching skill set through participating in the McCall MacBain Postdoctoral Fellows Teaching and Leadership Program (awarded \$13,000 CND)
- ❖ Field and lab-based research related to peatland ecohydrology, wildfire and metal geochemistry
- ❖ Graduate and undergraduate student research supervision

NSERC Postdoctoral Fellow – Trace Metal Hydrogeochemistry (February 2018 – August 2020), *Department of Physical and Environmental Sciences, University of Toronto Scarborough, Dr. Carl Mitchell*

- ❖ “Methylmercury transport in relation to dissolved organic matter, soil colloids, and suspended particulates under a changing climate” (**awarded an NSERC Postdoctoral Fellowship, ranked 3rd nationally in Earth Sciences, \$105,000 CND**)
- ❖ Field and lab-based research related to hydrology, biogeochemistry and soil science
- ❖ Compiled, QA/QC and analyzed hydrological and biogeochemical data from multi-year field and laboratory experiments focused on peatland dominated landscapes
- ❖ Developed and implemented laboratory experiments to determine fundamental transport processes of methylmercury in soils
- ❖ Graduate and undergraduate student research supervision

Postdoctoral Fellow - Hydrogeochemistry (October 2016 – January 2018), *Ecohydrology Research Group, Department of Earth and Environmental Sciences, University of Waterloo, Dr. Philippe Van Cappellen*

- ❖ Researched hydrogeochemical nutrient and contaminant transport in organic soils
- ❖ Designed and implemented experiments to determine the role of anion exclusion and diffusion in complex dual porosity media through experimental and modelling techniques
- ❖ Guided graduate and undergraduate students in their research
- ❖ Supervised undergraduate students during co-op work terms

Hydrology Researcher (May 2010 – August 2010), *Wetlands Hydrology Laboratory, Department of Geography and Environmental Management, University of Waterloo, Dr. Jonathan Price*

- ❖ Designed and conducted a hydrological monitoring regime to complete a water budget and study critical zone processes in a restored peatland, Quebec, Canada
- ❖ Modelled the critical zone hydrology of *Sphagnum* mosses using Hydrus 1-D

Peatland Restoration Research Assistant (January 2009 – August 2009), *Wetlands Hydrology Laboratory, Department of Geography and Environmental Management, University of Waterloo, Dr. Jonathan Price*

- ❖ Identified processes governing critical zone hydrology in *Sphagnum* mosses through unsaturated hydrophysical parameterization
- ❖ Created of topographic maps using Differential Geographic Positioning System data and ARCGIS software to aid in the restoration of fen peatlands

Hydrogeochemical Field/Laboratory Assistant (May 2008- August 2008), *Department of Earth and Environmental Sciences, University of Waterloo, Dr. Jim Barker*

- ❖ Studied the vertical migration of a conservative solute (bromide) in the critical zone of the Borden aquifer from a subsurface injection
- ❖ Sampled groundwater and soil for complex hydrocarbons and major ions

Teaching Experience

University of Toronto Scarborough

Lecturer (Winter term, 2018 & 2021), EES1126: Hydrology and Watershed Management, Graduate

- ❖ Responsible for delivering weekly lectures to 20 graduate students on advanced hydrological processes and linking these mechanisms to watershed management; particularly highlighting the role of Conservation Authorities
- ❖ Developed a new Watershed Management project using “real-world” hydrological and biogeochemical data from the Grand River Watershed
- ❖ Converted the course to a fully online delivery for the winter 2021 semester
- ❖ Received an average 94 % (median 100 %) instructor excellence rating
- ❖ Ensured all relevant University regulations were met

University of Waterloo

Lecturer (Spring term, 2015), Geog 209: Hydroclimatology, Undergraduate

- ❖ Responsible for delivering twice weekly lectures to 90+ students on the fundamentals of hydrology and climatology, and linking these mechanisms to global scale processes and issues (i.e., climate change)
- ❖ Created new labs to better illustrate the fundamental processes in hydrology and hydrogeology (i.e., illustrating groundwater quality risks due to different hydrological conditions)
- ❖ Received an average 80 % instructor excellence rating
- ❖ Coordinated 6 laboratory sessions and 3 teaching assistants
- ❖ Ensured all relevant University regulations were met

Teaching Assistant (6 courses) (2010 - 2014), Physical Hydrology, Hydroclimatology, Wetlands, Introduction to Physical Geography, and Advanced Environmental Law

- ❖ Developed and implemented laboratory and field projects to help guide students in the real-world application of the course material
- ❖ Assisted students in understanding the core concepts related to the course
- ❖ Advised students in technical/academic writing

Invited Lectures

- ❖ “The effects of clearcutting and biomass removal on hillslope hydrology, biogeochemistry, and mercury transport” – invited lecture to the Biogeophysical Research Group, Universität Hohenheim, September 2019
- ❖ “Water quality and wastewater treatment in peatlands” – invited lecture for Geography 405 (wetlands) University of Waterloo, November 2016
- ❖ “How to prepare for your Comprehensive Exam” – invited lecture for Geog 691 (Graduate Student and Faculty Seminar in Geography) University of Waterloo, November 2014
- ❖ “Peatland Reconstruction in Areas Impacted by the Oil Sand Extraction” – invited presentation to the Federal Minister of The Environment at University of Waterloo, May 2012
- ❖ “Utilizing Hydrus-1D modelling for wetland vadose and phreatic zone hydrology” – invited lecturer for Geography 647 (Wetlands) University of Waterloo, October 2011

Publications

Published or In Press Peer-reviewed Journal Articles

26. Price, J., **McCarter, C.**, Quinton, B. (in press) Groundwater in Peat and Peatlands. In The Groundwater Project (www.gw-project.org), Guelph, Ontario, Canada. *Digital Book
25. Lehan, K, **McCarter, C.**, Moore, P., Waddington, J. Effect of stockpiling time on donor-peat hydrophysical properties: implications for peatland restoration. *Ecological Engineering*. 182, 106701. <https://doi.org/10.1016/j.ecoleng.2022.106701>
24. Wilkinson, S., **McCarter, C.**, Muh, T., Noble, A., Nwaishi, F., Shuttleworth, E., and Davidson, S., (in press) Impacts of Anthropogenic Disturbances on Peatland Carbon Cycling. In Peatlands and Climate Change. International Peatland Society, Jyväskylä, Finland. *Book Chapter
23. **McCarter, C.**, Eggert, S., Sebestyen, S., Kolka, R., Mitchell, C. Effects of clearcutting and residual biomass harvesting on mercury mobilization and downgradient mercury accumulation from a shallow hillslope. *Journal of Geophysical Research: Biogeosciences*, 127, e2022JG006826. <https://doi.org/10.1029/2022JG006826>
22. Wu, Y., Xu, X., **McCarter, C.**, Zhang, N., de Lannoy, C. (2022) Low-severity wildfire increases the short-term leaching of TOC, nutrients and phenols from boreal peatland soils: Implications to source water protection. *Science*

- of the Total Environment. 80(20), 153579.
<https://doi.org/10.1016/j.scitotenv.2022.153579>
21. Golubev, V., **McCarter, C.**, Whittington, P. (2021) Variability of soil hydrophysical properties within *Sphagnum* moss profiles. *Journal of Hydrology*, 603. <https://doi.org/10.1016/j.jhydrol.2021.126956>
 20. **McCarter, C***, Wilkinson, S*, Moore, P., Waddington, M. (2021) Ecohydrological trade-offs from multiple peatland disturbances: The interactive effects of drainage, harvesting, restoration and wildfire in a southern Ontario bog. *Journal of Hydrology*, 126793. <https://doi.org/10.1016/j.jhydrol.2021.126793> ***Authors contributed equally to the manuscript and are considered co-first authors.**
 19. **McCarter, C.**, Sebestyen, S., Kolka, R., Eggert, S., Mitchell, C. (2021) Subsurface transport mechanisms of isotopically enriched inorganic mercury under different forestry management practices on low gradient hillslopes, *Biogeochemistry*, 154, 119-138. DOI: <https://doi.org/10.1007/s10533-021-00801-y>
 18. Ackley, C., Tank, S., Haynes, K., Rezanezhad, F., **McCarter, C.**, Quinton, W. (2021) Coupled hydrological and geochemical impacts of wildfire in peatland-dominated regions of discontinuous permafrost, *Science of the Total Environment*, 782, DOI: <https://doi.org/10.1016/j.scitotenv.2021.146841>
 17. **McCarter, C.**, Sebestyen, S., Kolka, R., Eggert, S., Mitchell, C. (2020) Changes in hillslope hydrology in a perched, shallow soil system due to clearcutting and residual biomass removal, *Hydrological Processes*, 1-16. DOI: <https://doi.org/10.1002/HYP.13948>
 16. **McCarter, C.**, Rezanezhad, F., Quinton, W., Gharedaghloo, B., Lennartz, B., Price, J., Connon, R., Van Cappellen, P. (2020) Pore-scale controls on hydrological and geochemical processes in peat: Implications on interacting processes, *Earth Science Reviews*, DOI: <https://doi.org/10.1016/j.earscirev.2020.103227>
 15. Rezanezhad, F., **McCarter, C.**, Lennartz, B. (2020) Wetland Biogeochemistry: Response to Environmental Change. *Frontiers in Environmental Science – Biogeochemical Dynamics*, DOI: <https://doi.org/10.3389/fenvs.2020.00055>
 14. Lane, D*, **McCarter, C***, Richardson, M., McConnell, C., Field, T., Yao, H., Arhonditsis, G., Mitchell, C.P.J. (2020) Wetlands and low gradient topography are associated with longer hydrologic transit times in Precambrian Shield headwater catchments, *Hydrological Processes*, DOI: <https://doi.org/10.1002/hyp.13609> ***Authors contributed equally to the manuscript and are considered co-first authors.**
 13. **McCarter, C.**, Rezanezhad, F., Gharedaghloo, B., Price, J., Van Cappellen, P. (2019) Transport of chloride and deuterated water in peat: The role of anion exclusion, diffusion, and anion adsorption in a dual porosity organic media. *Journal of Contaminant Hydrology*, 225: 103497, DOI: <https://doi.org/10.1016/j.jconhyd.2019.103497>
 12. **McCarter, C.**, Weber, T., Price, J. (2018) Competitive transport processes of chloride, sodium, potassium, and ammonium in fen peat. *Journal of*

Contaminant Hydrology, DOI:

<https://doi.org/10.1016/j.jconhyd.2018.08.004>

11. Gauthier, T-L., **McCarter, C.**, Price, J. (2018) The effect of compression on *Sphagnum* hydrophysical properties: Implications for increasing hydrological connectivity in restored cutover peatlands, *Ecohydrology*, DOI: <https://doi.org/10.1002/eco.2020>
10. Balliston, N., **McCarter, C.**, Price, J. (2018) Microtopographical and hydrophysical controls on a continuous subsurface solute transport experiment in a sub-arctic bog peatland. *Hydrological Processes*, 32(19): 2963-2975. DOI: <https://doi.org/10.1002/hyp.13236>
9. Lin, J., Ma, R., Hu, Y., Sun, Z., Wang, Y., **McCarter, C.** (2018) Groundwater sustainability and groundwater and surface water interaction in an arid inland basin, northwestern China. *Hydrogeology Journal*, DOI: <https://doi.org/10.1007/s10040-018-1743-0>
8. **McCarter, C.**, Branfireun, B., Price, J. (2017) Nutrient and mercury transport in a sub-arctic ladder fen peatland subjected to simulated wastewater discharges. *Science of the Total Environment*. 609:1349-1360, DOI: <http://dx.doi.org/10.1016/j.scitotenv.2017.07.225>
7. **McCarter, C.**, Ketcheson, S., Whittington, P., Scarlett, S., Price, J. (2017) A modified technique for measuring the unsaturated hydraulic conductivity in *Sphagnum* moss. *Soil Science Society of America Journal*. 81:747-757, DOI: <http://dx.doi.org/10.2136/sssaj2017.01.0006>
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5. **McCarter, C.**, Price, J. (2017) Experimental hydrological loading to illustrate water flow processes of a ladder fen peatland. *Hydrological Processes*, DOI: <http://dx.doi.org/10.1002/hyp.11127>
4. Strack, M., Zuback, Y., **McCarter, C.**, Price, JS. (2015) Changes in dissolved organic carbon quality in soils and discharge 10 years after peatland restoration. *Journal of Hydrology*. 527: 345-354 DOI: <http://dx.doi.org/10.1016/j.jhydrol.2015.04.061>
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Published Data Products

3. **McCarter, C.**, Sebestyen, S., Eggert, S., Huang, H(P)., Kolka, R, Mitchell, C. 2022. Soil and invertebrate chemistry data for a forest clearcutting and residual biomass removal study at the Marcell Experimental Forest. Fort Collins, CO: Forest Service Research Data Archive.
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2. **McCarter, C.**, Price, J. 2015. Hydrochemical transport of wastewater solutes from a continuous point source in a northern ribbed fen. *Elements*, 33(2):p.4 & 7 (http://cgu-ugc.ca/cguwp/docs/awards/2015_Award_BestStudentPaper_McCarter.pdf)
*Don Grey Best Student Paper in Hydrology (paper & oral presentation) & CGU Annual Meeting Best Student Paper & Presentation
1. **McCarter, C.**, Price, J. 2013. The hydrology of the Bois-des-Bel peatland 10 years post-restoration: A tale of two scales. *Elements*. 31(1):16-19 *CGU Annual Meeting Best Student Paper & Presentation

Invited Presentations (presenter underlined)

1. **McCarter, C.**, Branfireun, B., Price, J. Domestic wastewater transport and treatment in ladder fen peatlands: Implications for nutrient and mercury contamination, Canadian Network for Aquatic Ecosystem Services Annual Meeting, Toronto, Ontario, April 26th- 28th, 2017
2. **McCarter, C.**, Branfireun, B., Price, J. Domestic Wastewater (nutrients) Transport in Peatlands and Peat, University of Waterloo World Wetlands Day 2017, Waterloo, Ontario, February 2nd, 2017

Conference Presentations and Posters (presenter underlined, † primary supervisor)

1. Golubev V. **McCarter, C.**, Whittington, P. *Ecohydrological implications of the variability of soil hydrophysical properties between two Sphagnum moss microforms and the impact of different sample heights*. The Canadian Meteorological and Oceanographic Society (CMOS) 56th Congress, the Canadian Geophysical Union (CGU) Annual Meeting, and the 78th Eastern Snow Conference (ESC), digitally presented June 3rd, 2022
2. Sidhu, H., Kidd, K., Emilson, E., Kielstra, B., **McCarter, C.†**. *The Effects of Spruce Budworm Defoliation on Catchment Hydrology in Hilly Spruce and Fir-Dominated Forests in Gaspé, Québec*. The Canadian Meteorological and Oceanographic Society (CMOS) 56th Congress, the Canadian Geophysical Union (CGU) Annual Meeting, and the 78th Eastern Snow Conference (ESC), digitally presented June 2nd, 2022
3. **McCarter, C.**, Moore, P., Waddington, J. *Modelling the potential for acrotelm transplants to restore industrially contaminated peatlands*. Peatland Ecology Research Group Annual Meeting, Quebec City, Canada, April 7th, 2022
4. **McCarter, C.**, Moore, P., Waddington, J. *On the potential for acrotelm transplants to restore industrially contaminated peatlands*. Canadian Geophysical Union Annual Meeting, digitally presented July 6th, 2021
5. Wilkinson, S., **McCarter, C.**, Moore, P., Waddington, J. *Ecohydrological trade-offs from multiple peatland disturbances: The interactive effects of drainage, harvesting, restoration and wildfire in a southern Ontario bog*. Canadian Geophysical Union Annual Meeting, digitally presented July 6th, 2021
6. **McCarter, C.**, Sebestyen, S., Jeremiason, J., Coleman-Wasik, J., Engstrom, D., Kolka, R. Mitchell, C. *The impact of enhanced sulfate deposition and recovery on mercury dynamics and water quality in a peatland catchment*. American Geophysical Union Fall Meeting, digitally presented December 1st – 17th, 2020
7. Hunter, M., **McCarter, C.**, Strachan, I., Strack, M. *Plot Scale Evapotranspiration from Restored and Unrestored Extracted Peatlands*. American Geophysical Union Fall Meeting, digitally presented December 1st – 17th, 2020
8. Sebestyen, S., **McCarter, C.**, Eggert, S., Kolka, R., Mitchell, C. *Effects of Forest Harvesting and Residual Biomass Harvesting on Mercury Mobilization and Mercury Accumulation in a Peatland Catchment*. American Geophysical Union Fall Meeting, digitally presented December 1st – 17th, 2020
9. **McCarter, C.**, Sebestyen, S., Kolka, R., Eggert, S., Mitchell, C. *Effects of residual biomass removal post-timber harvesting on mercury mobilization from a shallow hillslope*. Canadian Geophysical Union Annual Meeting 2020, digitally presented on June 5th, 2020

10. **McCarter, C.**, Sebestyen, S., Kolka, R., Eggert, S., Mitchell, C. *The differential transport of inorganic mercury due to forestry practices on hillslopes: A field experiment using enriched stable isotope tracers*. 14th International Conference on Mercury as a Global Pollutant, Krakow, Poland, September 8th – 13th 2019
11. **McCarter, C.**, Sebestyen, S., Kolka, R., Eggert, S., Mitchell, C. *Effects of biomass removal post-timber harvesting on mercury export from hillslopes*. 14th International Conference on Mercury as a Global Pollutant, Krakow, Poland, September 8th – 13th 2019
12. **McCarter, C.**, Ketcheson, S., Mitchell, C. *Spatial and temporal mercury export dynamics from wetland-dominated headwater catchments in the boreal plain, Canada*. 14th International Conference on Mercury as a Global Pollutant, Krakow, Poland, September 8th – 13th 2019 * Presented at multiple conferences
13. **Mitchell, C.**, **McCarter, C.**, Ning, P., Coleman-Wasik, J., Engstrom, D., Kolka, R. *Methyl- and total mercury export dynamics from an experimental peatland after ending enhanced atmospheric sulfate additions*. 14th International Conference on Mercury as a Global Pollutant, Krakow, Poland, September 8th – 13th 2019
14. **Rezanezhad, F.**, Smeaton, C. M., Grant, K., Hug, L., Jensen, G. B., Krogstad, K. J., Macrae, M. L., **McCarter, C.**, Milojevic, T., Mills, R., Parsons, C. T., Quinton, W., Rudolph, D., Smith, S., Townsend, H., Van Cappellen, P. *Winter soil processes in transition*. Goldschmidt2019, Barcelona, Spain, August 18th – 23rd 2019
15. **McCarter, C.**, Mitchell, C. *Spatial variability in hillslope throughflow during spring snowmelt in a northern Minnesota forest*. 27th International Union of Geodesy and Geophysics General Assembly, Montreal, Quebec, July 13th – 17th 2019
16. **McCarter, C.**, Ketcheson, S., Mitchell, C. *Spatial and temporal mercury export dynamics from wetland-dominated headwater catchments in the boreal plain, Canada*. 27th International Union of Geodesy and Geophysics General Assembly, Montreal, Quebec, July 13th – 17th 2019 * Presented at multiple conferences
17. **Ketcheson, S.**, **McCarter, C.**, Mitchell, C. *The hydrology and geochemistry of multiple headwater catchments in the Boreal Plain, Canada*. 27th International Union of Geodesy and Geophysics General Assembly, Montreal, Quebec, July 13th – 17th 2019
18. **McCarter, C.**, Ning, P., Coleman Wasik, J., Engstrom, D., Kolka, R., Mitchell, C. *Methyl and total mercury export dynamics in a peatland following enhanced atmospheric sulphate additions*, Canadian Geophysical Union Annual Meeting 2018, Niagara Falls, Ontario, June 10th – 14th 2018
19. **Ackley, C.**, Tank, S., Quinton, W., Rezanezhad, F., **McCarter, C.** *Influence of a low severity wildfire on runoff flow path and pore water chemistry of a peat plateau, Scotty Creek, NWT*, Canadian Geophysical Union Annual Meeting 2018, Niagara Falls, Ontario, June 10th – 14th 2018
20. **Rezanezhad, F.**, Milojevic, T., Oh, D., Smeaton, C., Parsons, C., **McCarter, C.**, Van Cappellen, P. *Soil hydrogeochemical processes under changing winter conditions*, Canadian Geophysical Union Annual Meeting 2018, Niagara Falls, Ontario, June 10th – 14th 2018
21. **McCarter, C.**, Rezanezhad, F., Gharedaghloo, B., Price, J., Van Cappellen, P. *Influence of anisotropy, anion sorption, and degree of decomposition on solute transport in peat*, American Geophysical Union Fall Meeting, New Orleans, USA, December 10th – 15th 2017
22. **Rezanezhad, F.**, **McCarter, C.**, Kleimeier, C., Milojevic, T., Liu, H., Weber, T., Price, J., Quinton, W., Lennartz, B., Van Cappellen, P. *Structure of peatland soils and implications for*

- biogeochemical processes and hydrological flow*, American Geophysical Union Fall Meeting, New Orleans, USA, December 10th – 15th 2017
23. Oh, D.H., Rezanezhad, F., Markelov, I., **McCarter, C.**, Van Cappellen, P. *Effect of freeze-thaw cycles on greenhouse gas fluxes from peat soils*. 2017 American Geophysical Union Fall Meeting, New Orleans, USA, December 10th – 15th 2017
 24. **McCarter, C.**, Branfireun, B., Price, J. *Effect of decomposition due to the treatment of domestic wastewater on the hydrochemical transport properties of peat*, Canadian Geophysical Union Annual Meeting 2017, Vancouver, British Columbia, May 29th – May 31st, 2017
 25. Ackley, C., Tank, S., Rezanezhad, F., Quinton, W., **McCarter, C.** *Hydro-ecological impacts of wildfire on a permafrost plateau, Scotty Creek, NWT*, Canadian Geophysical Union Annual Meeting 2017, Vancouver, British Columbia, May 29th – May 31st, 2017
 26. **McCarter, C.**, Weber, T., Price, J. *Competitive sorption and dispersion processes of monovalent nutrient in poorly decomposed Sphagnum peat*, Canadian Geophysical Union Annual Meeting 2016, Fredericton, New Brunswick, May 29th – June 2nd, 2016
 27. Twible, L., Price, J., **McCarter, C.**, Branfireun, B. *Linking mining wastewater discharge to methylmercury production and persistence in a sub-arctic peatland*, Canadian Geophysical Union Annual Meeting 2016, Fredericton, New Brunswick, May 29th – June 2nd, 2016
 28. **McCarter, C.**, Gauthier, T-L., Price, J. *Mechanical compression of regenerated Sphagnum moss to accelerate the return of hydrological functionality in restored bog peatlands*, Peatland Ecology Research Group Annual Meeting 2016, Montreal, Quebec, March 1st-2nd 2016
***Awarded best student oral presentation**
 29. **McCarter, C.**, Branfireun, B., Price, J. *Wastewater contaminant treatment and transport in a nutrient limited ribbed fen: Potential for Methylmercury and Phosphate release*, Mer Bleu Annual Meeting 2016, Montreal, Quebec, February 29th - March 1st, 2016 *Presented at 1 other conference
 30. **McCarter, C.**, Branfireun, B., Price, J. *Wastewater contaminant transport and treatment in a nutrient limited ribbed fen (poster)*, American Geophysical Union Fall Meeting 2016, San Francisco, California, December 14th – 18th 2015
 31. **McCarter, C.**, Gauthier, T-L., Price, J. *Mechanical compression of regenerated Sphagnum moss potentially accelerates the return of hydrological functionality in restored Sphagnum bogs*, International Association of Hydrogeologists Canadian National Chapter Annual Conference 2015, Waterloo, Ontario, October 28-29th 2015 ***Awarded runner-up best oral presentation**
 32. **McCarter, C.**, Price, J. *Transport and hydrological response of simulated wastewater from a continuous point source in a northern ribbed fen*, CGU 2015 Annual Meeting, Montreal, Quebec, May 3-7th 2015 ***Awarded Don Grey Best Student Paper in Hydrology (paper & oral presentation) & CGU Annual Meeting Best Student Paper & Presentation**
 33. **McCarter, C.**, Ketcheson, S., Whittington, P., Scarlett, S., Price, J. *A modified technique for measuring the unsaturated hydraulic conductivity in Sphagnum moss*, CGU 2015 Annual Meeting, Montreal, Quebec, May 3-7th 2015
 34. **McCarter, C.**, Price, J. *Simulated mechanical compression of regenerated Sphagnum moss potentially accelerates the return of hydrological functionality in restored Sphagnum bogs (poster)*, Peatland Ecology Research Group Annual Conference 2014, Waterloo, Ontario, February 17-18th 2015

35. **McCarter, C.**, Price, J. *Transport and hydrological response of simulated wastewater from a continuous point source in a northern ribbed fen*, CGU-HS Eastern Section 2015 Annual Meeting, Waterloo, Ontario, February 7th, 2015 ***Awarded best oral presentation in Hydrology**
36. **McCarter, C.**, Price, J. *Hydrological response to simulated wastewater input from a point source in a Northern Ribbed Fen*, CGU 2014 Annual Meeting, Banff, Alberta, May 4-8th 2014
* Presented at 1 other conference
37. **McCarter, C.**, Price, J. *The hydrology of Bois-des-Bel 10 years post restoration: Hydrophysical properties retarding restoration*, CGU 2013 Annual Meeting, Saskatoon, Saskatchewan, May 26-30th 2013 ***Awarded best oral presentation in Biogeosciences**
38. **McCarter, C.**, & J. Price, *Hydrological response to simulated wastewater input from a point source in a Northern Ribbed Fen*. Science For A Changing North conference, Laurentian University, Sudbury, Ontario, May, 2013.
39. Price, J., **McCarter, C.**, Ketcheson, S. *Sphagnum mosses on cutover peat: Moss layer structure controls water exchange*, EGU General Assembly, April 2013
40. **McCarter, C.**, Price, J. *The hydrology of Bois-des-Bel 10 years post restoration: A tale of two scales*, CGU 2012 Annual Meeting, Banff, Alberta, June 5-8th 2012 ***Awarded best overall student paper and presentation**, Presented at 1 other conference
41. **McCarter, C.**, Price, J. *Hydrological assessment of the Bois-des-Bel peatland restoration*, International Workshop on Governing Wetlands and Watersheds, University of Waterloo, Waterloo, Ontario, March 21st-23rd 2012
42. **McCarter, C.**, Price, J. *Evaluating the hydraulic properties of hummock and lawn Sphagnum species*, Peatland Ecology Research Group Annual Conference 2012, Laval University, Quebec City, Quebec, February 22nd, 2012
43. **McCarter, C.**, Price, J. *Hydrological assessment of a restored peatland*, CGU-HS 2012, McMaster University, Hamilton, Ontario, February 11th, 2012
44. **McCarter, C.**, Price, J. *Hydrological assessment of the restoration of the Bois-des-Bel peatland, Quebec: A decade later*, International Peat Society Congress 2011, Quebec City, Quebec, June 13th-17th 2011
45. **McCarter, C.**, Price, J. *Hydrological assessment of the restoration of the Bois-des-Bel peatland, Quebec: A decade later (poster)*, International Peat Society Congress 2011, Quebec City, Quebec, June 13th-17th 2011
46. **McCarter, C.**, Price, J. *Hydraulic evaluation of a restored peatland: A decade later*, Peatland Ecology Research Group Annual Conference 2011, Laval University, Quebec City, Quebec, February 14th, 2011
47. **McCarter, C.**, Price, J. *Characterizing the hydrological properties of Sphagnum fuscum and Sphagnum rubellum (poster)*, CGU-HS 2009, York University, Toronto, Ontario, December 5th, 2009

Student Supervision

Graduate – On Going

- ❖ Nicole Balliston, PhD – A changing north: The implications of high-volume groundwater extraction and reduced water availability on sub-arctic peatland hydrology
 - Committee Member, On Going – projected 2022

- Department of Geography and Environmental Management, University of Waterloo
- ❖ Alex Furukawa, PhD – Hydrological connectivity of rock barren peat wetlands
 - Mentor, On Going – projected 2024
 - School of Earth, Environment & Society, McMaster University

Graduate – Completed

- ❖ Mike Tredree, MSc – Hydrochemical export from impervious surfaces in the Rouge River Valley
 - Mentor, Completed December 2020
 - Department of Physical and Environmental Sciences, University of Toronto Scarborough
- ❖ Barton Graff, MSc – Variations in the hydrology and biogeochemistry of Boreal headwater catchments
 - Mentor, Completed August 2019
 - Department of Physical and Environmental Sciences, University of Toronto Scarborough
- ❖ Talin Atikian, MSc – Hydrological urban catchment delineation to aid in stormwater management
 - Mentor, Completed August 2019
 - Department of Physical and Environmental Sciences, University of Toronto Scarborough
- ❖ James Elliott, MSc Thesis - Evaluating parameter fitting and model design for unsaturated processes in peatlands
 - Committee Member, Completed February 2019
 - Department of Geography and Environmental Management, University of Waterloo
- ❖ Tasha-Leigh Gauthier, MSc Thesis – Evaluating the effects of compression on a restored cut-over peatland, Bois-des-Bel, Quebec
 - Committee Member & Mentor, Completed January 2019
 - Department of Geography and Environmental Management, University of Waterloo
 - 1 co-authored publication in preparation
- ❖ Yidan Zhang, MSc Thesis – The effect of varying sulphur content in DOM on inorganic mercury transport
 - Committee Member & Mentor, Completed August 2018
 - Department of Physical and Environmental Sciences, University of Toronto Scarborough

- ❖ Faras Osman, MSc Thesis – Sulfur biogeochemistry in a constructed fen peatland in the Athabasca Oil Sands Region, Alberta, Canada
 - Committee Member, On Going, Completed April 2018
 - Department of Geography and Environmental Management, University of Waterloo
- ❖ Danny Oh, MSc Thesis – The role of physical ice barrier and pore structure regulating the exchange of gases in wetlands peat soil during freeze-thaw cycles
 - Mentor, Completed – March 2018
 - Department of Earth and Environmental Sciences, University of Waterloo
- ❖ Nicole Balliston, MSc Thesis – Saturated and vadose zone fate and transport of a continuously released tracer in a sub-arctic bog peatland
 - Committee Member & Mentor, Completed – February 2017
 - Department of Geography and Environmental Management, University of Waterloo
 - 1 co-authored publication, Balliston *et al.*, (2018). *Hydrological Processes*: CV#10
- ❖ Catherine Brown, MSc Thesis – The CO₂ dynamics and hydrology of an experimental Sphagnum farming site
 - Committee Member & Mentor, Completed – January 2017
 - Department of Geography and Environmental Management, University of Waterloo

Undergraduate – Completed

- ❖ Alexandra Clark, Undergraduate Thesis & Co-op Work Term – Characterization of DOM quality and quality from wildfire impacted peatlands in the sub-Boreal zone
 - Co-supervisor with Dr. Waddington, Completed – April 2022
 - School of Earth, Environment & Society, McMaster University
- ❖ Harvinder Sidhu, Undergraduate Thesis – Variation in the hydrochemistry of 12 headwater catchments impacted by Spruce Budworm Defoliation on the Gaspé peninsula, Quebec
 - Co-supervisor with Dr. Kidd, Completed – April 2022
 - Department of Biology, McMaster University
- ❖ Rachel Tymkow, Independent Study Course – Contrasting Canadian and Australian wildfires' impact on water quality and environmental health
 - Co-supervisor with Dr. Karen Kidd, Completed – December 2020
 - Department of Biology, McMaster University
- ❖ Alexander Peixe, BSc Thesis – Influences of dissolved organic matter on inorganic and methyl-mercury transport processes
 - Mentor, Completed – April 2020

- Department of Physical and Environmental Sciences, University of Toronto Scarborough
- ❖ Pei-Chi Chuang, BSc Thesis – Hydrological and biogeochemical modelling of reactive inorganic mercury transport in forest soils
 - Mentor, Completed – April 2018
 - Department of Physical and Environmental Sciences, University of Toronto Scarborough
- ❖ Heather Townsend, BSc Thesis – Effects of freezing and thawing cycles on solute transport in agricultural soils
 - Mentor, Completed – December 2017
 - Department of Earth and Environmental Sciences, University of Waterloo
- ❖ Tasha-Leigh Gauthier, BES Thesis – You can fix a capillary barrier in a crunch
 - Mentor, Completed – April 2016
 - Department of Geography and Environmental Management, University of Waterloo
 - 1 co-authored publication Gauthier *et al.*, (2018). *Ecohydrology*: CV#11

Co-op and Work-Study Supervision

- ❖ Alexandra Clark, Work Study & Co-op Work Term
 - September 2020 – August 2021
 - School of Earth, Environment & Society, McMaster University
- ❖ Sylvan Wichert, Work Study
 - May 2018 – May 2019
 - Department of Physical and Environmental Sciences, University of Toronto Scarborough
- ❖ Steven Chang, Work Study
 - May 2018 – June 2019
 - Department of Physical and Environmental Sciences, University of Toronto Scarborough
 - 1 co-authored publication in preparation
- ❖ Riley Miles, Undergraduate Co-op Work Term
 - May – August 2017
 - Department of Earth and Environmental Sciences, University of Waterloo
 - Awarded the O'Connor and Associates Inc. Award for best work term report in environmental hydrogeology
- ❖ Brooke McNeil, Co-op Work Term, University of Waterloo
 - January – April 2017
 - Department of Earth and Environmental Sciences, University of Waterloo

Grants

Principal Investigator or Co-Principal Investigator (\$1,150,984 CND)

Canada Research Chair in Climate and Environmental Change (CRC-2021-00242) – Tri-agency (\$600,000 CND)

The provision of clean water in Boreal Canada under threat from compounding landscape disturbance – Canadian Foundation for Innovation: John R. Evans Leaders Fund – Partnerships (\$344,984 CND)

Linking geomorphology and biogeochemistry to assess the controls of peatland wildfire on post-fire methanogenesis – MITACS Globalink Research Award (direct funding - \$6,000 CND, leveraged funding - \$50,000 CND) (2021): PI (PDF)

Towards a global solution for mitigating peat fire impacts on human and aquatic-ecosystem health in an era of climate change – McMaster Global Science Initiative (direct funding - \$200,000 CND, leveraged funding - \$439,626 CND, total budget - \$639,626 CND) (2020-2022): Co-PI (PDF)

Collaborator (\$300,000 CND)

Winter Soil Processes in Transition – Canada First Research Excellence Fund – Global Water Futures (\$300,000 CND) (2018-2020): Collaborator

- ❖ Assisted in grant writing on reactive transport processes under a changing climate under Dr. Van Cappellen's supervision

Academic Scholarships and Awards

Scholarships (\$268,000 CND)

- ❖ *NSERC Postdoctoral Fellowship*, University of Toronto Scarborough, Ontario, May 2018 – August 2020 (\$105,000)
- ❖ *Doctoral Thesis Completion Award*, University of Waterloo, Ontario, May 2016 – August 2016 (\$5,000)
- ❖ *NSERC CGS-D3*, University of Waterloo, Ontario, May 2014 – April 2016 (\$70,000)
- ❖ *Golder Associates Graduate Scholarship in Water*, The Water Institute, University of Waterloo, January 2015 (\$1,000)
- ❖ *D.M. Grey D*, CGU, University of Waterloo, Ontario, May 2014 (\$1,500)
- ❖ *NSERC PGS-D3*, University of Waterloo, Ontario, May 2013 – April 2014 (\$21,000)
- ❖ *Presidents Graduate Scholarship*, University of Waterloo, Ontario, May 2013 – April 2016 (\$30,000)
- ❖ *Davis Memorial Scholarship in Ecology*, University of Waterloo, Ontario, September 2012 – April 2013 (\$5,000)

- ❖ *Presidents Graduate Scholarship*, University of Waterloo, Ontario, September 2011 – August 2012 (\$10,000)
- ❖ *Ontario Graduate Scholarship*, University of Waterloo, Ontario, September 2011 – August 2012 (\$15,000)
- ❖ *NSERC Undergraduate Student Research Award*, University of Waterloo, Waterloo, Ontario, May – August 2008 (\$4,500)

Awards

- ❖ *Peatland Ecology Research Group best student oral presentation*, Peatland Ecology Research Group Annual Meeting 2016, March 2016
- ❖ *IAH-CNC Toth Award runner up for best student oral presentation*, International Association of Hydrogeologists Canadian Nation Chapter, October 2015
- ❖ *Don Grey best student paper in hydrology (paper & oral presentation)*, Canadian Geophysical Union – Hydrology Section, May 2015 (\$500)
- ❖ *CGU Annual Meeting best student paper (all fields of geophysics – paper & oral presentation)*, Canadian Geophysical Union, May 2015 (\$500)
- ❖ *CGU-HS Eastern Division Annual Meeting Best Student Oral Presentation in Hydrology*, Canadian Geophysical Union – Hydrology Section, February 2015
- ❖ *CGU Biogeosciences best student oral presentation*, Canadian Geophysical Union, May 2013 (\$500)
- ❖ *CGU Annual Meeting student oral presentation (all fields of geophysics – paper & oral presentation)*, Canadian Geophysical Union, June 2012 (\$500)
- ❖ *Dean's Honour List*, University of Waterloo, April 2010

Academic Service

Academic service work

Member at large, Canadian Geophysical Union - Biogeosciences Section (2019 – present)

Member, Canadian Geophysical Union – Equity, Diversity, and Inclusivity Committee (2021 – present)

Student Awards Judge, Canadian Geophysical Union - Hydrology Section (2017 – 2020)

Student Representative, Canadian Geophysical Union - Hydrology Section Executive Committee (2013 – 2014)

Data Manager, NSERC Canadian Network for Aquatic Ecosystem Services - HQP Committee (2013 – 2014)

Conference Organization

Canadian Geophysical Union Eastern Student Conference (2016), Canadian Geophysical Union – Hydrology and Biogeosciences Section (2016)

- ❖ Organized the successful CGU Eastern Student Conference (2016) where over 50 students presented their work with 80 attendees
- ❖ Managed a large (~15) group of student volunteers to ensure the conference ran smoothly and on time

Conference Session Organization

Session S11-14: General Biogeosciences, *Canadian Geophysical Union Annual Meeting (2021)*, Session Chair: **McCarter, C.** Conveners: Cooke, C., Strack, M.

Session H11a: Recent Advances in Peatland (Eco)Hydrology and Biogeochemistry, *27th IUGG General Assembly (2019)*, Session Chair: Whittington, P. Conveners: Whittington, P., **McCarter, C.**, Price, J., and Ketcheson, S.

Session CGU_H_08: Coupled Hydrological and Biogeochemical Functions, Part I: Wetland Ecosystems, *Canadian Geophysical Union Annual Meeting (2018)*, Session Chair: **McCarter, C.** Conveners: **McCarter, C.**, Rezanezhad, F., Strack, M., Price, J., and Mitchell, C.

Session CGU_H_09: Coupled Hydrological and Biogeochemical Functions, Part I: Terrestrial Ecosystems, *Canadian Geophysical Union Annual Meeting (2018)*, Session Chair: Rezanezhad, F. Conveners: Rezanezhad, F., **McCarter, C.**, Rezanezhad, F., Weber, T., Macrae, M., and Van Cappellen, P.

Session H04: Recent Advances in Peatland Hydrology, Part 2: Flow and Transport of Water, Solutes, and Energy in Organic Soils, *Canadian Geophysical Union Annual Meeting (2017)*, Session Chair: **McCarter, C.** Conveners: **McCarter, C.**, Weber, T., and Price, J.

Journal Editorial Positions

Frontiers in Environmental Science: Biogeochemical Dynamics, Topic Editor: *Wetland Biogeochemistry: Response to Environmental Change*. <https://www.frontiersin.org/research-topics/9333/wetland-biogeochemistry-response-to-environmental-change>

Reviewed Academic Publications

Active reviewer for: Vadose Zone Journal, Journal of Environmental Quality, Ecohydrology, Journal of Hydrology, Hydrological Processes, Water Resources Research, Soil Science Society of America Journal, Hydrology and Earth System Sciences, Geoderma, Environmental Science and Pollution Research, Soil Research, Peat and Mires, Ecosystems, Ecological Engineering

Professional Memberships

Current memberships: Canadian Geophysical Union, American Geophysical Union, Soil Science Society of America

Dr. Jeffery Peter Dech

Correspondence language: English

Sex: Male

Date of Birth: 11/29

Contact Information

The primary information is denoted by (*)

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Protected when completed

Dr. Jeffery Dech

Language Skills

Language	Read	Write	Speak	Understand	Peer Review
English	Yes	Yes	Yes	Yes	Yes

Degrees

- 2005/6 Doctorate, Plant Sciences, University of Western Ontario
Degree Status: Completed
Thesis Title: The ecological significance of burial to woody plants on coastal sand dunes.
Supervisors: Maun, Anwar, 2000/9 - 2004/12
- 2000/11 Master's Thesis, Biology, Laurentian University of Sudbury
Degree Status: Completed
Thesis Title: Population establishment of *Galerucella pusilla* (Duft.) and *G. californiensis* (L.) Coleoptera:Chrysomelidae) and their relative impact on the growth of *Lythrum salicaria* L. (Myrtiflorae:Lythraceae) in two central Ontario wetlands.
Supervisors: Nosko, Peter and Courtin, Gerard, 1998/9 - 2000/7
- 1997/6 Bachelor's Honours, Environmental Science and Physical Geography, Nipissing University
Degree Status: Completed
Thesis Title: Response of purple loosestrife (*Lythrum salicaria* L.) to herbivory by exotic leaf grazing beetles (*Galerucella californiensis* L. and *G. pusilla* Duft.) in two central Ontario wetlands.
Supervisors: Peter Nosko, 1996/6 - 1997/6

Recognitions

- 2013/5 - 2014/4 Nipissing University Research Achievement Award - 5,000
Nipissing University
Prize / Award
The purpose of the Research Achievement Awards is to recognize recipient's significant research accomplishments to date and to enhance their external reputation and future scholarly productivity.
- 2005/1 - 2005/12 Chunfang Hu Award in Plant Sciences. - 150
University of Western Ontario
Prize / Award
Best Masters or Doctoral thesis in the Graduate Program in Plant Sciences.

2003/6 - 2003/6	John Macoun Travel Bursary. - 400 Canadian Botanical Association Prize / Award Travel funds to support attendance at the annual meeting awarded to meritorious student applicants as selected by a committee.
2003/6 - 2003/6	Iain and Sylvia Taylor Award. - 500 Canadian Botanical Association Prize / Award Best student poster presented at annual association meeting (Antigonish, NS)
2002/8 - 2002/8	Iain and Sylvia Taylor Award. - 500 Canadian Botanical Association Prize / Award Best student poster presented at annual association meeting (Madison, WI, USA)

User Profile

Researcher Status: Researcher

Research Career Start Date: 2005/09/01

Engaged in Clinical Research?: No

Key Theory / Methodology: To reach research objectives I use dendrochronology, digital image analysis, ecological land classification, geographic information systems and ecological modelling techniques.

Research Interests: I have established a research program aimed at understanding and predicting variation in forest growth and yield, with the novel approach of linking fine-scale response variables (e.g. annual growth, wood attributes) to broad-scale ecological drivers (landscape level patterns of site quality and disturbance). Projects within this program make use of individual trees as the fundamental unit of study, and scaling up from these individuals is achieved by building relationships to stand-level predictors that can be depicted across landscapes (forest management units of several hundred thousand hectares) by using remote sensing (e.g. Light Detection and Ranging) or mapped (Forest Resources Inventory) data. The goal of this research program is to use the knowledge of these relationships to provide support for decisions regarding harvest plans and product direction, impact assessment for perturbations, and guidance for forest regeneration and silvicultural planning.

Research Experience Summary: The applied branch of my research program focuses on the use of site classification and stand structure data derived from remote sensing to describe and predict forest growth and quality over broad spatial scales. This work has led to predictive modelling approaches that have been effective for improving our ability to extract information about wood quality attributes (e.g. density), non-timber forest products (e.g. medicinal species cover) and site conditions (e.g. moisture) from spatial data sets. The fundamental branch of my research program has evolved around techniques including dendrochronology and the analyses of stable isotopes. Using these tools I have focused on examining the role of diversity in stabilizing forest productivity during drought events, and the reconstruction of disturbance regimes in relation to fire, insects and flooding. These projects are all aimed at better informing forest management decisions.

Fields of Application: Natural Resources, Environment

Disciplines Trained In: Biology and Related Sciences

Areas of Research: Ecological and Ecophysiological Processes

Research Specialization Keywords: Community ecology, Dendrochronology, Disturbance, Ecological Modelling, Forest ecology

Research Disciplines: Forestry and Wood Science, Biology and Related Sciences

Employment

2020/7	Professor of Biology Biology and Chemistry, Nipissing University Professor Tenure Status: Tenure Fields of Application: Environment Areas of Research: Ecological and Ecophysiological Processes Research Disciplines: Forestry and Wood Science
2010/12 - 2025/9	Core Graduate Faculty School of Graduate Studies, Nipissing University Full-time, Term, Associate Professor Tenure Status: Tenure Fields of Application: Environment Areas of Research: Environment and Habitats Research Disciplines: Biology and Related Sciences, Water and Environment
2020/7 - 2023/6	Chair of Biology and Chemistry Nipissing University Full-time, Term
2012/7 - 2020/6	Associate Professor of Biology Biology and Chemistry, Arts and Science, Nipissing University Full-time, Associate Professor Tenure Status: Tenure Fields of Application: Environment Areas of Research: Ecological and Ecophysiological Processes Research Disciplines: Biology and Related Sciences
2016/7 - 2018/6	Graduate Program Coordinator Environmental Studies/Science, Nipissing University Full-time, Term, Associate Professor Tenure Status: Tenure
2014/7 - 2015/6	Graduate Program Coordinator Environmental Studies/Science, Nipissing University Full-time, Term, Associate Professor Tenure Status: Tenure
2012/9 - 2014/4	Undergraduate Thesis Coordinator Biology and Chemistry, Nipissing University Full-time, Term, Associate Professor Tenure Status: Tenure
2008/8 - 2012/6	Assistant Professor of Biology Biology and Chemistry, Nipissing University Full-time, Assistant Professor Tenure Status: Tenure Track
2007/12 - 2008/7	Ontario Ministry of Research and Innovation Post-Doctoral Fellowship Biology and Chemistry, Nipissing University Full-time, Term Tenure Status: Non Tenure Track

2005/11 - 2007/11 NSERC Industrial Research and Development Fellowship
 Forestry Research Partnership, Tembec Inc.
 Full-time, Term
 Tenure Status: Non Tenure Track

Research Funding History

Awarded [n=1]

2021/6 - 2023/5 Automated Road and Attribute Extraction from SPL Data, Grant
 Project Description: The aims of this project are first to develop and validate new automatized approaches to accurately locate forest roads across Ontario from SPL data, and second to predict the condition (or attributes) of both active and decommissioned forest roads from SPL. The methodologies will be open-access, through the R scripting language and python, to enable users to gain direct access to the approaches, and apply them to update, classify and attribute road layers across Ontario

Funding Sources:

Forestry Futures Trust (ON)
 Enhanced Forest Inventory Knowledge Transfer and Tool
 Development Program
 Total Funding - 308,264
 Portion of Funding Received - 61,500

Completed [n=25]

2021/5 - 2021/9 Crossdating and chronology development for populations of black spruce across a
 Decision Maker moisture regime gradient in the boreal forest of Ontario., Grant

Funding Sources:

2021/5 - 2021/8 Natural Sciences and Engineering Research Council of Canada
 (NSERC)
 USRA
 Total Funding - 6,000 (Canadian dollar)

2015/5 - 2021/3 Assessment of Wood Attributes using Remote sEnsing (AWARE), Grant, Operating
 Co-investigator Project Description: The objective of this project is to establish a national strategic network with the goals of correlating ecological knowledge with remote-sensing technology to predict and quantify the fibre characteristics of the forest at the stand-level, and to improve the accuracy and precision of forest inventories while reducing costs and increasing the speed of acquisition.

Funding Sources:

Industry Partners
 Total Funding - 1,043,360
 Natural Sciences and Engineering Research Council of Canada
 (NSERC)
 Collaborative Research and Development Grant
 Total Funding - 2,085,640
 Portion of Funding Received - 94,000

Co-investigator : Alexis Achim; Benoit St. Onge; David MacLean; John Caspersen; Paul Arp; Paul Treitz; Peter Marshall; Richard Fournier;

Principal Applicant : Nicholas Coops

2020/6 - 2020/9 Exploring the divergence problem in the Boreal forest of Ontario, Grant

Decision Maker	Project Description: NSERC USRA Funding Sources: Natural Sciences and Engineering Research Council of Canada (NSERC) Total Funding - 4,500 (Canadian dollar)
2020/6 - 2020/9 Decision Maker	Use of stable isotope analyses for reconstructing drought or wildfire events, Grant Project Description: USRA Funding Sources: Natural Sciences and Engineering Research Council of Canada (NSERC) Total Funding - 4,500 (Canadian dollar)
2019/5 - 2019/8 Decision Maker	Spatial patterns of natural forest regeneration in relation to fire severity, Grant Project Description: USRA Funding Sources: Natural Sciences and Engineering Research Council of Canada (NSERC) USRA Total Funding - 4,500 Portion of Funding Received - 4,500
2018/5 - 2018/8 Decision Maker	Stable isotope analysis to examine broad-scale patterns of tree functional attributes, Grant Project Description: USRA Funding Sources: Natural Sciences and Engineering Research Council of Canada (NSERC) USRA Total Funding - 4,500 Portion of Funding Received - 4,500
2016/5 - 2018/3 Principal Investigator	Landscape physiology: using dendrochronolgy and stable isotope analysis to examine broad-scale patterns in tree functional attributes, Grant Funding Sources: Natural Sciences and Engineering Research Council of Canada (NSERC) Discovery Development Grants Total Funding - 20,000 Portion of Funding Received - 20,000 Collaborator : Dr. Elizabeth Webb
2016/5 - 2016/8 Decision Maker	Dendrochemical analysis of forest trees for assessing landscape patterns in water relations, Grant Project Description: USRA Funding Sources: Natural Sciences and Engineering Research Council of Canada (NSERC) USRA Total Funding - 4,500 Portion of Funding Received - 4,500

2014/8 - 2015/3 Principal Investigator	Extending Wood and Fibre Attribute Models to Capture Age and Moisture Effects, Contract Project Description: The objectives of this project were to collect new 12mm increment core samples from black spruce in 100 plots in the Hearst Forest AFRITS/Geoide plot network, adding new fitting data to wood and fibre attribute models that better represented the range of ages and soil moisture conditions on the landscape, and to conduct SilviScan analyses on the 100 new core samples, filling key gaps in the sample matrix representing ecosites, stand ages and wet areas mapping (WAM) values. These additional samples supported projects for graduate students at Nipissing University, which explored the role of age in predictive models of wood quality that used ecosites to capture site effects. Funding Sources: Canadian Wood Fibre Centre Forest Innovation Program Total Funding - 20,000 Portion of Funding Received - 20,000 Co-investigator : Doug Pitt
2013/12 - 2014/3 Principal Investigator	Predicting Fibre Attributes from EFRI, Contract Project Description: The objectives of the project were (i) to complete an ongoing black spruce fibre attribute modeling effort by adding some key data from important ecosites that are under represented in our fibre length analysis so that this attribute can be added to wood quality models for black spruce, and (ii) to complete the analysis of SilviScan data for jack pine and trembling aspen so that these species can be represented in wood quality models linked to eFRI layers. Funding Sources: Canadian Wood Fibre Centre Forest Innovation Program Total Funding - 15,210 Portion of Funding Received - 15,210 Co-investigator : Art Groot; Bharat Pokharel; Doug Pitt
2013/2 - 2014/2 Principal Applicant	Forest Resources Intern, Contract Project Description: An intern position was created to support coordination and operation of research activities in the Forest Resources Laboratory, including field data collection, sample processing and analysis in the laboratory, use and maintenance of laboratory equipment (e.g. WinDendro and WinCell dendrochronological analysis stations), supervising and training undergraduate research assistants, organizing sample archives and helping to maintain the project database. Funding Sources: Northern Ontario Heritage Fund Corporation (NOHFC) (ON) Northern Ontario Youth Internship Program Total Funding - 24,019 Portion of Funding Received - 24,019
2012/1 - 2013/12 Principal Applicant	Forest Bioproducts Intern, Contract Project Description: An intern position was created to support planning and carrying out field data collection, undertaking sample processing and analysis in the laboratory, coordinating use and maintenance of laboratory equipment (e.g. WinDendro dendrochronological analysis station, terrestrial LiDAR system), supervising and training undergraduate research assistants, organizing sample archives and helping to maintain the project database. Emphasis was placed on developing and analyzing the Forest Resources Laboratory dendrochronological archive.

Funding Sources:

Industry Canada
 FedNor Youth Internship
 Total Funding - 27,277
 Portion of Funding Received - 27,277

2012/10 - 2013/3

Principal Investigator

Linking Fibre Attributes to airborne LiDAR metrics, Contract

Project Description: Funding awarded to support the activities of a Post-Doctoral Fellow working at Nipissing University under J. Dech to explore the relationships between tree-level wood fibre attributes and biophysical predictor variables extracted from LiDAR point cloud data.

Funding Sources:

Canadian Wood Fibre Centre
 Forest Innovation Program
 Total Funding - 25,000
 Portion of Funding Received - 25,000

Co-investigator : Art Groot; Bharat Pokharel; Doug Pitt

2008/8 - 2013/3

Principal Investigator

Forest Bioproducts Research Chair, Research Chair

Project Description: This project had the overall objective of developing ecologically-based inventory and supply management tools for the bioresources of the Boreal forest of northeastern Ontario. These resources included both the trees (sources of fibre, biomass, biofuels) and the understorey plants (sources of pharmaceuticals, nutraceuticals and foods) contained within regional forests. Ultimately, the project involved the production of predictive spatial models that depicted the quantity and/or quality of specific forest bioproducts in a given forest region from landscape level indicator variables. Development of these models significantly improved the capacity for managing novel forest resources in the northeastern Ontario region, as the lack of a sufficient inventory was a major barrier to sustainable development of new bioproducts from Canadian forests.

Funding Sources:

Industry Canada
 Innovation Capacity Building - Non-capital component
 Total Funding - 333,000
 Portion of Funding Received - 333,000

Northern Ontario Heritage Fund Corporation (NOHFC) (ON)
 Emerging Technology Program
 Total Funding - 333,000
 Portion of Funding Received - 333,000

Tembec Inc (Témiscamingue, QC)
 Total Funding - 200,000
 Portion of Funding Received - 200,000

Nipissing University
 Total Funding - 134,000
 Portion of Funding Received - 134,000

2010/1 - 2012/12

Co-applicant

Precision Planning Inventory Tools for Forest Value Enhancement, Grant

Project Description: New remote-sensing and data-processing technologies (e.g. LiDAR) can provide a very detailed three-dimensional model of the forest, essential for forest resource inventory (FRI) interpretation and ecosite classification. The research was aimed at the development and validation of an operational forest inventory system that supports value chain optimization by providing more accurate, precise, and relevant inventory information that may be used to characterize fibre attributes, quality and economic value.

Funding Sources:

GEOIDE
 Phase IV-S2
 Total Funding - 160,000
 Portion of Funding Received - 34,750

Co-investigator : Marcello Miranda; Neil Scott; Warren Mabee;

Principal Applicant : Paul Treitz

2011/5 - 2012/5

Principal Investigator

Black Ash Swamp Stand Dynamics and the Assessment of Flooded Jellyskin Potential Habitat Quality in the Great Lakes – St. Lawrence Forest Region., Contract
 Project Description: The main goal of this project was to use dendrochronological techniques to examine the stand dynamics of rich hardwood swamps dominated by Black ash, and relate the disturbance history of these stands to potential indicators of habitat quality for flooded jellyskin.

Funding Sources:

Nipissing University
 Total Funding - 3,000
 Portion of Funding Received - 3,000

Nipissing Naturalist's Club
 Species at Risk Research
 Total Funding - 1,000
 Portion of Funding Received - 1,000

Friends of Mashkinonje Provincial Park
 Species at Risk Research
 Total Funding - 1,000
 Portion of Funding Received - 1,000

Co-investigator : Bharat Pokharel; Fred Pinto

2011/10 - 2012/3

Principal Investigator

Linking Fibre Attributes to ecological land classification, Contract
 Project Description: Funding approved to support the activities of a Post-Doctoral Fellow working at Nipissing University under J. Dech to explore the relationships between tree-level wood fibre attributes and ecological land classification variables extracted from enhanced forest inventory data.

Funding Sources:

Canadian Wood Fibre Centre
 Forest Innovation Program
 Total Funding - 25,000
 Portion of Funding Received - 25,000

Co-investigator : Art Groot; Bharat Pokharel; Doug Pitt

2009/11 - 2010/11

Forest Bioproducts Intern, Contract
 Project Description: An intern position was created to support planning and carrying out field data collection, undertaking sample processing and analysis in the laboratory, coordinating use and maintenance of laboratory equipment (e.g. WinDendro dendrochronological analysis station, terrestrial LiDAR system), supervising and training undergraduate research assistants, organizing sample archives and helping to maintain the project database. Emphasis was placed on developing and analyzing the Forest Resources Laboratory dendrochronological archive.

Funding Sources:

Northern Ontario Heritage Fund Corporation (NOHFC) (ON)
 Northern Ontario Youth Internship Program
 Total Funding - 27,500
 Portion of Funding Received - 27,500

2006/9 - 2009/8
 Co-investigator

Enhanced Forest Management of Red Oak and White Pine., Grant, Operating
 Project Description: This project was aimed at exploring different silvicultural approaches to the regeneration of northern red oak forests in the Great Lakes – St. Lawrence forest region of Ontario. A number of long-term silvicultural experiments (e.g. red oak/white pine co-management, coppice thinning, tending efficacy) and mechanistic studies (forest community and edaphic influences on red oak establishment, red oak – maple competition, sprout formation and competition in red oak and maple species) were undertaken to provide insights to support management objectives for this declining species.

Funding Sources:

Forestry Futures Trust (ON)
 Enhanced Forest Productivity Science Fund
 Total Funding - 120,000
 Portion of Funding Received - 120,000

Co-investigator : Al Stinson; Andree Morneault; Dave Deugo; Fred Pinto;
 Principal Applicant : Peter Nosko

2008/8 - 2009/4
 Principal Investigator

Testing the predictions of the diversity-stability hypothesis for Boreal forest productivity, Grant
 Project Description: This start-up research grant supported an exploratory pilot project with the objective of testing the variation in forest stand productivity in relation to species composition and diversity in the boreal forest region of northeastern Ontario.

Funding Sources:

Nipissing University
 Start-up Research Grant
 Total Funding - 5,000
 Portion of Funding Received - 5,000

2008/5 - 2008/8
 Decision Maker

Predicting the distribution and abundance of boreal forest plants at the landscape level, Grant
 Project Description: USRA

Funding Sources:

Natural Sciences and Engineering Research Council of Canada (NSERC)
 USRA
 Total Funding - 4,500
 Portion of Funding Received - 4,500

2005/12 - 2007/11
 Principal Applicant

Regeneration of Red Oak in Ontario Forests, Fellowship
 Project Description: This fellowship was aimed at developing an industrial/academic partnership to support research and technology transfer related to northern red oak silviculture in the Great Lakes – St. Lawrence forest region of Ontario. A number of long-term silvicultural experiments (e.g. red oak/white pine co-management, coppice thinning, tending efficacy) and mechanistic studies (forest community and edaphic influences on red oak establishment, red oak – maple competition, sprout formation and competition in

red oak and maple species) were undertaken to provide insights to support management objectives for this declining species.

Research Uptake: A variety of technology transfer events (e.g. regional red oak silviculture workshop, Canadian Institute of Forestry teacher's tour) were supported by the project.

Funding Sources:

Natural Sciences and Engineering Research Council of Canada (NSERC)

Industrial Research and Development Fellowships

Total Funding - 60,000

Portion of Funding Received - 60,000

Tembec Inc (Témiscamingue, QC)

Forestry Research Partnership

Total Funding - 73,000

Portion of Funding Received - 73,000

Collaborator : Peter Nosko

2007/5 - 2007/8
Decision Maker

Enhanced regeneration of red oak under pine stands: application to forest management, Grant

Funding Sources:

Natural Sciences and Engineering Research Council of Canada (NSERC)

Industrial USRA

Total Funding - 4,500

Portion of Funding Received - 4,500

2007/5 - 2007/8
Decision Maker

Regeneration of Red Oak in Shelterwood and Group Selection Partial Harvesting Systems, Grant

Funding Sources:

Natural Sciences and Engineering Research Council of Canada (NSERC)

Industrial USRA

Total Funding - 4,500

Portion of Funding Received - 4,500

2006/5 - 2006/8
Decision Maker

The role of interspecific competition in the regeneration of red oak forests., Grant

Funding Sources:

Natural Sciences and Engineering Research Council of Canada (NSERC)

Industrial USRA

Total Funding - 4,500

Portion of Funding Received - 4,500

Declined [n=2]

Principal Applicant

NSERC Research Tools and Instruments Grant, Grant, Equipment

Project Description: Proposal to purchase a research vehicle and some electronic data capture tools.

Funding Sources:

Natural Sciences and Engineering Research Council of Canada
(NSERC)
Research Tools and Instruments Fund
Total Funding - 44,800
Portion of Funding Received - 0

Principal Applicant Quantifying carbon and nitrogen pools in forest soils, plants and water, Grant, Equipment
Project Description: Proposal to purchase a carbon-nitrogen analyzer and supplies

Funding Sources:

Canada Foundation for Innovation (CFI)
Leaders Opportunity Fund
Total Funding - 42,824
Portion of Funding Received - 0

Co-applicant : Peter Nosko

Courses Taught

2021/09/08 - Professor, Biology and Chemistry, Nipissing University
2021/12/15 Course Title: Principles of Ecology
Course Code: Biol 2446
Academic Session: Fall
Number of Students: 53
Number of Credits: 3
Lecture Hours Per Week: 3
Lab Hours Per Week: 3
Co-instructors: Boivin, Joseph

2021/09/07 - Professor, Biology and Chemistry, Nipissing University
2021/12/07 Course Title: Conservation Biology
Course Code: Biol 3436
Academic Session: Fall
Number of Students: 38
Number of Credits: 3
Lecture Hours Per Week: 3

2021/01/05 - Professor, Biology and Chemistry, Nipissing University
2021/04/09 Course Title: Silviculture
Course Code: Biol 3447
Academic Session: Winter
Number of Students: 9
Number of Credits: 3
Lecture Hours Per Week: 3

2021/01/04 - Professor, Biology and Chemistry, Nipissing University
2021/04/09 Course Title: Biostatistics
Course Code: Biol 3117
Academic Session: Winter
Number of Students: 46
Number of Credits: 3
Lecture Hours Per Week: 3
Tutorial Hours Per Week: 3

2020/09/08 - Professor, Biology and Chemistry, Nipissing University
2020/12/04 Course Title: Principles of Ecology
Course Code: Biol 2446
Academic Session: Fall
Number of Students: 63
Number of Credits: 3
Lecture Hours Per Week: 3
Lab Hours Per Week: 3
Co-instructors: Boivin, Joe

2020/09/08 - Professor, Biology and Chemistry, Nipissing University
2020/12/04 Course Title: Conservation Biology
Course Code: Biol 3436
Academic Session: Fall
Number of Students: 37
Number of Credits: 3
Lecture Hours Per Week: 3

2020/01/06 - Associate Professor, Biology and Chemistry, Nipissing University
2020/04/10 Course Title: Biostatistics
Course Code: Biol 3117
Course Level: Undergraduate
Academic Session: Winter
Number of Students: 48
Number of Credits: 3
Lecture Hours Per Week: 3
Lab Hours Per Week: 3
Co-instructors: Lund, Katie

2020/01/06 - Associate Professor, Biology and Chemistry, Nipissing University
2020/04/10 Course Title: Silviculture
Course Code: Biol 3447
Course Level: Undergraduate
Academic Session: Winter
Number of Students: 13
Number of Credits: 3
Lecture Hours Per Week: 3

2019/09/10 - Associate Professor, Biology and Chemistry, Nipissing University
2019/12/06 Course Title: Techniques in Forest Ecology and Management
Course Code: Biol 2346
Course Level: Undergraduate
Academic Session: Fall
Number of Students: 21
Number of Credits: 3
Lecture Hours Per Week: 3

2019/09/10 - Associate Professor, Biology and Chemistry, Nipissing University
2019/12/06 Course Title: Landscape Ecology
Course Code: Biol 4437
Course Level: Undergraduate
Academic Session: Fall
Number of Students: 16
Number of Credits: 3
Lecture Hours Per Week: 3

2019/06/03 - 2019/04/10	Associate Professor, Biology and Chemistry, Nipissing University Course Title: Silviculture Course Code: Biol 3447 Course Level: Undergraduate Academic Session: Winter Number of Students: 23 Number of Credits: 3 Lecture Hours Per Week: 3
2019/01/08 - 2019/04/10	Associate Professor, Biology and Chemistry, Nipissing University Course Title: Biostatistics Course Code: Biol 3117 Course Level: Undergraduate Academic Session: Winter Number of Students: 28 Number of Credits: 3 Lecture Hours Per Week: 3 Lab Hours Per Week: 3 Co-instructors: Lund, Katie
2018/09/20 - 2018/12/14	Associate Professor, Graduate Studies, Nipissing University Course Title: Topics in Forest Ecology and Management Course Code: Enst 5317 Course Level: Graduate Academic Session: Fall Number of Students: 3 Number of Credits: 3 Lecture Hours Per Week: 3
2018/09/04 - 2018/12/14	Associate Professor, Nipissing Forest Resources Management Inc, Nipissing University Course Title: Internship I Course Code: Biol 4886 Course Level: Undergraduate Academic Session: Fall Number of Students: 1 Number of Credits: 3 Co-instructors: Morneault, Andree
2018/09/06 - 2018/12/04	Associate Professor, Biology and Chemistry, Nipissing University Course Title: Techniques in Forest Ecology and Management Course Code: Biol 2346 Course Level: Undergraduate Academic Session: Fall Number of Students: 24 Number of Credits: 3 Lecture Hours Per Week: 3 Lab Hours Per Week: 3 Co-instructors: Pokorny, Oriana

2018/01/08 - Associate Professor, Biology and Chemistry, Nipissing University
 2018/04/10 Course Title: Biostatistics
 Course Code: Biol 3117
 Course Level: Undergraduate
 Academic Session: Winter
 Number of Students: 52
 Number of Credits: 3
 Lecture Hours Per Week: 3
 Lab Hours Per Week: 3
 Co-instructors: Kaufman, Scott

2018/01/08 - Associate Professor, Graduate Studies, Nipissing University
 2018/04/10 Course Title: Topics in Forest Ecology and Management
 Course Code: ENST 5317
 Course Level: Graduate
 Number of Students: 2
 Number of Credits: 3
 Lecture Hours Per Week: 3

2017/09/05 - Associate Professor, Nipissing Forest Resources Management Inc, Nipissing University
 2017/12/05 Course Title: Internship I
 Course Code: Biol 4886
 Course Level: Undergraduate
 Academic Session: Fall
 Number of Students: 1
 Number of Credits: 3
 Co-instructors: Morneault, Andree

2017/09/05 - Associate Professor, Biology and Chemistry, Nipissing University
 2017/12/04 Course Title: Techniques in Forest Ecology and Management
 Course Code: Biol 2346
 Course Level: Undergraduate
 Academic Session: Fall
 Number of Students: 14
 Number of Credits: 3
 Lecture Hours Per Week: 3
 Lab Hours Per Week: 3
 Co-instructors: Pokorny, Oriana

2017/10/31 - Associate Professor, Graduate Studies, Nipissing University
 2017/10/31 Course Title: Methods of Inquiry in Environmental Research
 Course Code: Enst 5117
 Course Topic: Guest Lecture - Quantitative Analysis
 Course Level: Graduate
 Academic Session: Fall
 Number of Students: 8
 Number of Credits: 3
 Lecture Hours Per Week: 3
 Guest Lecture?: Yes

2017/01/17 - Associate Professor, Graduate Studies, Nipissing University
2017/04/25 Course Title: Perspectives on the Environment
Course Code: ENST 5116
Course Level: Graduate
Academic Session: Winter
Number of Students: 6
Number of Credits: 3
Lecture Hours Per Week: 3
Co-instructors: Greer, Kirsten

2017/01/12 - Associate Professor, Biology and Chemistry, Nipissing University
2017/04/06 Course Title: Silviculture
Course Code: Biol 3447
Course Level: Undergraduate
Academic Session: Winter
Number of Students: 23
Number of Credits: 3
Lecture Hours Per Week: 3

2017/01/09 - Associate Professor, Biology and Chemistry, Nipissing University
2017/04/05 Course Title: Biostatistics
Course Code: Biol 3117
Course Level: Undergraduate
Academic Session: Winter
Number of Students: 38
Number of Credits: 3
Lecture Hours Per Week: 3
Lab Hours Per Week: 3
Co-instructors: Kaufman, Scott

2016/09/26 - Associate Professor, Graduate Studies, Nipissing University
2016/12/12 Course Title: Topics in Forest Ecology and Management
Course Code: ENST 5317
Course Level: Graduate
Academic Session: Fall
Number of Students: 5
Number of Credits: 3
Lecture Hours Per Week: 3
Lab Hours Per Week: 3
Co-instructors: Pokorny, Oriana

2016/09/05 - Associate Professor, Graduate Studies, Nipissing University
2016/12/05 Course Title: Methods of Inquiry in Environmental Research
Course Code: ENST 5117
Course Topic: Guest Lecture - Quantitative Analysis
Course Level: Graduate
Academic Session: Fall
Number of Students: 6
Number of Credits: 3
Guest Lecture?: Yes

2016/09/06 - Associate Professor, Biology and Chemistry, Nipissing University
 2016/12/02 Course Title: Techniques in Forest Ecology and Management
 Course Code: Biol 2346
 Course Level: Undergraduate
 Academic Session: Fall
 Number of Students: 39
 Number of Credits: 3
 Lecture Hours Per Week: 3
 Lab Hours Per Week: 3
 Co-instructors: Pokorny, Oriana

2015/05/13 - Associate Professor, Nipissing University
 2015/05/13 Course Title: Introduction to cross-disciplinary analysis
 Course Code: Univ 2005
 Course Topic: Secrets
 Course Level: Undergraduate
 Academic Session: Spring
 Number of Students: 25
 Number of Credits: 3
 Guest Lecture?: Yes

2015/01/05 - Associate Professor, Biology and Chemistry, Nipissing University
 2015/04/10 Course Title: Landscape Ecology
 Course Code: Biol 4437
 Course Level: Undergraduate
 Academic Session: Winter
 Number of Students: 12
 Number of Credits: 3
 Lecture Hours Per Week: 3

2015/01/05 - Associate Professor, Biology and Chemistry, Nipissing University
 2015/04/03 Course Title: Biostatistics
 Course Code: Biol 3117
 Course Level: Undergraduate
 Section: Biology
 Academic Session: Winter
 Number of Students: 33
 Number of Credits: 3
 Lecture Hours Per Week: 3
 Lab Hours Per Week: 3
 Co-instructors: Kaufman, Scott

2014/09/08 - Associate Professor, Graduate Studies, Nipissing University
 2014/12/05 Course Title: Perspectives on the Environment
 Course Code: ENST 5116
 Course Level: Graduate
 Academic Session: Fall
 Number of Students: 8
 Number of Credits: 3
 Lecture Hours Per Week: 3
 Co-instructors: Murton, James

2014/01/06 - 2014/04/11	Associate Professor, Graduate Studies, Nipissing University Course Title: Topics in Forest Ecology and Management Course Code: ENST 5317 Course Level: Graduate Academic Session: Winter Number of Students: 3 Number of Credits: 3 Lecture Hours Per Week: 3
2014/01/06 - 2014/04/11	Associate Professor, Biology and Chemistry, Nipissing University Course Title: Community Ecology Course Code: Biol 3347 Course Level: Undergraduate Academic Session: Winter Number of Students: 14 Number of Credits: 3 Lecture Hours Per Week: 3 Lab Hours Per Week: 3 Co-instructors: Kaufman, Scott
2013/09/09 - 2013/12/13	Associate Professor, Graduate Studies, Nipissing University Course Title: Perspectives on the Environment Course Code: ENST 5116 Course Level: Graduate Academic Session: Fall Number of Students: 7 Number of Credits: 3 Lecture Hours Per Week: 3 Co-instructors: Murton, James
2013/09/09 - 2013/12/13	Associate Professor, Biology and Chemistry, Nipissing University Course Title: Literature Research and Seminar Course Code: Biol 4706 Course Level: Undergraduate Academic Session: Fall Number of Students: 10 Number of Credits: 3 Lecture Hours Per Week: 3
2013/09/09 - 2013/12/13	Associate Professor, Biology and Chemistry, Nipissing University Course Title: Techniques in Forest Ecology and Management Course Code: Biol 2346 Course Level: Undergraduate Academic Session: Fall Number of Students: 10 Number of Credits: 3 Lecture Hours Per Week: 3 Tutorial Hours Per Week: 3 Co-instructors: Boivin, Joseph

2013/01/07 - Associate Professor, Graduate Studies, Nipissing University
 2013/05/10 Course Title: Topics in Forest Ecology and Management
 Course Code: ENST 5317
 Course Level: Graduate
 Academic Session: Winter
 Number of Students: 2
 Number of Credits: 3
 Lecture Hours Per Week: 3

2013/05/07 - Associate Professor, Nipissing University
 2013/05/07 Course Title: Introduction to Cross-Disciplinary Analysis
 Course Code: Univ 2005
 Course Topic: Dirt
 Course Level: Undergraduate
 Academic Session: Spring
 Number of Students: 20
 Number of Credits: 3
 Guest Lecture?: Yes

2013/01/07 - Associate Professor, Biology and Chemistry, Nipissing University
 2013/03/08 Course Title: Landscape Ecology
 Course Code: Biol 4437
 Course Level: Undergraduate
 Academic Session: Winter
 Number of Students: 23
 Number of Credits: 3
 Lecture Hours Per Week: 3

2012/09/03 - Associate Professor, Graduate Studies, Nipissing University
 2012/12/07 Course Title: Perspectives on the Environment
 Course Code: ENST 5116
 Course Level: Graduate
 Academic Session: Fall
 Number of Students: 19
 Number of Credits: 3
 Lecture Hours Per Week: 3
 Co-instructors: Walters, Daniel

2012/09/03 - Associate Professor, Biology and Chemistry, Nipissing University
 2012/12/07 Course Title: Literature Research and Seminar
 Course Code: Biol 4706
 Course Level: Undergraduate
 Number of Students: 11
 Number of Credits: 3
 Lecture Hours Per Week: 3

2012/09/03 - Associate Professor, Biology and Chemistry, Nipissing University
 2012/12/07 Course Title: Literature Research and Seminar
 Course Code: Biol 4706
 Course Level: Undergraduate
 Academic Session: Fall
 Number of Students: 11
 Number of Credits: 3
 Lecture Hours Per Week: 3

2012/01/09 - 2012/04/13	Assistant Professor, Biology and Chemistry, Nipissing University Course Title: Special Topics in Applied Ecology Course Code: Biol 4506 Course Topic: Dendrochronology Course Level: Undergraduate Academic Session: Winter Number of Students: 1 Number of Credits: 3 Lecture Hours Per Week: 3
2012/01/09 - 2012/04/13	Assistant Professor, Biology and Chemistry, Nipissing University Course Title: Community Ecology Course Code: Biol 3347 Course Level: Undergraduate Academic Session: Winter Number of Students: 25 Number of Credits: 3 Lecture Hours Per Week: 3 Lab Hours Per Week: 3 Co-instructors: Pokharel, Bharat
2011/09/05 - 2011/12/09	Assistant Professor, Biology and Chemistry, Nipissing University Course Title: Techniques in Forest Ecology and Management Course Code: Biol 2346 Course Level: Undergraduate Academic Session: Fall Number of Students: 13 Number of Credits: 3 Lecture Hours Per Week: 3 Lab Hours Per Week: 3 Co-instructors: Pokharel, Bharat
2011/09/05 - 2011/12/02	Assistant Professor, Biology and Chemistry, Nipissing University Course Title: Literature Research and Seminar Course Code: Biol 4706 Course Level: Undergraduate Academic Session: Fall Number of Students: 20 Number of Credits: 3 Lecture Hours Per Week: 3 Co-instructors: Cholewa, Ewa; Hackett, Dave; Jha, Mukund; Kariuki, Stephen; Mirza, Reehan; Nosko, Peter; Parkes, Tony
2011/01/03 - 2011/04/08	Assistant Professor, Biology and Chemistry, Nipissing University Course Title: Landscape Ecology Course Code: Biol 4437 Course Level: Undergraduate Academic Session: Winter Number of Students: 12 Number of Credits: 3 Lecture Hours Per Week: 3

- 2010/09/06 - Assistant Professor, Biology and Chemistry, Nipissing University
 2010/12/03 Course Title: Techniques in Forest Ecology and Management
 Course Code: Biol 2346
 Course Level: Undergraduate
 Academic Session: Fall
 Number of Students: 16
 Number of Credits: 3
 Lecture Hours Per Week: 3
 Lab Hours Per Week: 3
 Co-instructors: Pokharel, Bharat
- 2010/09/06 - Assistant Professor, Biology and Chemistry, Nipissing University
 2010/12/03 Course Title: Literature Research and Seminar
 Course Code: Biol 4706
 Course Level: Undergraduate
 Academic Session: Fall
 Number of Students: 15
 Number of Credits: 3
 Lecture Hours Per Week: 3
 Co-instructors: Cholewa, Ewa; Hackett, Dave; Jha, Mukund; Kariuki, Stephen; Mirza, Reehan; Nosko, Peter; Parkes, Tony
- 2010/01/04 - Assistant Professor, Biology and Chemistry, Nipissing University
 2010/04/02 Course Title: Community Ecology
 Course Code: Biol 3437
 Course Level: Undergraduate
 Academic Session: Winter
 Number of Students: 13
 Number of Credits: 3
 Lecture Hours Per Week: 3
 Lab Hours Per Week: 3
 Co-instructors: Pokharel, Bharat
- 2009/09/08 - Assistant Professor, Biology and Chemistry, Nipissing University
 2009/12/04 Course Title: Literature Research and Seminar
 Course Code: Biol 4706
 Course Level: Undergraduate
 Academic Session: Fall
 Number of Students: 26
 Number of Credits: 3
 Lecture Hours Per Week: 3
 Co-instructors: Cholewa, Ewa; Hackett, Dave; Jha, Mukund; Kariuki, Stephen; Mirza, Reehan; Nosko, Peter; Parkes, Tony
- 2009/09/07 - Assistant Professor, Biology and Chemistry, Nipissing University
 2009/12/04 Course Title: Techniques in Forest Ecology and Management
 Course Code: Biol 2346
 Course Level: Undergraduate
 Academic Session: Fall
 Number of Students: 17
 Number of Credits: 3
 Lecture Hours Per Week: 3
 Lab Hours Per Week: 3
 Co-instructors: Pokharel, Bharat

2009/01/05 - Assistant Professor, Biology and Chemistry, Nipissing University
 2009/04/10 Course Title: Community Ecology
 Course Code: Biol 3447
 Course Level: Undergraduate
 Academic Session: Winter
 Number of Students: 4
 Number of Credits: 3
 Lecture Hours Per Week: 3
 Lab Hours Per Week: 3

2008/09/08 - Assistant Professor, Biology and Chemistry, Nipissing University
 2008/12/05 Course Title: Literature Research and Seminar
 Course Code: Biol 4706
 Course Level: Undergraduate
 Academic Session: Fall
 Number of Students: 25
 Number of Credits: 3
 Lecture Hours Per Week: 3
 Co-instructors: Cholewa, Ewa; Hackett, Dave; Jha, Mukund; Kariuki, Stephen; Mirza, Reehan; Nosko, Peter; Parkes, Tony

2008/01/07 - Post-Doctoral Fellow, Biology and Chemistry, Nipissing University
 2008/04/04 Course Title: Community Ecology
 Course Code: Biol 3347
 Course Level: Undergraduate
 Academic Session: Winter
 Number of Students: 7
 Number of Credits: 3
 Lecture Hours Per Week: 3
 Lab Hours Per Week: 3

2007/09/03 - Post-Doctoral Fellow, Biology and Chemistry, Nipissing University
 2007/12/07 Course Title: Principles of Ecology
 Course Code: Biol 2246
 Course Level: Undergraduate
 Academic Session: Fall
 Number of Students: 59
 Number of Credits: 3
 Lecture Hours Per Week: 3
 Lab Hours Per Week: 3
 Co-instructors: Boivin, Joseph

2007/01/08 - Post-Doctoral Fellow, Biology and Chemistry, Nipissing University
 2007/04/06 Course Title: Community Ecology
 Course Code: Biol 3437
 Course Level: Undergraduate
 Academic Session: Winter
 Number of Students: 14
 Number of Credits: 3
 Lecture Hours Per Week: 3
 Lab Hours Per Week: 3

2006/09/04 - Post-Doctoral Fellow, Biology and Chemistry, Nipissing University
2006/12/08 Course Title: Principles of Ecology
Course Code: Biol 2246
Course Level: Undergraduate
Academic Session: Fall
Number of Students: 85
Number of Credits: 3
Lecture Hours Per Week: 3
Lab Hours Per Week: 3
Co-instructors: Boivin, Joseph

2006/01/09 - Post-Doctoral Fellow, Biology and Chemistry, Nipissing University
2006/04/14 Course Title: Community Ecology
Course Code: Biol 3437
Course Level: Undergraduate
Academic Session: Winter
Number of Students: 14
Number of Credits: 3
Lecture Hours Per Week: 3

2005/09/05 - Post-Doctoral Fellow, Biology and Chemistry, Nipissing University
2005/12/02 Course Title: Principles of Ecology
Course Code: Biol 2446
Course Level: Undergraduate
Academic Session: Fall
Number of Students: 65
Number of Credits: 3
Lecture Hours Per Week: 3
Lab Hours Per Week: 3
Co-instructors: Boivin, Joseph

2005/01/03 - Course Instructor, Biology, University of Western Ontario
2005/04/08 Course Title: Quantitative Ecology
Course Code: Bio 352
Course Level: Undergraduate
Academic Session: Winter
Number of Students: 24
Number of Credits: 3
Lecture Hours Per Week: 3
Lab Hours Per Week: 3

2005/01/03 - Course Instructor, Biology, University of Western Ontario
2005/04/08 Course Title: Plants as a Human Resource
Course Code: Bio 217
Course Level: Undergraduate
Academic Session: Winter
Number of Students: 289
Number of Credits: 3
Lecture Hours Per Week: 3
Lab Hours Per Week: 3

2004/09/06 - Course Instructor, Biology, University of Western Ontario
 2004/12/10 Course Title: Plant Ecology
 Course Code: Bio 321
 Course Level: Undergraduate
 Academic Session: Fall
 Number of Students: 24
 Lecture Hours Per Week: 3
 Lab Hours Per Week: 3

Course Development

2017/1 Course Developer and Instructor, Biology and Chemistry, Nipissing University
 Course Title: Biol 3447 Silviculture
 Course Level: Undergraduate
 Students examine practices used to control the establishment, growth, species composition, and health of forests to meet diverse needs and values while adhering to ecosystem-based management approaches to reforestation. Topics include silvicultural systems, stand development, site productivity, tree growth/architecture, tree improvement, seeding and planting stock, natural and artificial regeneration; site preparation, and tending.

2012/9 Course Developer and Instructor, Biology and Chemistry, Nipissing University
 Course Title: Biol 4986 Directed Studies
 Course Level: Undergraduate
 This course provides an opportunity for students to do advanced studies in the field of biology. The work is supervised by a faculty member who is qualified in the student's area of interest. Work load normally involves periodic discussions, activities designed to provide discipline-related skills, the presentation of seminar, and the creation of a major report.

2012/9 Course Developer and Instructor, Graduate Studies, Nipissing University
 Course Title: ENST 5116: Perspectives on the Environment
 Course Level: Graduate
 This course will explore the philosophies and ideas of the natural sciences, social sciences, and the humanities with respect to the causes of, consequences of, and solutions to environmental problems. Students will pursue a critical understanding of the values and limitations of these different approaches to studying human-environment interactions. The course will elucidate different ways of thinking about environmental problems, comparing and contrasting humanistic approaches with the scientific method and its application in the natural and social sciences. Students will be challenged to consider different paradigms and think beyond the boundaries of their individual background disciplines.
 Co-developers: Murton, James; Walters, Daniel

2012/9 Course Developer and Instructor, Biology and Chemistry, Nipissing University
 Course Title: Biol 4886: Internship I
 Course Level: Undergraduate
 This course provides students with the opportunity to gain work experience with government, industry or non-governmental organizations having expertise in a relevant field of biology. Students are supervised by a faculty member in the Department of Biology and Chemistry and are expected to maintain an activity log, submit a final written report, and give a presentation to the Department at the end of the internship.

- 2012/9 Course Developer, Biology and Chemistry, Nipissing University
Course Title: Biol 4887: Internship II
Course Level: Undergraduate
Following experience gained in Biol 4886 (Internship I), this course provides an additional opportunity for students to gain work experience with government, industry or non-governmental organizations having expertise in a relevant field of biology. Students are supervised by a faculty member in the Department of Biology and Chemistry and are expected to maintain an activity log, submit a final written report, and give a presentation to the Department at the end of the internship
- 2011/9 Course Developer and Instructor, Biology and Chemistry, Nipissing University
Course Title: Biol 4706: Literature Research and Seminar
Course Level: Undergraduate
This course is a companion course to the Honours Thesis that supports an intensive exploration of the published scientific literature related to the thesis research topic. Credit is based on writing assignments and seminar presentations. Emphasis is placed on a review of relevant background literature and the development of specific hypotheses.

Co-developers: Cholewa, Ewa; Hackett, Dave; Jha, Mukund; Kariuki, Stephen; Mirza, Reehan; Nosko, Peter; Parkes, Tony
- 2011/1 Course Developer and Instructor, Biology and Chemistry, Nipissing University
Course Title: Biol 4437: Landscape Ecology
Course Level: Undergraduate
This course will explore aspects of ecology and management that are applicable at the highest levels of biological organization and over large spatial extents. Students will consider key concepts including scale, spatial pattern and modeling through the examination of landscape level themes such as land use, forest management, habitat fragmentation, global environmental change, disturbance, biodiversity and conservation.
- 2009/9 Course Developer and Instructor, Biology and Chemistry, Nipissing University
Course Title: Biol 2346: Techniques in Forest Ecology and Management
Course Level: Undergraduate
This course will provide students with an overview of the approaches and techniques used to study and manage forest ecosystems. Topics will include orienteering, ecological land classification, forest mensuration, silvicultural tree marking, long-term monitoring of permanent plot networks, wildlife habitat and biodiversity indicators, and dendrochronology.
- 2006/1 Course Developer and Instructor, Biology and Chemistry, Nipissing University
Course Title: Biol 3437: Community Ecology
Course Level: Undergraduate
This course compares the structure, function, and limiting factors of a variety of communities such as grasslands, forests, marine, wetland and riparian. Related topics will include keystone and indicator species, aspects of ecological succession, the use of Forest Ecosystem Classifications in forest management, and statistical methods for community analysis with emphasis on multivariate techniques. Student projects will be an important component of the course.

Program Development

- 2020/10 Co-Developer, Biology and Chemistry, Nipissing University
 Program Title: Environmental Science
 Program Description: This program will be a multidisciplinary bachelor of science degree, integrating courses from Biology, Chemistry, Physical Geography and some social sciences.
 Co-developers: Hackett, Dave; James, April; Jha, Mukund; Kovacs, John; Mattson, Eric
- 2016/9 Co-Developer, Biology and Chemistry, Nipissing University
 Program Title: Certificate in Forest Resource Management and Conservation
 Course Level: Undergraduate
 Program Description: This is a suite of courses that explore relevant course material in the fields of ecology, management and conservation.
 Unique / innovative characteristics: The certificate is innovative in the sense that it combines a suite of courses that are tied together through the central theme of forests. There are three specialized courses that must be taken, and additional optional courses that count towards the certificate.
 Co-developers: Nosko, Peter
- 2011/9 Planning Committee Member, Biology and Chemistry, Geography, History, Nipissing University
 Program Title: Master of Environmental Sciences and Master of Environmental Studies.
 Course Level: Graduate
 Program Description: Nipissing University's MES/MESc program offers students degrees in either Environmental Studies or Environmental Sciences. Both programs offer the training and development of graduates capable of contributing to the study of environmental issues and to the environmental problem solving of the future. Students can pursue either thesis and non-thesis (project) options. The non-thesis option is typically completed in one year; the thesis option typically takes two years. All students participate in three core courses, ENST 5116 (Perspectives on the Environment), ENST 5117 (Methods of Inquiry in Environmental Research) and ENST 5126 (Geomatics), designed to expose them to different perspectives, approaches and tools for understanding the environment. These, and additional course work with an individual supervisor, a required oral presentation of research and the completion of a Major Research Paper (MRP) or thesis support in-depth work in the student.
 Unique / innovative characteristics: The program provides students with the training and development required to contribute to the study of current environmental issues and emerging problems of the future. Students must consider and express both humanistic and scientific approaches to environmental issues, which will make them attractive to employers in an age in which complexity and multi-faceted environmental issues have become increasingly apparent. The program takes an innovative approach by requiring all students to participate in team-taught, interdisciplinary core courses that simultaneously explore the ideas and methods of natural sciences, social sciences and humanities and their application to environmental problems. Situated on the ancient Precambrian Shield, near Lake Nipissing and the diverse habitats of Central Ontario, students can study forestry, mining, fisheries or wildlife management at nearby areas where historical and current effects can be observed.
 Co-developers: Bavington, Dean; James, April; Kariuki, Stephen; Kovacs, John; Mirza, Reehan; Murton, James; Walters, Daniel

Student/Postdoctoral Supervision

Bachelor's Equivalent [n=41]

2021/5 - 2021/8 Principal Supervisor	Kathleen Woodhouse (In Progress) Thesis/Project Title: Crossdating and chronology development for populations of black spruce across a moisture regime gradient in the boreal forest of Ontario. Project Description: NSERC USRA
2020/9 - 2020/12 Principal Supervisor	Dawson Meecham (Completed) Thesis/Project Title: Climate – growth relationship in black ash trees of the Nipissing Forest. Project Description: Directed Studies Project
2020/9 - 2020/12 Principal Supervisor	Micaela Cooper (Completed) Thesis/Project Title: Potential sand dune habitats and associated vegetation of Lake Nipissing. Project Description: Directed Studies Project
2020/6 - 2020/9 Principal Supervisor	Elena McCulloch (Completed) , McGill University Thesis/Project Title: NSERC USRA Project Description: Completing organizational and analysis tasks using archival dendrochronological data.
2020/6 - 2020/9 Principal Supervisor	Sophia Slater (Completed) , Nipissing University Thesis/Project Title: NSERC USRA Project Description: Completing organizational and analysis tasks using archival dendrochronological data.
2019/10 - 2020/3 Principal Supervisor	Katherine Tripp (Completed) , Nipissing University Thesis/Project Title: NU works research assistant
2019/10 - 2020/3 Principal Supervisor	Micaela Cooper, Nipissing University Thesis/Project Title: NU works research assistant
2019/9 - 2019/12 Principal Supervisor	Melissa Tolton (Completed) , Nipissing University Thesis/Project Title: Dendrochronological Analysis of White Pine (Pinus strobus L.) to Date the Origin of a Beaver Pond in Laurier Woods Project Description: Directed Studies Project
2019/5 - 2019/8 Principal Supervisor	Jerret Johns (Completed) , Nipissing University Thesis/Project Title: NSERC USRA Project Description: Field data and sample collection, post-fire regeneration patterns and fire severity in white-pine dominated forests.
2018/9 - 2019/4 Principal Supervisor	Jerret Johns (Completed) , Nipissing University Thesis/Project Title: NUWorks Research Assistant Project Description: Dendrochronological measurements and data management.
2018/5 - 2018/8 Principal Supervisor	Jerret Johns (Completed) , Nipissing University Thesis/Project Title: NSERC USRA Project Description: Collection and preparation of wood samples for stable isotope analysis to examine broad-scale patterns of tree functional attributes
2017/9 - 2018/4 Principal Supervisor	Michaela Kuno (Completed) , Nipissing University Thesis/Project Title: NUWorks Assistant Project Description: Assistance with database management and dendrochronological sample preparation.

2017/6 - 2017/8 Principal Supervisor	Elena McCulloch (Completed) , Nipissing University Thesis/Project Title: Forest Resources Laboratory Research Assistant. Project Description: Assisted with various projects, including processing foliage samples for chemical analyses.
2016/9 - 2017/4 Principal Supervisor	William Humphries (Completed) , Nipissing University Thesis/Project Title: Forest Resources Laboratory Research Assistant Project Description: Assisted with preparation and measurement of Dendrochronological samples, field work.
2016/5 - 2016/8 Principal Supervisor	Emiley Watson (Completed) , Nipissing University Thesis/Project Title: NSERC USRA Project Description: Collected and prepared samples for stable carbon isotope analysis.
2015/9 - 2016/4 Principal Supervisor	Kyle Vincent (Completed) , Nipissing University Thesis/Project Title: Research Assistant Project Description: Measurement of tree-ring series for boreal growth, yield and age structure models.
2015/9 - 2016/4 Principal Supervisor	Emiley Watson (Completed) , Nipissing University Thesis/Project Title: Research Assistant Project Description: Measurement of tree-ring series for boreal growth, yield and age structure models.
2015/6 - 2015/8 Principal Supervisor	Jacob McAneney (Completed) , Nipissing University Thesis/Project Title: Research assistant in the Forest Resources Laboratory Project Description: Data management, field work and preparation and measurement of dendrochronological samples.
2014/9 - 2015/4 Principal Supervisor	Christopher Carr (Completed) , Nipissing University Thesis/Project Title: Research Assistant, NUworks program. Project Description: Preparation and measurement of dendrochronological samples, data management, maintenance of greenhouse projects.
2013/9 - 2014/4 Principal Supervisor	Christopher Carr (Completed) , Nipissing University Thesis/Project Title: Research Assistant, NUworks program Project Description: Data management, preparation and measurement of dendrochronological samples.
2013/2 - 2014/2 Principal Supervisor	McAneney, Jacob (Completed) , Nipissing University Thesis/Project Title: Northern Ontario Heritage Fund Corporation (NOHFC) youth internship. Project Description: Participation in planning and carrying out field data collection, undertaking sample processing and analysis in the laboratory, coordinating use and maintenance of laboratory equipment (e.g. WinDendro and WinCell dendrochronological analysis stations), supervising and training undergraduate research assistants, organizing sample archives and helping to maintain the project database.
2012/9 - 2012/12 Principal Supervisor	Tatu Laakkonen (Completed) , Nipissing University Student Canadian Residency Status: Study Permit Thesis/Project Title: EU-CAN – BIOPOWER project Intern - Ecosite-based growth analysis for Jack Pine. Project Description: Analysis of growth data for jack pine in different ecosites in the boreal forest of northern Ontario.
2012/9 - 2013/4 Principal Supervisor	Roscoe, Scott (Completed) , Nipissing University Thesis/Project Title: Research Assistant, NU works program. Project Description: Preparation and measurement of dendrochronological samples.

2012/9 - 2012/4 Principal Supervisor	Justine Douglas (Completed) , Nipissing University Student Canadian Residency Status: Study Permit Thesis/Project Title: Research Assistant - Nipissing University International Work Study Program. Project Description: Dating and measurement of tree-ring series for growth and yield studies
2012/1 - 2013/3 Principal Supervisor	Bowman, Michelle (Completed) , Nipissing University Thesis/Project Title: FedNor Youth Internship. Project Description: Coordination and operation of research activities including field data collection, undertaking sample processing and analysis in the laboratory, coordinating use and maintenance of laboratory equipment (e.g. WinDendro dendrochronological analysis station, terrestrial LiDAR system), supervising and training undergraduate research assistants, organizing sample archives and helping to maintain the project database. Development of an original research project
2012/1 - 2012/4 Principal Supervisor	Jordan Rabishaw (Completed) , Nipissing University Thesis/Project Title: Laboratory Assistant - Precision Planning Inventory Tools for Forest Value Enhancement Geoide Project. Project Description: Measurement of tree-ring series and analysis of plot-level growth data for boreal species.
2011/9 - 2011/12 Principal Supervisor	Martina Maczalova (Completed) , Nipissing University Student Canadian Residency Status: Study Permit Thesis/Project Title: EU-CAN – BIOPOWER project Intern. The effect of partial harvest silviculture on biomass compartmentalization in a boreal black spruce stand. Project Description: Analysis of branching pattern and biomass allocation in retained black spruce in stands with partial harvest silviculture.
2011/5 - 2011/8 Principal Supervisor	Shawn Mayhew-Hammond (Completed) , Nipissing University Thesis/Project Title: Research Assistant - Precision Planning Inventory Tools for Forest Value Enhancement Geoide Project. Project Description: Collection of data and wood samples from Hearst forest in support of various research projects.
2010/5 - 2010/8 Principal Supervisor	Elisha Townshend (Completed) Thesis/Project Title: Research Assistant Project Description: Field data and sample collection, forest bioproducts research chair.
2010/5 - 2010/8 Principal Supervisor	Scott Perry (Completed) Thesis/Project Title: Research Assistant Project Description: Field data and sample collection, forest bioproducts research chair.
2010/5 - 2010/8 Principal Supervisor	Jacob McAneney (Completed) Thesis/Project Title: Research Assistant Project Description: Data and sample collection, forest bioproducts research chair.
2010/5 - 2010/8 Principal Supervisor	Blahey, Kim (Completed) , Nipissing University Thesis/Project Title: Research Assistant - Precision Planning Inventory Tools for Forest Value Enhancement Geoide Project. Project Description: Collection of data and wood samples in support of various research projects in the Hearst Forest.
2010/5 - 2010/8 Principal Supervisor	Shawn Mayhew-Hammond (Completed) Thesis/Project Title: Research Assistant Project Description: Field data and sample collection, forest bioproducts research chair.

2010/5 - 2010/8 Principal Supervisor	Whitney Winsor (Completed) Thesis/Project Title: Research Assistant Project Description: Field data and sample collection, forest bioproducts research chair.
2009/11 - 2010/11 Principal Supervisor	Lacey, Melissa (Completed) , Nipissing University Thesis/Project Title: Northern Ontario Heritage Fund Corporation Youth Internship, Forest Resources Laboratory. Project Description: Field data collection, coordinating use and maintenance of laboratory equipment (e.g. WinDendro analysis station, terrestrial LiDAR system), supervising and training undergraduate research assistants, organizing sample archives and helping to maintain the project database, and contributing to report writing and oral presentations of project progress and results. Development of an original research project of significance to the objectives of the Forest Bioproducts Research Chair.
2009/5 - 2009/8 Principal Supervisor	Crystal Braun (Completed) Thesis/Project Title: Research Assistant Project Description: Field data and sample collection, forest bioproducts research chair.
2009/5 - 2009/8 Principal Supervisor	Jacob McAneney (Completed) Thesis/Project Title: Research Assistant Project Description: Field data and sample collection, forest bioproducts research chair.
2009/5 - 2009/8 Principal Supervisor	Melissa Lacey (Completed) Thesis/Project Title: Research Assistant Project Description: Field data and sample collection, forest bioproducts research chair.
2009/5 - 2009/8 Principal Supervisor	Whitney Winsor (Completed) Thesis/Project Title: Research Assistant Project Description: Data and sample collection, forest bioproducts research chair.
2008/5 - 2008/9 Principal Supervisor	Thomas Quint (Completed) Thesis/Project Title: Research Assistant Project Description: Field data and sample collection, forest bioproducts research chair
2008/5 - 2008/8 Principal Supervisor	Bill Shaver (Completed) Thesis/Project Title: Research Assistant Project Description: Field data and sample collection, forest bioproducts research chair.

Bachelor's Honours [n=24]

2021/2 - 2022/4 Principal Supervisor	Kathleen Woodhouse (In Progress) Thesis/Project Title: Investigating the divergence problem in tree species of the boreal forest of northeastern Ontario across a gradient of moisture regimes
2020/2 - 2021/4 Principal Supervisor	Hunter Mosher (Completed) Thesis/Project Title: Climate variability and growth in black spruce (<i>Picea mariana</i>) and jack pine (<i>Pinus banksiana</i>) in the boreal forest of northeastern Ontario over the 20th century.
2020/2 - 2021/4 Principal Supervisor	Kyesha Fong (Completed) Thesis/Project Title: Impacts of Climate Change on the Frequency & Severity of Spruce Needle Rust (<i>Chrysomyxa ledi</i>) on Spruce Trees (<i>Picea</i> spp.)
2018/9 - 2019/4 Principal Supervisor	Breanna Craig (Completed) , Nipissing University Thesis/Project Title: Defoliation of boreal forest stands during spruce budworm outbreaks in relation to site quality.

2018/2 - 2019/4 Principal Supervisor	Jerret Johns (Completed) , Nipissing University Thesis/Project Title: Coppice growth of <i>Quercus rubra</i> , <i>Acer rubrum</i> and <i>Acer saccharum</i> after 14 years under uniform shelterwood and group selection silvicultural systems in the Great Lakes – St. Lawrence forest region of Canada
2014/5 - 2015/5 Principal Supervisor	Carr, Christopher (Completed) , Nipissing University Thesis/Project Title: Diversity and stability in tree seedling assemblages exposed to controlled drought.
2012/5 - 2013/5 Principal Supervisor	Lajoie, Chloe (Completed) , Nipissing University Thesis/Project Title: Reconstruction of Forest Tent Caterpillar (<i>Malacosoma disstria</i> Hbn.) outbreaks and their effects on Trembling Aspen (<i>Populus tremuloides</i> Michx.) growth in relation to stand and site factors in the Great Lakes – St. Lawrence and Boreal regions of Ontario, Canada.
2011/5 - 2012/5 Principal Supervisor	McAneney, Jacob (Completed) , Nipissing University Thesis/Project Title: Examining historical climate trends in the Great Lakes – St Lawrence region of central Ontario based on reconstruction of radial growth from very old conifers in ridge-top forests.
2011/5 - 2012/5 Principal Supervisor	Townshend, Elisha (Completed) , Nipissing University Thesis/Project Title: Stand dynamics of Black Ash swamps and their influence on habitat quality for flooded jellyskin (<i>Leptogium rivulare</i>).
2010/5 - 2011/5 Principal Supervisor	Winsor, Whitney (Completed) , Nipissing University Thesis/Project Title: Quantifying Variation in the Wood Quality Black Spruce (<i>Picea mariana</i>) and Jack Pine (<i>Pinus banksiana</i>) in Relation to Site Conditions in the Boreal Forest of Northeastern Ontario.
2010/5 - 2011/5 Principal Supervisor	Murray, Cora (Completed) , Nipissing University Thesis/Project Title: Dendrochronological analysis of <i>Taxus canadensis</i> in the Great Lakes-St. Lawrence Forest Region.
2010/5 - 2011/5 Co-Supervisor	Mayhew-Hammond, Shawn (Completed) , Nipissing University Thesis/Project Title: Predictive Habitat Modeling of Canada Yew (<i>Taxus canadensis</i> Marsh.) in the boreal forest of northeastern Ontario. Other Supervisors: Co-Supervisor - James, April
2010/5 - 2011/5 Co-Supervisor	Simpson, Steven (Completed) , Nipissing University Thesis/Project Title: Amphibian Activity in Skidder Trails in Central Ontario Hardwood Forests. Other Supervisors: Co-Supervisor - Mirza, Reehan
2009/5 - 2010/5 Co-Supervisor	Courville, Paul (Completed) , Nipissing University Thesis/Project Title: Determining crown attributes and aboveground biomass in Black Spruce at different spacing using terrestrial LiDAR. Other Supervisors: Co-Supervisor - Kovacs, John
2009/5 - 2010/5 Principal Supervisor	Perry, Scott (Completed) , Nipissing University Thesis/Project Title: Determining the effect of species richness and composition on forest productivity and stability in the boreal forest of Ontario.
2008/5 - 2009/5 Co-Supervisor	Quint, Thomas (Completed) , Nipissing University Thesis/Project Title: Cover to biomass conversion tool for Canada Yew (<i>Taxus canadensis</i>) inventories in the northeastern boreal forest. Other Supervisors: Co-Supervisor - Kovacs, John

2007/9 - 2008/5 Co-Supervisor	Shawn Splint (Completed) , Nipissing University Thesis/Project Title: Defense induction (phenols) in red oak seedlings under different lightand nutrient regimes. Other Supervisors: Co-Supervisor - Nosko, Peter
2006/9 - 2007/5 Co-Supervisor	Kelly Major (Completed) , Nipissing University Thesis/Project Title: Competitive interactions of red oak and sugar maple in oak and pineconditioned soils. Other Supervisors: Co-Supervisor - Nosko, Peter
2006/9 - 2007/5 Co-Supervisor	Lisa Robinson (Completed) , Nipissing University Thesis/Project Title: Plant community composition and establishment of red oak saplings inrelation to competing tree species under shelterwood and group selectiontreatments. Other Supervisors: Co-Supervisor - Nosko, Peter
2006/9 - 2007/5 Co-Supervisor	Nicole Quint (Completed) , Nipissing University Thesis/Project Title: Determination of the physical and chemical role of sugar maple leaflitter in impeding the seed germination and seedling establishment of red oak. Other Supervisors: Co-Supervisor - Nosko, Peter
2006/9 - 2007/5 Co-Supervisor	Nick Roscoe (Completed) , Nipissing University Thesis/Project Title: Stump sprouting response of red oak, sugar maple and red maple inshelterwood and group selection silvicultural systems Other Supervisors: Co-Supervisor - Nosko, Peter
2006/9 - 2007/5 Co-Supervisor	Tara Diebolt (Completed) , Nipissing University Thesis/Project Title: Production of herbivory defense chemicals in the leaves of red oaksaplings and stump sprouts under different levels of canopy closure inshelterwood and group selection silvicultural systems. Other Supervisors: Co-Supervisor - Nosko, Peter
2006/9 - 2007/5 Co-Supervisor	Caitlin Langlois (Completed) , Nipissing University Thesis/Project Title: Distance-dependent predation/parasitism of red oak seeds and seedlings:does the escape hypothesis apply to temperate forest management? Other Supervisors: Co-Supervisor - Nosko, Peter
2002/9 - 2003/5 Co-Supervisor	Derek Hillis (Completed) , University of Western Ontario Thesis/Project Title: Changes in plant community composition following prescribed burning at Pinery Provincial Park. Other Supervisors: Co-Supervisor - Maun, Anwar

Master's Equivalent [n=1]

2008/5 - 2011/12 Principal Supervisor	Paul Courville (Completed) Thesis/Project Title: Forest Bioproducts Associate Project Description: The forest bioproducts associate supported field and laboratory work including data collection, sample collection, and analyses. The associate assisted with logistical planning for field campaigns and provided data management and geomatics support for projects.

Master's non-Thesis [n=2]

2013/9 - 2014/8 Co-Supervisor	Paulin, Amanda (Completed) , Nipissing University Thesis/Project Title: Ontario Forest Products: Place Branding and Certification. Other Supervisors: Co-Supervisor - Nadeau, John

2012/9 - 2013/8 Townshend, Elisha (Completed) , Nipissing University
Principal Supervisor Thesis/Project Title: Ecologically-based modeling of wood fibre length in black spruce (Picea mariana).

Master's Thesis [n=8]

2021/9 - 2023/8 Dawson Meecham (In Progress)
Principal Supervisor Thesis/Project Title: Assessing location, condition, and vegetation recovery on forest roads in the boreal and Great Lakes – St Lawrence regions.

2018/9 - 2021/12 Elizabeth Elliot (Completed) , Nipissing University
Principal Supervisor Thesis/Project Title: Reconstructing spatial patterns of fire intensity from remote sensing data and stable oxygen isotopes in wood char
Other Supervisors: Co-Supervisor - Webb, Elizabeth

2017/9 - 2019/8 Ayla Brombach (Withdrawn) , Nipissing University
Principal Supervisor Thesis/Project Title: Soil Moisture Regime Prediction and its Relationship to Wood Attributes in the Boreal Forest of Newfoundland

2016/9 - 2018/12 Rebecca Wylie (Completed) , Nipissing University
Principal Supervisor Thesis/Project Title: Estimating stand age from airborne laser scanning data to improve ecosystem-based models of black spruce wood density in the boreal forest of Ontario

2015/9 - 2021/4 Tegan McWhirter (Completed) , Nipissing University
Co-Supervisor Thesis/Project Title: Analyzing stable oxygen isotopes in wood char to reconstruct past fire conditions.
Other Supervisors: Co-Supervisor - Webb, Elizabeth

2015/9 - 2019/2 Amanda Springer (Completed) , Nipissing University
Principal Supervisor Thesis/Project Title: Using a multi-variate approach to describe the regeneration niche of black ash (Fraxinus nigra Marsh.) in the Great Lakes - St Lawrence forest.

2015/9 - 2017/8 Mandy Ehnes (Completed) , Nipissing University
Co-Supervisor Thesis/Project Title: The ecological effects of an Emerald Ash borer infestation on avian and anuran diversity and signalling behaviour at a community scale in urban woodlots.
Other Supervisors: Co-Supervisor - Foote, Jennifer

2013/9 - 2015/8 Arthur, Corinne (Completed) , Nipissing University
Principal Supervisor Thesis/Project Title: Testing the diversity-stability hypothesis in dry forests of the Great Lakes-St. Lawrence forest region of Canada.

Doctorate [n=1]

2018/1 - 2018/12 Liang Shi (Completed) , Inner Mongolia Agriculture University
Principal Supervisor Student Canadian Residency Status: Study Permit
Thesis/Project Title: Forest dynamics in response to environmental change in the coniferous forests of northeast China.
Project Description: Data management and analysis, preparation of manuscripts for publication

Post-doctorate [n=1]

2009/6 - 2013/11 Pokharel, Bharat (Completed) , Nipissing University
Principal Supervisor Student Canadian Residency Status: Student Work Permit
Thesis/Project Title: Growth and wood quality modelling of boreal tree species.

Staff Supervision

Event Administration

2010/9 - 2011/9	Technical Program Co-Chair, Chair of Research Poster Session, Canada's Forest Conference, Canadian Institute of Forestry, National Conference, Deerhurst Resort, Huntsville, ON, Canada., Conference, 2011/9 - 2011/9
2010/3 - 2010/6	Organizer, Forest Biomass Symposium at Nipissing University, Workshop, 2010/6 - 2010/6
2009/8 - 2009/10	Organizing Committee, Student Volunteer Co-Cordinator, Harnessing Biomass: from the Forest to the Marketplace conference, International Conference, Nipissing University, Conference, 2009/10 - 2009/10
2007/1 - 2007/3	Organizing Committee Member, Red Oak Research Workshop, Conference, Nipissing University, 2007/3 - 2007/3 Invited speakers, organized agenda and arranged online access to conference.

Editorial Activities

2012/4 - 2012/9	Editorial Committee Member, Proceedings of the 2012 Nipissing University Undergraduate Research Conference, Conference Abstract Served as the science and math editor, including arrangement of reviews, facilitating revisions and making decisions on acceptance of manuscripts.

Journal Review Activities

2019/8 - 2019/8	Peer Reviewer, Forest Ecology and Management Number of Works Reviewed / Refereed: 1
2019/6 - 2019/7	Peer Reviewer, Ecosystems, Springer Number of Works Reviewed / Refereed: 1
2018/9 - 2018/10	Peer Reviewer, Forest Ecology and Management, Elsevier Number of Works Reviewed / Refereed: 1
2018/8 - 2018/8	Peer Reviewer, Scientific Reports, Nature Publishing Group Number of Works Reviewed / Refereed: 1
2017/10 - 2017/10	Peer Reviewer, Forests, MDPI Number of Works Reviewed / Refereed: 1
2017/7 - 2017/7	Peer Reviewer, Ecological Indicators, Elsevier Number of Works Reviewed / Refereed: 1
2016/5 - 2016/6	Peer Reviewer, Forest Ecology and Management, Elsevier Number of Works Reviewed / Refereed: 1
2016/3 - 2016/4	Peer Reviewer, Canadian Journal of Forest Research, NRC Research Press Number of Works Reviewed / Refereed: 1
2016/2 - 2016/2	Peer Reviewer, Forestry Chronicle, Canadian Institute of Forestry Number of Works Reviewed / Refereed: 1
2015/7 - 2015/8	Peer Reviewer, Ecoscience, Taylor and Francis Number of Works Reviewed / Refereed: 1
2015/2 - 2015/5	Peer Reviewer, Forests, MDPI Number of Works Reviewed / Refereed: 1

2014/6 - 2014/6	Peer Reviewer, Forest Ecology and Management, Elsevier Number of Works Reviewed / Refereed: 1
2013/12 - 2013/12	Peer Reviewer, Forest Ecology and Management, Elsevier Number of Works Reviewed / Refereed: 1
2013/1 - 2013/1	Peer Reviewer, American Midland Naturalist, University of Notre Dame Number of Works Reviewed / Refereed: 1
2012/6 - 2012/6	Peer Reviewer, Plant and Soil, Springer Number of Works Reviewed / Refereed: 1
2011/6 - 2011/6	Peer Reviewer, Botany, NRC Research Press Number of Works Reviewed / Refereed: 1
2011/2 - 2011/2	Peer Reviewer, Canadian Journal of Forest Research, NRC Research Press Number of Works Reviewed / Refereed: 1
2010/10 - 2010/10	Peer Reviewer, Canadian Journal of Forest Research, NRC Research Press Number of Works Reviewed / Refereed: 1
2010/9 - 2010/9	Peer Reviewer, Plant Ecology, Springer Number of Works Reviewed / Refereed: 1
2009/9 - 2009/9	Peer Reviewer, Journal of Arid Environments, Elsevier Number of Works Reviewed / Refereed: 1
2009/6 - 2009/6	Peer Reviewer, Forest Ecology and Management, Elsevier Number of Works Reviewed / Refereed: 1
2008/9 - 2008/10	Peer Reviewer, Forest Information Paper 172 Canada Yew: Developing a Value-Added Crop for Northern Ontario, Ontario Forest Research Institute Number of Works Reviewed / Refereed: 1
2008/6 - 2008/6	Peer Reviewer, Restoration Ecology, Wiley Number of Works Reviewed / Refereed: 1
2007/9 - 2007/9	Peer Reviewer, Geomorphology, Elsevier Number of Works Reviewed / Refereed: 1
2007/2 - 2007/2	Peer Reviewer, Journal of Vegetation Science, Wiley Number of Works Reviewed / Refereed: 1
2006/6 - 2006/6	Peer Reviewer, Restoration Ecology, Wiley Number of Works Reviewed / Refereed: 1

Graduate Examination Activities

2020/7 - 2020/7	Thesis Defense Examiner, Aparna Mukerji, Biology, Laurentian University of Sudbury
2019/10 - 2019/10	Thesis Defense Examiner, Leland Johnston, Biology, Laurentian University of Sudbury

Research Funding Application Assessment Activities

2017/6 - 2017/7	External Reviewer, Michigan Sea Grant 2017 RFP, Funder, Academic Reviewer, Michigan Sea Grant, National Sea Grant College Program Number of Applications Assessed: 1

2010/1 - 2010/2	External Reviewer, Leaders Opportunity Fund, Funder, Academic Reviewer, Canadian Foundation for Innovation Number of Applications Assessed: 1 Research Disciplines: Biology and Related Sciences Areas of Research: Ecological Trends Fields of Application: Environment
2009/2 - 2009/2	External Reviewer, Research Grant Review Committee, Organization, Academic Reviewer, William Patterson University of New Jersey Number of Applications Assessed: 1 Research Disciplines: Biology and Related Sciences Areas of Research: Ecological and Ecophysiological Processes Fields of Application: Environment
2008/3 - 2008/4	External Reviewer, Research Proposal Review Committee, Funder, Academic Reviewer, Ontario Ministry of Research and Innovation, Ontario Centres of Excellence Number of Applications Assessed: 1 Research Disciplines: Biology and Related Sciences Areas of Research: Environment Management and Protection Fields of Application: Environment

Promotion Tenure Assessment Activities

2012/11 - 2015/2	Observer, University Review Committee, Nipissing University Faculty Association Number of Assessments: 50 Acted as the observer on the University Review Committee for the Nipissing University Faculty Association in the tenure and promotion process.

Organizational Review Activities

2011/2 - 2013/5	Focus Group Member, Canadian Forest Service Provided input and analysis of strategies aimed at promoting research activities within the National Forests of Canada.
2012/12 - 2012/12	Invited Panelist, Canadian Institute of Forestry Provided advice on academic participation in the creation of a new National Forest Science Network for Canada (CIF-SEEK) hosted by the Canadian Institute of Forestry and the Forestry Research Partnership.
2012/11 - 2012/12	Internal Reviewer, Nipissing University Participated as an internal reviewer of the Psychology Department in the Institutional Quality Assurance Program (IQAP) review process, including site visit and report preparation.
2006/10 - 2006/10	Invited Panelist, United States Environmental Protection Agency Invited member of research discussion group identifying needs, opportunities and directions for future research on coastal sand dunes in the Great Lakes basin, at Great Lakes Dune Conference, Oct.3-5,2006. Traverse City, MI, USA.

Event Participation

Invited Participant, Forest Biomass Discovery Workshop, Queen's University and Ontario Ministry of Natural Resources, Workshop, 2009/3 - 2009/3

Participant, 19th Annual North American Dendroecological Field Week, Hampshire College and Harvard Forest, Amherst, MA, USA, Course, 2009/6 - 2009/6
The North American Dendroecological Fieldweek (NADEF) provides an intensive learning experience in dendrochronology.

Participant, Alternative Futures for Canada's Forests and Forest Sector. Sustainable Forest Management Network Forest Futures Program. Nipissing University, North Bay, ON, Canada, Workshop, 2008/11 - 2008/11

Participant, The Scientific foundation for sustainable forest biomass harvesting guidelines and policy. A workshop given by the Sustainable Forest Management Network and the Faculty of Forestry, University of Toronto., Workshop, 2008/2 - 2008/2

Participant, Ontario Silvicultural Tree Marking Certification Course – Level 1., Course, 2006/5 - 2006/5

Completed the course required for level 1 certification as a silvicultural tree-marker in Ontario.

Participant, OAK 2006: Advances in principles and practices of oak silviculture and genetics. International Union of Forest Research Organizations (IUFRO) Project 1.01.06 (Ecology and Silviculture of Oaks) and Project 2.08.05 (Genetics of Quercus)., Conference, 2006/9 - 2006/9

Participant, 20th Annual North American Dendroecological Field Week, White Mountain Research Station, California, USA., Course, 2010/8 - 2010/8
The North American Dendroecological Fieldweek (NADEF) provides an intensive learning experience in dendrochronology.

Community and Volunteer Activities

2016/11 - 2020/11	Board Secretary, North Bay Selects Soccer Club Secretary to the board of governors.
2019/4 - 2020/3	Trainer, North Bay and District Trappers Hockey Association Qualified hockey trainer (Level II).
2016/5 - 2019/8	Coach, North Bay Youth Soccer Club Qualified developmental youth soccer coach (Learn to train).
2014/5 - 2019/8	Coach, North Bay Youth Soccer Club Recreational youth soccer coach (U7 to U13)
2017/9 - 2019/3	Trainer, West Ferris Minor Hockey Association Qualified hockey trainer (Level I).
2017/1 - 2017/9	Coach, North Bay Selects Soccer Club Qualified competitive youth soccer coach (Soccer for Life).
2001/4 - 2001/4	Judge, London Regional Science Fair
1997/6 - 1997/6	Judge, Canada Wide Science Fair

Knowledge and Technology Translation

- 2012/5 - 2013/12 Pathway Developer, Standards Development
 Group/Organization/Business Serviced: Credit Transfer Innovation Fund
 Outcome / Deliverable: Pathway for college program graduates in environmental technology to enter into the Bachelor of Science (Environmental Biology and Technology Program at Nipissing University).
 Activity Description: The ENVTECH CUCC project group were tasked to compare the college diploma program learning outcomes to the university program learning outcomes for their institution, and for each of the target college diploma programs, develop a block credit transfer pathway that can be available to all college graduates of the respective programs so that graduates of the target college diploma programs would be guaranteed an equivalent number of transfer credits across all of the partner universities.
- 2010/9 - 2013/5 Faculty Participant, R&D Collaboration with Industry
 Group/Organization/Business Serviced: Quality Hardwoods
 Target Stakeholder: Industry/Business-Small (<100 employees)
 Outcome / Deliverable: A course module was developed to undertake a research project shared by students in Canada and Finland, aimed at analyzing the carbon offset outcome of replacing fossil fuels with biomass heating systems in small businesses case studies representing Finland and Northern Ontario.
 Evidence of Uptake/Impact: A report and presentation were prepared by students for coursework, and the collaborating faculty prepared an official project report published on the forest energy observer portal.
 References / Citations / Web Sites: Lasse Okkonen, Jeffery P. Dech and Peter Nosko. 2014. EU-Canada BioPower: A Student Project to Examine Wood Energy Systems using SimaPro 7 Life-Cycle Analysis Software.
 Activity Description: Students and faculty from both universities held online meetings, conducted analyses, reviewed documents and prepared a report and presentation for the client.

International Collaboration Activities

- 2018/1 - 2019/1 Supervisor, Canada
 Graduate student (Ph.D.) student appointed for a visiting scholarship from the China Scholarship Council, Ministry of Education, Peoples Republic of China
- 2014/11 - 2016/8 Collaborator, United States
 I was invited to give a presentation on Black Ash stand dynamics and regeneration at a symposium arranged at the University of Maine. The unifying theme of the symposium was a focus on the biology and ecology of black ash throughout North America. The symposium brought together researchers, state and national agencies, students, and tribal members to update knowledge on a rare and rarely studied species whose populations are threatened by the emerald ash borer. The symposium led to a joint publication: Kara K.L. Costanza, William H. Livingston, Daniel M. Kashian, Robert A. Slesak, Jacques C. Tardif, Jeffrey P. Dech, Allaire K. Diamond, John J. Daigle, Darren J. Ranco, Jennifer S. Neptune, Les Benedict, Shawn R. Fraver, Michael Reinikainen, Nathan W. Siegert, The Precarious State of a Cultural Keystone Species: Tribal and Biological Assessments of the Role and Future of Black Ash, Journal of Forestry, Volume 115, Issue 5, September 2017, Pages 435–446.

2010/9 - 2013/4 Faculty Participant, Canada
 Project Name: EU-CAN BIOPOWER: Transatlantic Empowering the Skills, Knowledge and Know-how in Teaching and Learning BioEnergy Entrepreneurship. Funding Agency and Program: Human Resources and Skills Development Canada (Canada-EU Program for Co-operation in Higher Education, Training and Youth Projects). Funding: \$200,000 Duration: 2010-2013. Partner Organizations: College Communautaire du Nouveau Brunswick, Nipissing University, North Karelia University of Applied Sciences (Joensuu, Finland), Slovak University of Agriculture (Slovakia). Description: This project aimed at enhancing the relationship between Canada and European Union institutions through the reinforcement of collaboration in the field of renewable - bioenergy. The specific outcomes of the project included student exchanges, shared curriculum development and the establishment of a network of scholars, companies and governmental agencies experts in wood based bio energy and sustainable development.

Committee Memberships

2021/7 - 2024/6	Committee Member, Academic Senate, Nipissing University
2021/4 - 2022/12	Chair, Internal Review Committee for IQAP review of Biology programs., Nipissing University
2020/9 - 2021/4	Committee Member, Selection Committee for Canada Research Chair (Tier II) in Climate and Environmental Change., Nipissing University
2019/9 - 2020/4	Committee Member, Nipissing University Faculty Association collective bargaining FASBU sub-committee, Nipissing University Faculty Association
2018/1 - 2019/6	Chair, MES/MESc IQAP review self-study committee
2019/2 - 2019/4	Committee Member, Selection committee for Dean of Teaching, Nipissing University
2017/9 - 2018/8	Committee Member, Executive, Nipissing University Faculty Association Member at large for Arts and Science
2013/9 - 2018/6	Committee Member, Graduate Studies Committee (GSC), Nipissing University
2011/9 - 2017/6	Committee Member, Academic Senate, Nipissing University Arts and science faculty senator
2013/10 - 2015/9	Committee Member, College of Representatives, Canadian Institute of Ecology and Evolution Local representatives act as a liaison between the CIEE and the members of the university community.
2015/1 - 2015/7	Chair, Strike Preparedness Committee, Nipissing University Faculty Association Term ended in July due to sabbatical.
2012/11 - 2012/6	Committee Member, Selection Committee - Tenure track faculty position 1 in Psychology, Nipissing University
2012/11 - 2012/6	Committee Member, Selection committee - Tenure track faculty position 2 in Psychology, Nipissing University
2009/1 - 2011/12	Committee Member, Algonquin Section Council, Canadian Institute of Forestry
2011/9 - 2011/6	Committee Member, Nipissing University Strategic Plan Action Planning Team (APT) 3.1 – Increase our research, scholarship and creative work using the Teacher/Scholar model., Nipissing University
2008/11 - 2008/12	Committee Member, Natural Sciences and Engineering Research Council of Canada Post-graduate scholarship ranking committee, Nipissing University

2008/11 - 2008/6	Committee Member, Canada Research Chair (NSERC) Tier II selection committee, Nipissing University
2008/1 - 2008/6	Committee Member, Selection committee - tenure track position in Aquatic Biology., Nipissing University
2003/9 - 2004/6	Committee Member, Biology department outreach committee, University of Western Ontario
2001/9 - 2002/6	Chair, Association of Plant Sciences Graduate Students, University of Western Ontario

Other Memberships

2005/11	Member, Canadian Institute of Forestry The Canadian Institute of Forestry describes itself as "the national voice of forest practitioners. The Institute represents foresters, forest technologists and technicians, ecologists, biologists, geographers, educators, scientists and many others with a professional interest in forestry."

Most Significant Contributions

Ecologically-Based Forest Growth and Wood Quality Models

Our research group outlined a new approach to modeling growth of boreal tree species (Pokharel and Dech, 2011), developed a reclassification system for converting soil data into Ecological Land Classification variables (Pokharel et al. 2012), and produced a new ecosite-based basal area increment model that improves estimates of tree growth (Pokharel and Dech 2012). We generated a classification model for mean tree-level wood density for black spruce in the boreal forest of northeastern Ontario (Pokharel et al., 2014), and extended the approach to model black spruce mean fibre length (Towshend et al. 2015). We used forest structural variables derived from airborne LiDAR data to model black spruce age and wood density (Pokharel et al. 2016; Wylie et al. submitted). This work identifying areas on the landscape where particular wood quality attributes exist is promising, given that we found domestic consumers of wood products favour locally sourced wood (Paulin et al. 2018).

Responses of Coastal Forests to Sand Burial

This work elucidates the role of sand burial in coastal forests of the Great Lakes at individual, community and ecosystem levels. (Dech et al 2005) demonstrated a new technique for analyzing digital multispectral data from airphotos, facilitating classification and change detection analysis in coastal dune ecosystems. Dech and Maun (2005) conducted a multivariate analysis of vegetation on dunes undergoing sand movement, providing clear evidence that sand burial alters plant community composition and structure. Dech and Maun (2006) analysed burial responses of various tree species in one of the few experimental studies of buried woody plants conducted worldwide, identifying adventitious rooting and plastic allocation patterns as adaptations of coastal trees in dune systems. These studies inform tree planting programs to stabilize dunes under pressure from human traffic, sea level rise and global climate change, and preservation or restoration of coastal dune habitats (Dech 2009).

Perturbations, stability and regeneration of forests
 Changing disturbance regimes threaten stands of native species throughout eastern North America. Silvicultural approaches seek to emulate natural disturbances; however, few studies have explored the environmental variation created by past disturbances and assessed how these are represented under different silvicultural systems. We have examined spatial patterns in disturbances such as insect outbreaks (Lacey and Dech 2012) fire (McWhirter, in progress; Elliott, in progress) over the landscape, and determined the responses of communities to these disturbances as related to permafrost (Shi et al. 2019) and species richness and composition (Arthur and Dech 2016). We have compared the regeneration of Red Oak and competitors in response to different partial harvest treatments (Dech et al. 2008; Johns et al. submitted), and described the importance of Black Ash in eastern forests (Costanza et al. 2018) and examined Black Ash stand dynamics and regeneration in Ontario (Springer 2019).

Presentations

1. Brombach, A*, and Dech, J.P. (2020). Prediction of Soil Moisture Regime and its Relationship to Wood Density in the Boreal Forest of Newfoundland. AWARE Annual General Meeting, Toronto, Canada
Main Audience: Researcher
2. Wylie, R.R.M*, Woods, M.E., and Dech, J.P. (2020). Estimating Stand Age from Airborne Laser Scanning Data to Improve Models of Black Spruce Wood Density in the Boreal Forest of Ontario. AWARE Annual General Meeting, Toronto, Canada
Main Audience: Researcher
3. *Brombach, A., and Dech, J.P. (2019). Soil Moisture Regime Prediction and its Relationship to Wood Attributes in the Boreal Forest of Newfoundland. 40th Canadian Symposium on Remote Sensing & Geomatics Atlantic 2019, Fredericton, Canada
Main Audience: Researcher
4. *Craig, B., Nosko, P., and Dech, J.P. (2019). Defoliation of boreal forest stands during spruce budworm outbreaks in relation to site quality. Ontario Biology Day, London, Canada
Main Audience: Researcher
5. *Johns, J.D., Nosko, P., and Dech, J.P. (2019). Coppice growth of red oak, red maple and sugar maple after 14 years under uniform shelterwood and group selection treatments in the Great Lakes - St Lawrence forest region. Ontario Biology Day, London, Canada
Main Audience: Researcher
6. *Wylie, R., and Dech, J.P. (2018). Estimating stand age from airborne laser scanning data to improve ecosite-based models of black spruce wood quality in the Boreal forest of Ontario. AWARE Research Showcase, Point Claire, Canada
Main Audience: Knowledge User
7. *Brombach, A., and Dech, J.P. (2018). Prediction of soil moisture regime and its relationship to wood quality in the Boreal forest of Newfoundland. AWARE third annual general meeting, Point Claire, Canada
Main Audience: Researcher
8. *Brombach, A., and Dech, J.P. (2018). Prediction of soil moisture regime and its relationship to wood quality in the Boreal forest of Newfoundland. AWARE Research Showcase, Point Claire, Canada
Main Audience: Knowledge User
9. *Wylie, R., and Dech, J.P. (2018). Estimating Age from LiDAR-Derived Structural Variables to Improve Ecosite-Based Models of Black Spruce Wood Quality in the Boreal forest of Ontario. Canadian Institute of Forestry, Algonquin Section, Annual General Meeting, Mattawa, Canada
Main Audience: General Public
Description / Contribution Value: **INVITED**

10. *Wylie, R., and Dech, J.P. (2018). Estimating stand age from airborne laser scanning data to improve ecosite-based models of black spruce wood quality in the Boreal forest of Ontario. AWARE third annual general meeting, Point Claire, Canada
Main Audience: Researcher
11. *Wylie, R., Woods, M., and Dech, J.P. (2018). Estimating Stand Age From Airborne Laser Scanning Data to Improve Ecosite-based Models of Black Spruce Wood Quality in the Boreal Forest of Ontario. Joint Southern And Northeastern Mensurationists And IUFRO 4.01 Conference, Blacksburg, United States
Main Audience: Researcher
12. *Wylie, R., and Dech, J.P. (2017). Estimating age from LiDAR-derived structural variables to improve ecosite-based models of black spruce wood quality in the boreal forest of Ontario. AWARE second annual general meeting, Edmunston, Canada
Main Audience: Researcher
13. *Ehnes, M., Dech, J.P., and Foote, J. (2017). Seasonal changes in songbird detection in urban forests: implications for studies of emerald ash borer invasion dynamics. The 135th Meeting of American Ornithology, East Lansing, United States
14. Dech, J.P. (2017). What hydrologic indicators can be derived from a LiDAR-based DEM to support land classification schemes relevant for forest management?. AWARE second annual general meeting, Edmunston, Canada
Main Audience: Researcher
- [15.](#) Dokis, N., and Dech, J.P. (2017). Logging, fire and beavers: the story of environmental and cultural change on Dokis First nation as told by traditional knowledge and tree-rings. Challenging Canada 150, Settler Colonialism and Critical Environmental Sciences, North Bay, Canada
Main Audience: Researcher
Description / Contribution Value: **INVITED**
16. *Arthur, C.M., Dech, J.P. (2015). Species Composition Drives Ecological Stability in Forests of the Great Lakes-St. Lawrence (GLSL) Region of Ontario, Canada. Protecting What Sustains Us: 2015 Ontario Biodiversity Summit, Niagara Falls, Canada
Main Audience: Knowledge User
17. Nadeau, J., *Paulin, A., Dech, J.P. (2015). Place branding and certification in commodity and value-added product choice decisions. 10th Global Brand Conference Academy of Marketing's Brand, Identity and Corporate Reputation Special Interest Group (SIG) Creative Brand and Design, Turku, Finland
Main Audience: Researcher
18. Dech, J.P., *Townshend, E., *Pokharel, B., and Pinto, F. (2014). Black Ash stand dynamics in rich hardwood swamps of the Great Lakes - St. Lawrence forest region. Black Ash Symposium: Sharing Traditional and Scientific Knowledge, School of Forest Resources, University of Maine, Orono, United States
Main Audience: Researcher
Description / Contribution Value: **INVITED**
19. Dech, J.P. (2014). Seeing the forest for the trees: ecological modelling of forest landscapes. Nipissing University Award Winners Speaker Series, North Bay, Canada
Main Audience: General Public
Description / Contribution Value: **INVITED**
20. *Perron, M., Sasaki, K., Dech, J.P., Litzgus, J. (2014). Climate-growth relationship in snapping turtles (*Chelydra serpentina*): development of an innovative approach. Ontario Biology Day, Toronto, Canada
Main Audience: Researcher
21. *Pokharel, B., Dech, J.P., Groot, A., Pitt, D., Woods, M. (2014). Mapping model of wood quality characteristics of black spruce (*Picea mariana* (Mill.) B.S.P.) in Northern Ontario. Joint meeting of the Northeastern Mensurationists (NEMO) and the Southern Mensurationists (SOMENS), Raleigh, United States
Main Audience: Researcher

22. Dech, J.P., *Pokharel, B., Groot, A., and Pitt, D. (2013). Extending inventory capabilities through ecosite-based modeling of Black Spruce growth and wood quality. LiDAR and New Forest Technologies Workshop, CIF/IFC SEEK, Hearst, Canada
Main Audience: Knowledge User
Description / Contribution Value: **INVITED**
23. Dech, J.P., *Pokharel, B., Groot, A., and Pitt, D. (2013). Predictive modeling of individual tree growth and wood quality characteristics of Black Spruce (*Picea mariana*) in boreal landscapes of Ontario. North American Forest Ecology Workshop, Bloomington, United States
Main Audience: Researcher
24. *McAneney, J., Dech, J.P. (2013). Reconstruction of disturbance events and climate-growth relationships in ridge top forests of the Great Lakes – St. Lawrence Forest region. North American Forest Ecology Workshop, Bloomington, United States
Main Audience: Researcher
25. *Lajoie, C., and Dech, J.P. (2013). Reconstruction of Forest Tent Caterpillar outbreaks and their effects on Trembling Aspen growth in relation to latitude, stand and site factors. Nipissing University Undergraduate Research Conference, North Bay, Canada
Main Audience: General Public
26. *Perron, M.C., Sasaki, K., Dech, J. P., Keevil, M., Shirakura, F., Litzgus, J.D. (2013). Climate-growth relationship in snapping turtles (*Chelydra serpentina*): development of an innovative approach. 23rd annual meeting of the Canadian Reptile and Amphibian Conservation Network (CARCNET), Orford, Canada
Main Audience: Researcher
27. *Townshend, E., Dech, J.P., *Pokharel, B., and Pinto, F. (2013). Black Ash Stand Dynamics in Rich Hardwood Swamps of the Great Lakes St. Lawrence Forest Region. North American Forest Ecology Workshop, Bloomington, United States
Main Audience: Researcher
28. Dech, J.P. (2013). Closing Address. Nipissing University Undergraduate Research Conference, North Bay, Canada
Main Audience: Researcher
Description / Contribution Value: **INVITED**
29. Dech, J.P. (2012). Sustainable Forest Management in Ontario, Canada: Ideas, Practices and Challenges. Natural and Environmental Economics Seminar, Karelia University of Applied Sciences., Joensuu, Finland
Main Audience: Knowledge User
Description / Contribution Value: **INVITED**
30. *Townshend, E., Dech, J.P., *Pokharel, B., and Pinto, F. (2012). Black Ash stand dynamics and potential habitat quality for flooded jellyskin in the Great Lakes – St. Lawrence Forest region. Sudbury Naturalist's Club Meeting, Sudbury, Canada
Main Audience: General Public
Description / Contribution Value: **INVITED**
31. *Townshend, E., Dech, J.P., *Pokharel, B., and Pinto, F. (2012). Black Ash stand dynamics and potential habitat quality for flooded jellyskin in the Great Lakes – St. Lawrence Forest region. Ontario Nature Regional Meeting, St. Charles, Canada
Main Audience: Knowledge User
Description / Contribution Value: **INVITED**
32. *Townshend, E., Dech, J.P., *Pokharel, B., and Pinto, F. (2012). Black Ash stand dynamics and potential habitat quality for flooded jellyskin in the Great Lakes – St. Lawrence Forest region. Nipissing Naturalist's Club Meeting, North Bay, Canada
Main Audience: General Public
Description / Contribution Value: **INVITED**

33. Dech, J.P., *Mayhew-Hammond, S., James, A., and *Pokharel, B. (2012). Predictive Ecological Modelling of Canada Yew. Forestry Research Partnership/Canadian Institute of Forestry Algonquin Section Seminar, Canadian Ecology Centre, Mattawa, Canada
Main Audience: Knowledge User
Description / Contribution Value: **INVITED**
34. *Townshend, E., Dech, J.P., * Pokharel, B., and Pinto, F. (2012). Black Ash stand-dynamics and potential habitat for Flooded Jellyskin in the Great Lakes – St. Lawrence Forest Region. Nipissing University Undergraduate Research Conference, North Bay, Canada
Main Audience: General Public
35. Dech, J.P., *Pokharel, B. (2012). The added value of ecological land classification approaches in boreal forest growth and yield analyses. Research Seminar at the Great Lakes Forestry Centre, Sault St. Marie, Canada
Main Audience: Researcher
Description / Contribution Value: **INVITED**
36. Dech, J.P., *Pokharel, B., *Lacey, M.L., and *Winsor, W. (2011). Ecological land classification approaches to quantifying site differences in the Boreal Forest. Ontario Ministry of Natural Resources Workshop Linking Forest Resource Inventory and Ecological Land Classification for the Forest Industry, Timmins, Canada
Main Audience: Knowledge User
Description / Contribution Value: **INVITED**
37. Dech, J.P. (2011). In search of largest and oldest living things on earth: forests of the Sierra Nevada and White Mountains of California. Canadian Institute of Forestry Algonquin Section International Night, North Bay, Canada
Main Audience: Knowledge User
Description / Contribution Value: **INVITED KEYNOTE**
38. Dech, J.P., *Pokharel, B. (2011). The value of ecological land classification approaches in boreal forest growth and yield analyses. Ontario Ministry of Natural Resources Workshop Linking Forest Resource Inventory and Ecological Land Classification for the Forest Industry, Timmins, Canada
Main Audience: Knowledge User
Description / Contribution Value: **INVITED**
39. *Major, K.C., Nosko, P., Dech, J.P. (2011). Growth and resource allocation patterns of red oak and sugar maple seedlings in soils from oak- vs. pine-dominated forests. North American Forest Ecology Workshop, Roanoke, United States
Main Audience: Researcher
40. *Pokharel, B., Dech, J.P. (2011). Ecosite as a Growth and Yield Model Projection Unit in the Boreal Forest of Ontario. Canada's Forest Conference, Huntsville, Canada
Main Audience: Researcher
41. *Major, K.C., Nosko, P. and Dech, J.P. (2011). Growth and resource allocation patterns of red oak and sugar maple seedlings in soils from oak- vs. pine-dominated forests. 7th North American Forest Ecology Workshop, Roanoke, United States
Main Audience: Researcher
42. *Courville, P., Dech, J.P. Groot, A., and Wachowiak, M. (2011). Deriving Crown Attributes and Product Recovery Scenarios from terrestrial LiDAR scans. Canadian Institute of Forestry, Taking Stock Inventory Options for Today and Tomorrow, Kapuskasing, Canada
Main Audience: Knowledge User
Description / Contribution Value: **INVITED**
43. *Mayhew-Hammond, S., Dech, J.P., James, A. and *Pokharel, B. (2011). Predictive Habitat Modeling of Canada Yew (*Taxus canadensis* Marsh.) in the boreal forest of Ontario. Canada's Forest Conference, Huntsville, Canada
Main Audience: Researcher

44. *Simpson, S., Mirza, R., and Dech, J.P. (2011). Amphibian oviposition in novel pools created by skidding activity in central Ontario Forests. Nipissing University Undergraduate Research Conference, North Bay, Canada
Main Audience: General Public
45. *Mayhew-Hammond, Dech, J.P., *Pokharel, B., and James, A. (2011). Predictive habitat modeling of Canada Yew (*Taxus canadensis* Marsh.) in the Boreal forest of northeastern Ontario. Nipissing University Undergraduate Research Conference, North Bay, Canada
Main Audience: General Public
46. *Pokharel, B., Dech, J.P. (2011). Use of ecological land classification (ELC) to improve forest growth and yield prediction in the Boreal forest of Ontario. Western Mensurationists Meeting, Banff, Canada
Main Audience: Researcher
47. *Murray, C., and Dech, J.P. (2011). Establishment and growth of Canada Yew colonies: a dendroecological approach. Nipissing University Undergraduate Research Conference, North Bay, Canada
Main Audience: General Public
48. Dech, J.P. (2011). In search of the largest and oldest living things on Earth: forests of the Sierra Nevada and White Mountains of California. Nipissing Naturalist's Club Meeting, North Bay, Canada
Main Audience: General Public
Description / Contribution Value: **INVITED**
49. *Winsor, W., and Dech, J.P. (2011). Quantifying variation in the wood quality of black spruce (*Picea mariana*) in relation to site conditions in the Boreal forest of northeastern Ontario. Nipissing University Undergraduate Research Conference, North Bay, Canada
Main Audience: General Public
50. *Pokharel, B., Dech, J.P. (2011). Use of ecological land classification (ELC) to improve forest growth and yield prediction in the Boreal forest of Ontario. Forest Ecosystem Science Cooperative, Growth and Yield Science Unit Meeting, Timmins, Canada
Main Audience: Knowledge User
Description / Contribution Value: **INVITED**
51. Dech, J.P., *Pokharel, B., and *Lacey, M.L. (2011). The value of ecological land classification approaches in boreal forest growth and yield analyses. Great Lakes - St. Lawrence Forest Science Seminar, Petawawa, Canada
Main Audience: Knowledge User
Description / Contribution Value: **INVITED**
52. Sahara, A., Gentry, C., van de Gevel, S., Birch, S., Cousins, S., Dech, J.P. Guiterman, C., Harley, G., Hook, B., Martinson, E., Morrissey, R., Reinikainen, M., and Ryu, S.R. (2011). Forest Stand Dynamics and Disturbance History in a Mixed Hardwood Forest, Simes Tract, Harvard Forest, Massachusetts. Annual Meeting of the Association of American Geographers, Seattle, United States
Main Audience: Researcher
53. Dech, J.P., *Pokharel, B. (2011). Use of ecosite and other landscape level variables to improve forest growth and yield models, especially with respect to new forest bioproducts. Canadian Institute of Forestry, Taking Stock Inventory Options for Today and Tomorrow, Kapuskasing, Canada
Main Audience: Knowledge User
Description / Contribution Value: **INVITED**
54. Dech, J.P., and *Pokharel, B. (2011). The added value of ecological land classification approaches in boreal forest growth and yield analyses. Enhanced Forest Inventory and Ecological Land Classification Workshop, Pembroke, Canada
Main Audience: Knowledge User
Description / Contribution Value: **INVITED**

55. Dech, J.P. (2010). Making a difference: understanding climate change and taking action.Canadian Ecology Centre grade ten science program, North Bay, Canada
Main Audience: Knowledge User
Description / Contribution Value: **INVITED**
56. Dech, J.P. (2010). Making a difference: understanding climate change and taking action.Nipissing University Student Union Greenweek. Energy and Climate Change Day, North Bay, Canada
Main Audience: Knowledge User
Description / Contribution Value: **INVITED**
57. *Courville, P.K., Dech, J.P. and Groot, A. (2010). Deriving crown attributes from terrestrial LiDAR scans.14th Annual Nipissing University/University of Toronto/Canadian Institute of Forestry Symposium., North Bay, Canada
Main Audience: Researcher
Description / Contribution Value: **INVITED**
58. Dech, J.P. (2010). Helping students to understand climate change and forests.Grade 11 Environmental Science (SVN3E AND SVN3M) teacher training workshop, Canadian Ecology Centre., Mattawa, Canada
Main Audience: Knowledge User
Description / Contribution Value: **INVITED**
59. Dech, J.P.,. (2010). Knowledge through discovery: the undergraduate research experience at Nipissing University.Nipissing University Undergraduate Research Conference, North Bay, Canada
Main Audience: Researcher
Description / Contribution Value: **INVITED KEYNOTE**
60. Dech. J.P. (2010). Education and action: tools to understand climate change and forests.Canadian Ecology Centre Forestry Teacher's Tour, Canadian Ecology Centre, Mattawa, Canada
Main Audience: Knowledge User
Description / Contribution Value: **INVITED**
61. *Perry, S., and Dech, J.P. (2010). Determining the effect of species richness and composition on the stability of forest productivity in response to drought events in the Boreal forest region of Ontario.Nipissing University Undergraduate Research Conference, North Bay, Canada
Main Audience: General Public
62. Dech, J.P. (2010). Making a difference: understanding climate change and taking action.1st Environmental Symposium, St. Joseph's – Scollard Hall Catholic High School, North Bay, Canada
Main Audience: Knowledge User
Description / Contribution Value: **INVITED KEYNOTE**
63. Dech, J.P. (2010). How trees clean our air.Junior and senior Kindergarten classes. St. Francis Catholic School, North Bay, Canada
Main Audience: Knowledge User
Description / Contribution Value: **INVITED**
64. Holt, D., Dech, J.P., Hrinkevich, K., Nicolussi, K., Strachan, S., and Winship, L. (2010). Cross-Dating Bristlecone Pine Samples from the Methuselah Grove and Wyman Canyon. South Eastern Division of the Association of American Geographers (SEEDAG), Birmingham, United States
Main Audience: Researcher
65. *Courville, P.K., Dech, J.P. and Groot, A. (2010). Deriving crown attributes from terrestrial LiDAR scans.Nipissing University Undergraduate Research Conference, North Bay, Canada
Main Audience: General Public
66. Dech, J.P. (2009). Forest Bioproducts Research Chair – Nipissing University.Forestry Research Partnership, Management and Science Advisory committee meetings., Mattawa, Canada
Main Audience: Decision Maker
Description / Contribution Value: **INVITED**

67. Dech, J.P. (2009). An ecologically-based bioproducts inventory for the boreal forest of northeastern Ontario. Forest Biomass Discovery Workshop, Queen's University, Kingston, Canada
Main Audience: Researcher
Description / Contribution Value: **INVITED**
68. Dech, J.P. (2009). Ecologically based bioproducts inventory for the boreal forest of northeastern Ontario. Research Seminar, Canadian Wood Fibre Centre, Great Lakes Forestry Centre, Sault St. Marie, Canada
Main Audience: Researcher
Description / Contribution Value: **INVITED**
69. Dech, J.P. (2009). An ecologically-based bioproducts inventory for the boreal forest of northeastern Ontario. Canadian Institute of Forestry - Northwestern Ontario Section Inventory workshop, Thunder Bay, Canada
Description / Contribution Value: **INVITED**
70. Dech, J.P. (2009). Ecologically based bioproducts inventory for the boreal forest of northeastern Ontario. Nipissing University Board of Governors Meeting, North Bay, Canada
Main Audience: Decision Maker
Description / Contribution Value: **INVITED**
71. Dech, J.P. (2009). Ecologically based bioproducts inventory for the boreal forest of northeastern Ontario. Harnessing Biomass: from the Forest to the Marketplace, North Bay, Canada
Main Audience: Knowledge User
Description / Contribution Value: **INVITED**
72. Dech, J.P. (2009). Ecologically based bioproducts inventory for the boreal forest of northeastern Ontario. Midis de la foresterie, University of Quebec at Abitibi-Temiscaming, Rouyn-Noranda, Canada
Main Audience: Researcher
Description / Contribution Value: **INVITED**
73. *Robinson, L.M., Dech, J.P., and Nosko, P. (2008). Understorey plant community responses to three different partial harvesting systems applied in a central Ontario red oak forest. 12th Nipissing University – Canadian Institute of Forestry - University of Toronto Seminar, North Bay, Canada
Main Audience: Researcher
Description / Contribution Value: **INVITED**
74. *Major, K.C., Nosko, P., and Dech, J.P. (2008). The effects of soils from oak and pine forests on the growth and competitive ability of red oak. 12th Nipissing University – Canadian Institute of Forestry - University of Toronto Seminar, North Bay, Canada
Main Audience: Researcher
Description / Contribution Value: **INVITED**
75. Dech, J.P., Nosko, P., and *Roscoe, N. (2008). Regeneration Ecology of red oak stump sprouts in the Great Lakes - St. Lawrence Forest Region. Great Lakes – St. Lawrence forest science seminars (II) Great Lakes Forestry Centre., Sault St. Marie, Canada
Main Audience: Researcher
Description / Contribution Value: **INVITED**
76. *Major, K.C., Nosko, P., Dech, J.P. (2008). Competitive relations of red oak and sugar maple differ between oak and pine soils. Botany 2008 – Botany Without Borders, Joint Meeting of the Canadian Botanical Association and the American Botanical Society, Vancouver, Canada
Main Audience: Researcher
77. Dech, J.P., Nosko, P., and *Roscoe, N. (2008). Regenerating red oak from stump sprouts in the Great Lakes – St. Lawrence Forest Region: exploring the persistence niche. 12th Nipissing University – Canadian Institute of Forestry - University of Toronto Seminar, North Bay, Canada
Main Audience: Researcher
Description / Contribution Value: **INVITED**

78. Dech, J.P., Nosko, P., and *Roscoe, N. (2008). Management of red oak stump sprouts in the Great Lakes - St. Lawrence Forest Region. Great Lakes – St. Lawrence forest science seminars (I), Canadian Ecology Centre, Mattawa, Canada
Main Audience: Researcher
Description / Contribution Value: **INVITED**
79. *Major, K.C., Nosko, P., and Dech, J.P. (2008). Competitive relations of red oak and sugar maple seedlings in oak and pine soil. Great Lakes – St. Lawrence forest science seminars (I), Canadian Ecology Centre, Mattawa, Canada
Main Audience: Researcher
Description / Contribution Value: **INVITED**
80. *Robinson, L.M., Dech, J.P., and Nosko, P. (2008). Understorey plant community responses to three different partial harvesting systems applied in a central Ontario red oak forest. Great Lakes – St. Lawrence forest science seminars (II), Great Lakes Forestry Centre, Sault St. Marie, Canada
Main Audience: Researcher
Description / Contribution Value: **INVITED**
81. *Diebolt, T., Nosko, P., Dech, J.P. (2008). Herbivory chlorophyll and phenol levels of northern red oak leaves under partial harvest treatments. Botany 2008 – Botany Without Borders, Joint Meeting of the Canadian Botanical Association and the American Botanical Society, Vancouver, Canada
Main Audience: Researcher
82. *Robinson, L.M., Dech, J.P., Nosko, P. (2008). Changes in microenvironment and plant community characteristics following partial harvest: implications for regenerating red oak in Great Lakes - St. Lawrence (GLSL) forests. Botany 2008 – Botany Without Borders, Joint Meeting of the Canadian Botanical Association and the American Botanical Society, Vancouver, Canada
Main Audience: Researcher
83. *Major, K.C., Nosko, P., and Dech, J.P. (2008). Red oak seedling growth and competitive ability in oak and pine soil. Great Lakes – St. Lawrence forest science seminars (II), Great Lakes Forestry Centre, Sault St. Marie, Canada
Main Audience: Researcher
Description / Contribution Value: **INVITED**
84. Roscoe, N., Dech, J.P., and Nosko, P. (2007). Stump sprouting response of red oak, red maple and sugar maple under three different partial harvest treatments. Nipissing University Red Oak Research Workshop, North Bay, Canada
Main Audience: Knowledge User
85. *Diebolt, T., Nosko, P., and Dech, J.P. (2007). Response of red oak seedlings and stump sprouts to herbivory under three different partial harvest treatments. Nipissing University Red Oak Research Workshop, North Bay, Canada
Main Audience: Knowledge User
86. *Robinson, L.M., Dech, J.P., and Nosko, P. (2007). Plant community composition and establishment of red oak seedlings in relation to competing tree species under three different partial harvest treatments. Nipissing University Red Oak Research Workshop, North Bay, Canada
Main Audience: Knowledge User
87. Dech, J.P., *Robinson, L.M. and Nosko, P. (2007). Plant community responses to three different partial harvesting systems applied in a central Ontario red oak forest. North American Forest Ecology Workshop, Vancouver, Canada
Main Audience: Researcher
88. Dech, J.P. (2007). Nature's garden: an introduction to the native plants of the Nipissing region. Callander Horticultural Society, Callander, Canada
Main Audience: Knowledge User
Description / Contribution Value: **INVITED**

89. Dech, J.P. (2007). Exploring the regeneration niche of red oak in the Great Lakes – St. Lawrence forest region. Great Lakes Forestry Centre Research Seminar, Sault St. Marie, Canada
Main Audience: Researcher
Description / Contribution Value: **INVITED**
90. Dech, J.P. (2007). Nature's garden: an introduction to the native plants of the Nipissing region. Powassan Horticultural Society, Powassan, Canada
Main Audience: Knowledge User
Description / Contribution Value: **INVITED**
91. *Langlois, C., Dech, J.P., and Nosko, P. (2007). Distance dependent recruitment of red oak seeds & seedlings: does the escape hypothesis apply to temperate forest management?. Nipissing University Red Oak Research Workshop, North Bay, Canada
Main Audience: Knowledge User
92. Dech, J.P. (2007). Life and work in the forest. Our lady of Sorrows Catholic School, Sturgeon Falls, Canada
Main Audience: Knowledge User
Description / Contribution Value: **INVITED**
93. *Quint, N.I., Nosko, P., and Dech, J.P. (2007). The physical and chemical role of sugar maple leaf litter in impeding the seed germination and seedling establishment of red oak. Nipissing University Red Oak Research Workshop, North Bay, Canada
Main Audience: Knowledge User
94. *Robinson, L.M., Dech J.P., and Nosko, P. (2007). Density and growth of northern red oak and maple competitors in relation to microenvironment under different canopy cover treatments within a central Ontario oak forest. 6th North American Forest Ecology Workshop, Vancouver, Canada
Main Audience: Researcher
95. Dech, J.P., *Robinson, L.M. and Nosko, P. (2007). Understorey plant community responses to three different partial harvesting systems applied in a central Ontario red oak forest. 6th North American Forest Ecology Workshop, Vancouver, Canada
Main Audience: Researcher
96. Dech, J.P., (2006). Life in a dynamic environment: the future of ecological research on Great Lakes coastal dunes. Great Lakes Dune Conference (U.S. Environmental Protection Agency), Traverse City, United States
Main Audience: Researcher
Description / Contribution Value: **INVITED**
97. Dech, J.P. (2006). How trees cope with stress. Nipissing Naturalists Club, North Bay, Canada
Main Audience: Knowledge User
Description / Contribution Value: **INVITED**
98. Dech, J.P. (2005). Buried Alive: how coastal dune plants cope with a dynamic environment. Research Seminar, Department of Biology, Nipissing University, North Bay, Canada
Main Audience: Researcher
Description / Contribution Value: **INVITED**
99. Dech, J.P., and Maun, M.A. (2005). The ecological significance of burial to trees and shrubs on coastal dunes at Pinery Provincial Park. Parks and Protected Areas and Species and Ecosystems at risk: Research and Planning Challenges, Joint 2005 Annual General Meeting of The Parks Research Forum of Ontario and Carolinian Canada Coalition, Guelph, Canada
Main Audience: Researcher
100. Dech, J.P. (2005). Buried Alive: how coastal dune plants cope with a dynamic environment. Vice-President's Research Luncheon, Nipissing University, North Bay, Canada
Main Audience: Researcher
Description / Contribution Value: **INVITED**

101. Dech, J.P. (2004). The ecological significance of sand burial to woody plants on coastal sand dunes. Ph.D. Public Lecture, The University of Western Ontario., London, Canada
Main Audience: General Public
102. Dech, J.P. (2004). The ecological significance of burial to woody plants on sand dunes. Research Seminar, Department of Biology, The University of Western Ontario., London, Canada
Main Audience: Researcher
103. Dech, J.P., and Maun, M.A. (2003). Ecophysiological responses to burial in woody plants of Lake Huron sand dunes. Plant Canada 2003, Joint meeting of the Canadian Botanical Association and the Canadian Society of Plant Physiologists., Antigonish, Canada
Main Audience: Researcher
104. Dech, J.P. (2003). Woody vegetation dynamics on Lake Huron Sand Dunes. Lecture to Biology 204 - Changing plant communities of southern Ontario, Department of Biology, The University of Western Ontario, London, Canada
Main Audience: Knowledge User
Description / Contribution Value: **INVITED**
105. Dech, J.P. (2002). Burial as a selective force in the ecology of woody vegetation on Lake Huron sand dunes. Research Seminar, Department of Plant Sciences, The University of Western Ontario, London, Canada
Main Audience: Researcher
106. Dech, J.P. (2002). Conservation: from dunes to backyards. Dundas St. Centre United Church, London, Canada
Main Audience: Knowledge User
Description / Contribution Value: **INVITED**
107. Dech, J.P., and Maun, M.A. (2002). Zonation in plant communities along a burial gradient in an ecotone between coastal dunes and oak savanna. Botany 2002, Joint meeting of The Canadian Botanical Association and the Botanical Society of America., Madison, United States
Main Audience: Researcher
108. Dech, J.P., and Nosko, P. (2002). Phenotypic plasticity in *Lythrum salicaria* L. along a competition gradient in central Ontario wetlands. Botany 2002, Joint meeting of The Canadian Botanical Association and the Botanical Society of America, Madison, United States
Main Audience: Researcher
109. Dech, J.P. (2001). The ecology of purple loosestrife (*Lythrum salicaria* L.) in central Ontario wetlands. Research Seminar, Department of Biology, Nipissing University., North Bay, Canada
Main Audience: Researcher
Invited?: Yes
110. Dech, J.P., and Nosko, P. (2000). A short-term assessment of population establishment and grazing pressure by two exotic insect species introduced for the biological control of purple loosestrife (*Lythrum salicaria* L.) in central Ontario. 2000 Ontario Ecology and Ethology Colloquium, Peterborough, Canada
Main Audience: Researcher
111. Dech, J.P. (2000). Response of purple loosestrife (*Lythrum salicaria* L.) to herbivory by exotic leaf-grazing beetles *Galerucella pusilla* and *G. californiensis* in two central Ontario wetlands. M.Sc. Public Lecture, Laurentian University, Sudbury, Canada
Main Audience: General Public
112. Dech, J.P. (1999). Growth and phenology of *Lythrum salicaria* L. in two central Ontario wetlands after the introduction of exotic leaf-grazing beetles. Research Seminar, Department of Biology, Laurentian University, Sudbury, Canada
Main Audience: Researcher

113. Baxter, S., Dech, J.P., and Nosko, P. (1997). Can native herbivores limit invasions by purple loosestrife?. Near North Environmental Symposium II, North Bay, Canada
Main Audience: General Public
114. Dech, J.P. (1997). Purple loosestrife: interactions with exotic and native insects in central Ontario. 10th Annual Ontario Biology Day, Waterloo, Canada
Main Audience: Researcher
115. Dech, J.P., and Nosko, P. (1997). Response of the invasive plant purple loosestrife to herbivory by released European beetles in central Ontario. 48th Annual Meeting of the American Institute of Biological Sciences, Montreal, Canada
Main Audience: Researcher
116. Dech, J.P., Baxter, S., and Nosko, P. (1997). Purple loosestrife: impact of biological control using exotic herbivores. Near North Environmental Symposium II, North Bay, Canada
Main Audience: General Public

Broadcast Interviews

2011/01/27 - 2011/01/27	Forests in California, News, CKAT Radio, Bob Coles Description / Contribution Value: Interviewed regarding an invited public presentation on the Forests for the Sierra Nevada and White mountains in California.
2009/09/16 - 2009/09/16	Harnessing Biomass: from the forest to the marketplace., News, Cogeco (Television), Staff Reporter Description / Contribution Value: Interviewed regarding the Harnessing Biomass conference at Nipissing University.
2009/09/16 - 2009/09/16	Harnessing biomass: from the forest to the marketplace., News, MCTV (Television), Staff Reporter Description / Contribution Value: Interviewed regarding the Harnessing biomass conference at Nipissing University.
2009/02/04 - 2009/02/04	Forest Bioproducts Research Chair, News, Cogeco, Staff Reporter Description / Contribution Value: Interviewed regarding appointment as Forest Bioproducts research chair at Nipissing University.
2008/09/05 - 2008/09/05	Forest Bioproducts Research Chair, News, MCTV (Television), Linda Holmes Description / Contribution Value: Interviewed regarding appointment as Forest Bioproducts Research Chair at Nipissing University.
2006/01/27 - 2006/01/27	Red oak silviculture research and NSERC industrial research and development project., Morning North, CBC (radio), Marcus Schwabbi Description / Contribution Value: Interviewed regarding Red Oak silviculture research in the Great Lakes - St. Lawrence forests
1997/08/08 - 1997/08/08	Purple loosestrife and biological control., News, MCTV Description / Contribution Value: Interviewed regarding B.Sc. thesis research on the impact of introduced leaf-grazing beetles on local populations of purple loosestrife in northern Ontario.
1997/01/11 - 1997/01/11	Purple loosestrife in northern Ontario, Down to Earth, MCTV (Television) Description / Contribution Value: Interviewed regarding the status of purple loosestrife populations in northern Ontario, and the introduction of non-native leaf-grazing beetles as biological control agents.

Text Interviews

2017/01/12	Researchers look to brace Great Lakes forests for climate change, Great Lakes Echo (http://greatlakesecho.org/)
2011/07/05	University opens first science camp, Maria Calabrese, North Bay Nugget http://www.nugget.ca/2011/07/04/nipissing-university-opens-first-science-camp Description / Contribution Value: Interview regarding the first science camp for children established at Nipissing University.
2009/09/17	Nipissing planning international biomass conference., Dave Dale, North Bay Nugget http://www.nugget.ca/2009/09/16/nipissing-planning-international-biomass-conference-updated Description / Contribution Value: Interview regarding the conference "Harnessing Biomass: from the forest to the marketplace"
2008/11/27	Nipissing U researchers building biomass prediction tools: five-year, \$1-million project looking at plants, trees., Nick Stewart, Northern Ontario Business http://www.northernontariobusiness.com/Industry-News/education/Nipissing-U-researchers-building-biom Description / Contribution Value: Interviewed regarding Forest Bioproducts Research Chair project goals and applications.
2008/09/12	Using the forest as a laboratory, Craig Gilbert and Ron Grech, The Working Forest https://www.workingforest.com/
2008/09/05	Nipissing U adds forestry research chair, Jenny Potter, North Bay Nugget http://www.nugget.ca/2008/09/05/nipissing-u-adds-forestry-research-chair Description / Contribution Value: Interviewed regarding appointment as Forest Bioproducts research chair at Nipissing University
2006/10/04	Experts – Great Lakes Dunes face threats, John Flesher, Associated Press (covered in major papers across North America). http://www.enn.com/top_stories/article/5182 Description / Contribution Value: Interviewed about research on threats to Great Lakes sand dunes.
2006/01/26	Nipissing professor makes history, Nugget Staff, North Bay Nugget Description / Contribution Value: Interviewed regarding NSERC Industrial Research and Development Fellowship to conduct research on Red Oak silviculture in Great Lakes - St. Lawrence forests.
2001/08/17	Scientists rediscover loosestrife-chomping beetle along Hwy. 11., Arnie Hakala, North Bay Nugget Description / Contribution Value: Interviewed regarding the status of exotic leaf-grazing beetles introduced to control purple loosestrife in Ontario.
1997/02/14	Students challenge the invincibility of loosestrife, Marjie Smith, North Bay Nugget Description / Contribution Value: Interviewed regarding B.Sc. thesis research on the effects of leaf-grazing beetles on purple loosestrife.
1996/08/09	Students seek way to fight loosestrife, Joe Belanger, North Bay Nugget Description / Contribution Value: Interviewed regarding B.Sc. thesis project examining the distribution and effect of introduced leaf-grazing beetles as biological control agents of purple loosestrife.

Publications

Journal Articles

1. Springer, A., and Dech, J.P. Regeneration of Black Ash (*Fraxinus nigra* Marsh.) in hardwood swamps of the Great Lakes – St. Lawrence Forest Region. *The Forestry Chronicle*. 97(3): 1-16.
In Press,
2. Nicholas C. Coops, Alexis Achim, Paul Arp, Christopher William Bater, John P. Caspersen, Jean-Francois Cote, Jeffery P. Dech, Adam Dick, Karin van Ewijk, Richard A. Fournier, Tristan R.H. Goodbody, Chris R. Hennigar, Antoine Leboeuf, Olivier R. van Lier, Joan E Luther, David Andrew MacLean, Grant McCartney, Gaetan Pelletier, Jean-Francois Prieur, Piotr Tompalski, Paul M. Treitz, Joanne C. White, Murray Woods. (2021). Advancing the application of remote sensing for forest information needs in Canada: Lessons learned from a national collaboration of university, industrial and government stakeholders. *The Forestry Chronicle*. 97: 109-126.
<http://dx.doi.org/https://pubs.cif-ifc.org/doi/pdf/10.5558/tfc2021-014>
Published,
3. Nicholas C. Coops, Alexis Achim, Paul Arp, Christopher William Bater, John P. Caspersen, Jean-Francois Cote, Jeffery P. Dech, Adam Dick, Karin van Ewijk, Richard A. Fournier, Tristan R.H. Goodbody, Chris R. Hennigar, Antoine Leboeuf, Olivier R. van Lier, Joan E Luther, David Andrew MacLean, Grant McCartney, Gaetan Pelletier, Jean-Francois Prieur, Piotr Tompalski, Paul M. Treitz, Joanne C. White, Murray Woods. (2021). Progrès dans l'application de la télédétection pour les besoins en matière d'information sur les forêts au Canada : leçons tirées d'une collaboration nationale d'intervenants universitaires, industriels et gouvernementaux. *The Forestry Chronicle*. 97: 127-147.
<http://dx.doi.org/https://doi.org/10.5558/tfc2021-015>
Published,
4. Liang Shi*, Guangxin Li, Hongyan Liu, Jeffery P. Dech, Mei Zhou, Pengwu Zhao and Zhong Ren. (2020). Dendrochronological Reconstruction of June Drought (PDSI) from 1731-2016 for the Western Mongolian Plateau. *Atmosphere*. 11(8): 839.
Published,
5. *Wylie, R.R.M, Woods, M.E. and Dech, J.P. (2019). Estimating stand age from airborne laser scanning data to improve models of black spruce wood density in the boreal forest of Ontario. *Remote Sensing*. 11(17): 2022.
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6. *Shi, L., Dech, J.P., Yao, H., Zhao, P., Shu, Y., and Zhou, M. (2019). The effects of Nitrogen addition on dissolved carbon in boreal forest soils of northeast of China. *Scientific Reports*. 9(8274): 1-9.
Published,
7. *Shi, L., Dech, J.P., Liu, H., Zhao, P., Bayin, D., Zhou, M. (2019). Post-fire vegetation recovery on forest sites is affected by permafrost degradation in the Da Xing'an Mountains of northern China. *Journal of Vegetation Science*. 00: 1-10.
Published,
8. *Ehnes, M., Dech J.P., Foote J.F. (2018). Seasonal changes in acoustic detection of forest birds. *Journal of Ecoacoustics*. 2: 1-17.
Published,
9. Costanza, K.K.L., Livingston, W.H., Kashian, D.M., Slesak, R.A., Tardif, J.C., Dech, J.P., Diamond, A.K., Daigle, J.J., Ranco, D.J., Neptune, J.S., Benedict, L., Fraver, S.R., Reinikainen, M., and Siegert, N.W. (2017). The Precarious State of a Cultural Keystone Species: Tribal and Biological Assessments of the Role and Future of Black Ash. *Journal of Forestry*. 115(5)
Published,

10. *Paulin, A., Nadeau, J., and Dech, J.P. (2017). Place and certification cue usage in choice decisions. The International Review of Retail, Distribution and Consumer Research. 28(2): 190-205.
Published,
11. Zeng, N., Yao, H., Zhou, M., Zhao, P., Dech, J.P., Zhang, B., and Lu, X. (2016). Species-specific determinants of mortality and recruitment in the forest-steppe ecotone of northeast China. Forestry Chronicle. 92: 336-344.
Published,
12. *Arthur, C.M., Dech, J.P. (2016). Species composition determines resistance to drought in dry forests of the Great Lakes – St. Lawrence forest region of central Ontario. Journal of Vegetation Science. 27(5): 914-925. ,
13. *Pokharel, B., Groot, A., Pitt, D., Woods, M., and Dech, J.P. (2016). Predictive modelling of black spruce (*Picea mariana*(Mill.) B.S.P.) wood density using stand structure variables derived from airborne LiDAR data in boreal forests of Ontario, Canada. Forests. 7(12): 311.
Published,
14. *Townshend, E., *Pokharel, B., Groot, A., Pitt, D., Dech, J.P. (2015). Modeling Wood Fibre Length in Black Spruce (*Picea mariana* (Mill.) BSP) Based on Ecological Land Classification. Forests. 6: 3369-3394.
Published,
15. *Pokharel, B., Dech, J.P., Groot, A., and Pitt, D. (2014). Ecologically-based predictive modeling of wood quality characteristics of black spruce (*Picea mariana* (Mill.) B.S.P.) in boreal landscapes of Northern Ontario. Canadian Journal of Forest Research. 44: 465-475.
Published,
16. Dech, J.P., *Mayhew-Hammond, S., James, A.L., and *Pokharel, B. (2014). Modelling Canada Yew (*Taxus canadensis* Marsh.) distribution and abundance in the boreal forest of northeastern Ontario. Ecological Indicators. 36: 48-58.
Published,
17. *Lacey, M.E., and Dech, J.P. (2012). The response of Black Spruce (*Picea mariana*) to spruce budworm outbreaks across a soil moisture regime gradient in the boreal forest of northeastern Ontario. Canadian Journal of Forest Research. 42: 255-270.
Published,
18. *Pokharel, B., Dech, J.P., and Uhlig, P. (2012). A tool for converting forest ecosystem classifications for permanent or temporary growth plots into the new provincial Ecological Land Classification system in the boreal regions of Ontario. The Forestry Chronicle. 88: 49-59.
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19. *Pokharel, B., and Dech, J.P. (2012). Mixed-effects basal area increment models for tree species in the boreal forest of Ontario, Canada using an ecological land classification approach to incorporate site effects. Forestry. 85: 255-270.
Published,
20. Dech, J.P. (2011). Finding the way forward in the new forest bioeconomy. Forestry Chronicle. 87: 3-5.
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21. *Pokharel, B., and Dech, J.P. (2011). An ecological land classification approach to modeling the production of forest biomass. The Forestry Chronicle. 87: 23-32.
Published,
22. *Quint, T.C., and Dech, J.P. (2010). Allometric models for predicting the aboveground biomass of Canada Yew (*Taxus canadensis* Marsh.) from visual and digital cover estimates. Canadian Journal of Forest Research. 40: 2003-2014.
Published,

23. Dech, J.P., *Robinson, L.M., and Nosko, P. (2008). Understorey plant community characteristics and natural hardwood regeneration under three partial harvest treatments applied in a *Quercus rubra* L. (northern red oak) stand in the Great Lakes – St. Lawrence Forest region of Canada. *Forest Ecology and Management*. 256: 760-773.
Published,
24. Dech, J.P., and Maun, M.A. (2006). Adventitious root production and plastic resource allocation to biomass determine burial tolerance in woody plants from central Canadian coastal dunes. *Annals of Botany*. 98: 1095-1105.
Published,
25. Dech, J.P., Maun, M.A., and Pazner, M.I. (2005). Blowout dynamics on Lake Huron sand dunes: analysis of digital multispectral data from colour airphotos. *Catena*. 60: 165-180.
Published,
26. Dech, J.P., and Maun, M.A. (2005). Zonation of vegetation along a burial gradient on the leeward slopes of Lake Huron sand dunes. *Canadian Journal of Botany*. 83: 227-236.
Published,
27. Dech, J.P., and Nosko, P. (2004). Rapid growth and early flowering in an invasive plant (*Lythrum salicaria* L.), during an El Nino spring. *International Journal of Biometeorology*. 49: 26-31.
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28. Dech, J.P., and Nosko, P. (2002). Population establishment, dispersal and impact of *Galerucella pusilla* and *G. californiensis*, introduced to control purple loosestrife in central Ontario. *Biological Control*. 23: 228-236.
Published,

Journal Issues

1. Chandra, R., Dech, J.P., Griese, K., Hosegood, S., Krigstin, S., Leitch, M., Levin, R., Mabey, W.E., Mirck, J., Padhyay, T.P., Pokharel, B., Pulkki, R., Nadeau, J., Rochefort, P., Shahi, C., Stinson, A., Wetzel, S. (Contributing Authors). (2011). *Harnessing Biomass: From the Forest to the Marketplace*. *Forestry Chronicle*. 87(1): 50.
Published, Canadian Institute of Forestry,
Number of Contributors: 17
Editors: Dech, J.P.
Description of Contribution Role: As guest editor of this issue I solicited contributions from authors, selected peer reviewers and coordinated the review process, made final decisions on all manuscripts and wrote a guest editorial to introduce the issue.
Description / Contribution Value: This special theme issue of *The Forestry Chronicle* highlighted contributions from the *Harnessing Biomass: from the Forest to the Marketplace* conference, Nipissing University, Oct. 22-23, 2009.
Funding Sources: Nipissing University; Tembec; NOHFC; FedNor

Book Chapters

1. Maun, M.A., Dech, J.P., Wiklund, J.A., Martin, R.R., and Schincariol, R.A. (2010). Chapter 3: Environmental gradients in the water and sediments of the Old Ausable River Channel. Maun, M.A. and Schincariol, R.A. *Impacts of Water Diversion on Biotic Communities of a River in a Dune Watershed*. First Edition: 25-42.
Published, NRC Research Press, Ottawa,
2. Maun, M.A., Dech, J.P., and Wiklund, J.A. (2010). Chapter 4: Zonation of Plant Communities of the Old Ausable River Channel. Maun, M.A. and Schincariol, R.A. *Impacts of Water Diversion on Biotic Communities of a River in a Dune Watershed*. First Edition: 43-60.
Published, NRC Research Press, Ottawa,

3. Maun, M.A., Schincariol, R.A., Dech, J.P., Wiklund, J.A., Dewdney, A.K., and Barret, J.N. (2010). Chapter 6: General Summary. Maun, M.A. and Schincariol, R.A. Impacts of Water Diversion on Biotic Communities of a River in a Dune Watershed. First Edition: 87-92. Published, NRC Research Press, Ottawa,
4. Dech, J.P. (2009). Chapter 19: Adventitious root production in woody plants of coastal dune ecosystems: selective pressures, adaptations and potential applications. Niemi, K. and Scagel, C. Adventitious root formation in forest trees and horticultural plants - from genes to applications. First Edition: 385-408. Published, Research Signpost, Kerala,

Thesis/Dissertation

1. The ecological significance of burial to woody plants on coastal sand dunes. (2005). University of Western Ontario. Doctorate.
Number of Pages: 206 Supervisor: M.A. Maun
2. Population establishment of *Galerucella pusilla* (Duft.) and *G. californiensis* (L.) (Coleoptera:Chrysomelidae) and their relative impact on the growth of *Lythrum salicaria* L. (Myrtiflorae:Lythraceae) in two central Ontario wetlands. (2000). Laurentian University of Sudbury. Master's Thesis.
Number of Pages: 145 Supervisor: P. Nosko and G.M. Courtin
3. Response of purple loosestrife (*Lythrum salicaria* L.) to herbivory by exotic leaf grazing beetles (*Galerucella californiensis* L. and *G. pusilla* Duft.) in two central Ontario wetlands. (1997). Nipissing University. Bachelor's.
Number of Pages: 74 Supervisor: P. Nosko

Supervised Student Publications

1. Nicole Quint and Caitlin Langlois
Rubbing shoulders with the experts: a student's perspective on Nipissing University's red oak research workshop. *Forestry Chronicle*. (2007). (83): 430-431.
Published, Canadian Institute of Forestry, Canada

Newsletter Articles

- [1.](#) Dech, J.P., (2012). The changing demands on Ontario's Forest Resources Inventory. *Forest History Society of Ontario Newsletter*. 3: 27-28. , Canada
- [2.](#) Dech, J.P. (2008). Ecology in Canada: What's New and Who is doing it? 5. *Forest Resources Laboratory at Nipissing University. Bulletin of the Canadian Botanical Association*. 41: 62-63. , Canada

Reports

1. Dech, J.P., James, A.L., Greer, K., Abbott, J., Arthur, C., and Hansen, S. (2019). Graduate Program in Environmental Studies and Science. Self-Study, Cyclical Academic Review of Programs. Master of Environmental Studies and Master of Environmental Science. 631. Nipissing University
Number of Contributors: 6
Description of Contribution Role: Chair of the self-study committee.
2. Dech, J.P. (2018). Landscape physiology: using dendrochronology and stable isotope analysis to examine broad-scale patterns in tree functional attributes. *Discovery Development Grants Final Report*. 5. Natural Sciences and Engineering Research Council of Canada (NSERC)
3. Dech, J.P. (2015). Extending Wood and Fibre Attribute Models to Capture Age and Moisture Effects. 11. Canadian Wood Fibre Centre.
4. Dech, J.P. (2014). Predicting Fibre Attributes from EFRI. 24. Canadian Wood Fibre Centre.

5. Dech, J.P. (2013). Forest Bioproducts Research Chair (2008-2013). 21. FedNor (Federal Government), NOHFC (Provincial Government) , Tembec Inc. (Private Sector).
6. *Pokharel, B., Dech, J.P. (2012). Improving Volume Estimates for Boreal Tree Species Using Enhanced Forest Inventory Data and Decision Support Tools. 30. Canadian Wood Fibre Centre.
7. Dech, J.P., *Pokharel, B., *Bowman, M. (2012). Linking Wood Fibre Attributes to Ecological Land Classification in the Boreal Forest of Ontario. 33. Canadian Wood Fibre Centre.
8. Treitz, P., and Dech, J.P. (2012). Strategic Investment Initiative Precision Planning Inventory Tools for Forest Value Enhancement. 10. Geoide.

Online Resources

- [1.](#) Okkonen, L. Dech, J.P., and Nosko, P. EU-Canada Biopower: A student project to examine wood energy systems using SimaPro 7 life-cycle analysis software. (2013).

Conference Publications

- [1.](#) Deugo, D., Morneault, A., Othmer, D., Smith, M., Stinson, A., Woods, M., Kovacs, I., Aho, I., Parker, W., Baker, R., Verwey, M., Thauvette, G., Willis, D., Dech, J.P. (2006). Red Oak Research and Demonstration Area in Phelps Township, North Bay, Ontario-2004 to 2005. National Proceedings: Forest and Conservation Nursery Associations. Forest and Conservation Nursery Associations - 2005, Fort Collins, (127-133). U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station., Paper
Published
Editors: Riley, L.E.; Dumroese, R.K.; Landis, T.D.
- [2.](#) Dech, J.P. and Maun, M.A. (2006). "Protected Areas and Species and Ecosystems at Risk: Research and Planning Challenges". Parks Research Forum of Ontario (PRFO) and Carolinian Canada Coalition (CCC) Annual General Meeting, Guelph, (309-319). Centre For Applied Science in Ontario Protected Areas, Conference Date: 2005/5
Paper
Published
Editors: Nelson, G., Nudds, T., Beveridge, M., Dempster, B., Lefler, L., and Zajc, E.

CURRICULUM VITAE - Peter Nosko, Ph.D.

PERSONAL INFORMATION

PRESENT POSITION: Associate Professor

ADDRESS: Department of Biology and Chemistry, Nipissing University 100 College Drive, Box 5002, North Bay, Ontario, Canada P1B 8L7

PHONE: (705) 474-34361 ext 4323

FAX: (705) 474-1947

E-MAIL: petern@nipissingu.ca

EDUCATION

1984 Ph.D. (Plant Ecology) University of Alberta. Edmonton, Alberta, Canada. Dissertation: A Comparative Study of Plant Adaptations of *Alopecurus alpinus* in the Canadian High Arctic. (Supervisor L.C. Bliss)

1978 M.Sc. (Biology) Laurentian University. Sudbury, Ontario, Canada. Dissertation: Water and Energy Relations of *Carex stans* in a High Arctic Microenvironment, Devon Island, Northwest Territories. (Supervisor G.M. Courtin)

1974 B.Sc. (Biology) Wilfrid Laurier University. Waterloo, Ontario, Canada.

SPECIALIZATION Forest Regeneration Ecology, Restoration Forestry, Plant-Herbivore Interactions, Plant-Soil Interactions, Plant-Climate Interactions, Plant Physiological Ecology

ACADEMIC POSITIONS / APPOINTMENTS

1997-11 Adjunct Professor, Biology Department, Laurentian University, Sudbury, Ontario

1995-present Associate Professor. Biology, Nipissing University. North Bay, Ontario.

1992-95 Associate Professor. Biology Department, Sir Wilfred Grenfell Campus, Memorial University of Newfoundland. Corner Brook, Newfoundland.

1988-92 Assistant Professor. Biology Department, Sir Wilfred Grenfell Campus, Memorial University of Newfoundland. Corner Brook, Newfoundland.

1985-88 Post-Doctoral Fellow, McMaster University, Hamilton, Ontario. The role of acidity and aluminium toxicity in forest regeneration. (Supervisor K.A. Kershaw)

ACADEMIC / PROFESSIONAL / ADMINISTRATIVE EXPERIENCE

2018-20	Chair, Department of Biology & Chemistry, Nipissing University
2016-18	Chair, Department of Biology & Chemistry, Nipissing University
2003-05	Chair, Biology Department, Nipissing University
2002-present	Curator, Nipissing University Herbarium
2002-present	Director, Plant Growth Facility, Nipissing University
2002-06	Advisory Committee Member, Canadian Climate Impacts and Adaptation Research Network. Ontario Node
2001-03	Management Committee Member, Canadian Shield Environmental Research Network
2001-03	Chair, Biology Department, Nipissing University
1999-02	Director, Nipissing-Alcan Environmental Research Preserve, Nipissing University
1998-01	Chair, Science Division, Nipissing University

TEACHING

COURSES TAUGHT

Biology, Nipissing University. North Bay, Ontario, 1995-present. Associate Professor.
Developed (lectures and labs) and taught the following courses:

BIOL 1306	Biology of Seed Plants
BIOL 1716	General Zoology
BIOL 1006	Principles of Biology I
BIOL 1007	Principles of Biology II
BIOL 2337	Biology of Seed Plants
BIOL 2446	Principles of Ecology
BIOL 2447	Ecology of Ontario Trees and Forests
BIOL 3066	Flora of Northern Ontario
BIOL/ENSC 3006	Environmental Interpretation & Communication
BIOL/ENSC 3007	Environmental Issues in Forestry
BIOL 3236	Plant Ecology
BIOL 4506	Special Topics in Applied Ecology - Galapagos Field Course
BIOL 4607	Environmental Biology Seminars
BIOL 4976	Biology Field Camp

BIOL 4986	Directed Studies
BIOL 4995	Thesis
ESTD 3005	Resource Management & Environmental Interpretation
GEOG 4985	Directed Studies
GEOG 4995	Thesis
UNIV 3006	Experiential Learning in Arts and Science
ENST 5347	Special Topics in MEdSc - Multivariate Analysis of Forest Community Data

Department of Biology, Memorial University, St. John's, Newfoundland.

BIOL 4820	Terrestrial Field Course (Taught at the Bonne Bay Marine Station, Norris Point, NL)

Department of Biology, Memorial University, Grenfell Campus, Corner Brook, Newfoundland.

1988-95 Assistant/Associate Professor, developed (lectures and labs) and taught the following courses:

BIOL 1001	Principles of Biology I
BIOL 1002	Principles of Biology II
BIOL 2041	Biology and Modern Society
BIOL 2600	Principles of Ecology

Department of Biology, McMaster University, Hamilton, Ontario. 1985-88 Lecturer, Department of Biology, McMaster University, Hamilton, Ontario. Developed and taught the following courses:

BIOL 2F3	Fundamentals of Ecology
BIOL 3W3	Ecology of Northern Plant Associations
BIOL 4D3	Physiological Ecology

Department of Zoology, University of Alberta, Edmonton, Alberta. 1983-85 Lecturer, developed lectures and team-taught:

ZOOL 466	Boreal Ecology

CURRICULUM DEVELOPMENT

COURSES

I described and sought approval of various University committees/ bodies for the addition of the following NU courses:

BIOL 1006, BIOL 1007, BIOL 2336, BIOL 2337, BIOL 2446, BIOL 2447, BIOL 3006, BIOL 3007, BIOL 3066, BIOL 3236, BIOL 3436, BIOL 3447, BIOL 3567, BIOL 4506, BIOL 4607, BIOL 4976, BIOL 4995

PROGRAMS

Nipissing University

2021	Proponent and planner, Honours B.Sc., Forest Resource Conservation (Letter of Intent - in preparation)
2016	Proponent and planner, Honours B.Sc. in Biomedical Sciences (Stage 1 - approved by Senate)
2016	Proponent and planner, Certificate in Forest Resource Management and Conservation (Approved by Senate)
2007-09	Proponent and planner, Honours B.Sc. in Natural Resource Sciences (Stage 1 approved by Senate)
2000-01	Proponent and planner, Honours B.Sc. Program in Biology (Approved by Senate)
1999-00	Program planner, B.Sc. in Nursing (Approved by Senate)
1997	Proponent and planner, Bachelor of Applied Technology Program (Environmental Biology) (Approved by Senate)
1995-96	Proponent and planner, Three-year B.Sc. Biology Program (Approved by Senate)

Grenfell Campus, Memorial University of Newfoundland

1993-95	Proponent and planner, Honours B.Sc. in Environmental Science with streams in Environmental Biology and Environmental Chemistry (Approved by MUN Senate) (Program began Fall 1995)

COMMUNITY SERVICE (EXPERIENTIAL) LEARNING (CSL)

To engage and provide students with opportunities for active and experiential learning, all my 3rd and 4th-year courses have a Community Service Learning component which typically accounts for 25% of the course evaluation. In addition to strengthening relations with community partners, students develop research and communication skills, self-confidence and a sense of civic mindedness. Participation in CSL allows students to have first-hand real-world experiences that are not possible in a classroom. Some CSL projects have also resulted in graduate and employment opportunities for NU students.

2005-2019	CSL Projects in BIOL 4976 (Biology Field Camp) with community partner Parks Canada
2015	CSL projects in BIOL 3066 (Flora of Northern Ontario) with community partners Friends of Laurier Woods, Nipissing Naturalists Club, The Gathering Place

	Garden
2014	CSL Projects in BIOL 3007 (Environmental Issues in Forestry) with community partners City of North Bay, Nipissing Naturalists Club, North Bay and Mattawa Conservation Authority
2014	CSL projects in BIOL 3066 (Flora of Northern Ontario) with community partners Friends of Laurier Woods, Nipissing Naturalists Club
2013	CSL Projects in BIOL 3007 (Environmental Issues in Forestry) with community partners Quality Hardwoods, Science North, Friends of Wolf Lake, Friends of Temagami
2011	CSL projects in BIOL 3066 (Flora of Northern Ontario) with community partners Wolf Lake First Nation, North Bay Heritage Gardeners, North Bay Waterfront Friends, Friends of Laurier Woods
2010	CSL Projects in BIOL 3236 (Plant Ecology) with community partner Ontario Ministry of Natural Resources
2010	CSL Projects in BIOL 3066 (Flora of Northern Ontario) with community partners Friends of Laurier Woods, Friends of Sweetman's Garden, North Bay and Mattawa Conservation Authority, Ontario Ministry of Natural Resources
2010	CSL Projects in BIOL 3007 (Environmental Issues in Forestry) with community partners Canadian Institute of Forestry (Algonquin Section), Forests Without Borders, Trout Unlimited, Ministry of Natural Resources
2009	CSL Projects in BIOL 3066 (Flora of Northern Ontario) with community partners Friends of Sweetman's Garden, North Bay and Mattawa Conservation Authority, North Bay YMCA
2008	CSL Projects in BIOL 3066 (Flora of Northern Ontario) with community partners Friends of Laurier Woods, Friends of Sweetman's Garden, Le Chantier Outdoor Recreational Centre, Ontario Ministry of Natural Resources (Southern Science and Information Section, North Bay)

RESEARCH

PUBLICATIONS

Refereed Papers – Accepted / Published:

- Nosko P, Moreau K, Kuehne C, Major KC, Bauhus J (2021) Does a shift in shade tolerance as suggested by seedling morphology explain differences in regeneration success of northern red oak in native and introduced ranges? *Journal of Forestry Research* <https://doi.org/10.1007/s11676-021-01397-7>
- Warbrick M, Kroeker A, Nosko P (2020) Antiherbivore chemicals in emerging and previous-year foliage of balsam fir saplings responding to prior simulated browsing. *Plant Ecology* 221: 487-500. <https://doi.org/10.1007/s11258-020-01027-y>

- Nosko P, Roberts K, Knight T, Marcellus A (2020) Chemical and growth responses of balsam fir saplings released from intense browsing pressure in the boreal forests of western Newfoundland, Canada. *Forest Ecology and Management* 460: 1-10.
<https://doi.org/10.1016/j.foreco.2019.117839>
- Nosko P, Embury K (2018). The induction and persistence of allelochemicals in the foliage of balsam fir seedlings following simulated browsing. *Plant Ecology* 219: 611-619.
<https://doi.org/10.1007/s11258-018-0821-7>
- Kuehne C, Nosko P, Horwath T, Bauhus J (2014) A comparative study of physiological and morphological seedling traits associated with shade tolerance in introduced red oak (*Quercus rubra*) and native hardwood tree species in southwestern Germany. *Tree Physiology* 34: 184-193. <https://doi.org/10.1093/treephys/tpt124>
- Major KC, Nosko P, Keuhne C, Campbell DR, Bauhus J (2013). Regeneration dynamics of non-native red oak (*Quercus rubra* L.) populations in managed hardwood forests: a case study in southwestern Germany. *Forest Ecology and Management* 291: 144–153.
<https://doi.org/10.1016/j.foreco.2012.12.006>
- Dech JP, Robinson LM, Nosko P (2008) Understorey plant community characteristics and natural hardwood regeneration under three partial harvest treatments applied in a northern red oak (*Quercus rubra* L.) stand in the Great Lakes-St. Lawrence forest region of Canada. *Forest Ecology and Management* 257: 760-773. <https://doi.org/10.1016/j.foreco.2008.05.033>
- Dech JP, Nosko P (2004) Rapid growth and early flowering in an invasive plant, purple loosestrife (*Lythrum salicaria* L.), during an El Nino spring. *International Journal of Biometeorology* 49: 26-31. <https://doi.org/10.1007/s00484-004-0210-x>
- Dech JP, Nosko P (2002) Population establishment, dispersal, and impact of *Galerucella californiensis* and *Galerucella pusilla* introduced to control purple loosestrife in central Ontario. *Biological Control* 23: 228-236. <https://doi.org/10.1006/bcon.2001.1018>
- Nosko P, Courtin GM (1995) The water relations of *Carex stans* in wet sedge-moss tundra at a high arctic oasis, Devon Island, N.W.T., Canada. *Arctic and Alpine Research*. 27: 137-145.
<https://doi.org/10.2307/1551895>
- Nosko P, Bliss LC, Cook FD (1994) The association of free-living nitrogen-fixation bacteria with the roots of high arctic graminoids. *Arctic and Alpine Research* 26: 180-186.
<https://doi.org/10.2307/1551782>
- Nosko P, Kershaw KA (1992) The toxicity of a low concentration of aluminum to white spruce seedlings over a range of pH. *Canadian Journal of Botany* 70: 1488-1492.
<https://doi.org/10.1139/b92-186>
- Brassard P, Kramer JR, Nosko P, Kershaw KA (1988) A continuous-flow rhizostat for the study of aluminum toxicity. *Plant Cell and Environment* 11: 863-873.
<https://doi.org/10.1111/j.1365-3040.1988.tb01912.x>
- Nosko P, Brassard P, Kramer JR, Kershaw KA (1988) The effect of aluminum on seed germination and early seedling establishment, growth and respiration of white spruce (*Picea glauca*).

Refereed Papers – Submitted:

Santangelo, JS et al (2021) Global urbanization drives parallel evolution in a cosmopolitan plant. Submitted to Science (Manuscript Number: abk0989 – revised version resubmitted Dec 12, 2021)

Manuscripts in preparation:

Johns J, Roscoe N, Nosko P, Dech J. Coppice growth of *Quercus rubra*, *Acer rubrum* and *Acer saccharum* 14 years after harvest under uniform shelterwood or group selection in the Great Lakes-St. Lawrence forest region. In preparation for *Forest Ecology and Management*.

Nosko P, Hamelin A, Knight T. The role of disturbance history, site conditions and forage quality in regeneration success of balsam fir forests under conditions of moose hyperabundance in Gros Morne National Park, NL, Canada. In preparation for *Canadian Journal of Forest Research*

Lefebvre M, Barker C, Tremblay R, Nosko P. Flower colour, pollination and fruit production in small populations of *Cypripedium acaule* (pink lady's slipper orchid) in the Great Lakes-St. Lawrence forest region. In preparation for *Botany*.

Barker C, Lefebvre M, Tremblay R, Nosko P. Floral morphology, pollination and fruit production in small populations of *Cypripedium acaule* (pink lady's slipper orchid) in the Great Lakes-St. Lawrence forest region. In preparation for *Botany*.

Nosko P. Bioaccumulation of metals under extremes of soil toxicity in the stress-tolerant grass *Agrostis scabra*, a colonist of landscapes most severely impacted by roasting and smelting of nickel-copper ore near Sudbury, Canada. In preparation for *Plant and Soil*

Technical Papers

Okkonen L, Dech JP, Nosko P (2014) EU-Canada BioPower: A Student Project to Examine Wood Energy Systems using SimaPro 7 Life-Cycle Analysis Software. The Forest Energy Observer, Study Report 28 Finnish Forest Research Institute (Metla), Joensuu, 13 pp.

Nosko P (2011) Community service-learning: an elixir to treat the ailments of science education. Symposium Research Papers, Biidaaban Community-Service Learning Program in Perspective: Yesterday, Today and Tomorrow. North Bay, ON. pp. 220-244.

Parker WC, Noland T, Nosko P and Shank S (2001) Some ecological effects of shelterwood harvesting and site preparation in white pine forests. Ontario Ministry of Natural Resources Fact Sheet.

Parker WC, Noland T, Nosko P and Shank S (2001) Seed germination and establishment. In: Morneau AE, Parker WC (Eds) Some Ecological Effects of Harvesting and Site Preparation in White Pine Stands. Ontario Ministry of Natural Resources.

Nosko P, Crocker SM (1994) Water relations of black spruce seedlings planted on burned and unburned sites. *In*: Wells ED (Ed) Glide Lake Prescribed Fire Research Project, 1994-95 Progress Report. Canadian Forest Service (NLR), Natural Resources Canada, St. John's Newfoundland.

Nosko P (1990) Factors affecting the limitation to early growth of white spruce seedlings by aluminum. *In*: Titus BD, Lavigne MB, Newton PF, Meades WJ (Eds) The Silvics and Ecology of Boreal Spruces. Forestry Canada Inf. Rep. N-X-271.

PRESENTATIONS

Presentations - Conference and Professional Meetings

Nosko P, Roberts K, Knight T (2019) Foliar levels of plant secondary metabolites in balsam fir saplings at extremes of moose browsing pressure in the boreal forests of western Newfoundland, Canada. IUFRO Conference - ABIES 2019 (Prospects for fir management in a changeable environment), Agricultural University of Krakow, Krakow, Poland, May 28-30.

Craig B, Dech JP, Nosko P (2019) Defoliation of boreal forest stands during spruce budworm outbreaks in relation to site quality. Ontario Biology Day, University of Western Ontario, March 23-24.

Johns J, Dech JP, Nosko P (2019) Coppice growth of red oak, red maple and sugar maple after 14 years under uniform shelterwood and group selection treatments in the Great Lakes-St. Lawrence forest region. Ontario Biology Day, University of Western Ontario, March 23-24.

Talbot K, Nosko P (2019) Browsing intensity and foliar concentration of antiherbivore allelochemicals of adjacent balsam fir saplings growing in a disturbed forest gap in western Newfoundland. Ontario Biology Day, University of Western Ontario, March 23-24.

Charlebois J, Barker C, Nosko, P (2018) Floral traits and environmental factors affecting fruiting and pollinium export in the rare orchid *Cypripedium arietinum*. Canadian Society for Ecology and Evolution Annual Meeting, University of Guelph, July 19-21, 2018.

Barker C, Nosko P (2015) The role of flower colour and size in the pollination and reproductive success of *Cypripedium acaule* (Pink Lady's Slipper Orchid). Fifth Scientific Conference on Andean Orchids, Pontificia Universidad Javeriana, Cali, Columbia. November 19-21, 2015 **(Cory Barker [undergraduate] was first runner-up for the best student poster award at this conference [a PhD student was the winner])**

Major KC, Nosko P, Campbell DR (2011) Regeneration of the alien tree species *Quercus rubra* L. (northern red oak) in south-western Germany. Great Lakes / St. Lawrence Forest Science Seminar. Petawawa, ON. February 1, 2011

Major KC, Nosko P (2011) Growth and resource allocation patterns of red oak and sugar maple seedlings in soils from oak- vs. pine-dominated forests. North American Forest Ecology Workshop, Roanoke, VA. June 19-23, 2011.

- Major KC, Nosko P, Campbell DR (2011) Regeneration ecology of the alien tree species *Quercus rubra* L. (northern red oak) in south-western Germany. North American Forest Ecology Workshop, Roanoke, VA. June 23, 2011.
- Major KC, Nosko P (2011) Regenerative feast or famine in the adventive and native ranges of northern red oak. Canadian Institute of Forestry, Annual General Meeting and Conference, Huntsville, ON. September 21, 2011.
- Nosko P (2011) Community service-learning: an elixir to treat the ailments of science education. Biidaaban Community-Service Learning Program in Perspective: Yesterday, Today and Tomorrow Symposium, North Bay, ON. June 2-3, 2011.
- Nosko P, Major KC, Moreau KL (2011) Is intraspecific variation in shade tolerance responsible for differences in regeneration success of red oak in North America and Europe: a comparison of leaf morphological traits within native and introduced populations. Canadian Institute of Forestry, Annual General Meeting and Conference, Huntsville, ON. September 21, 2011
- Major KC, Nosko P, Campbell DR (2010) Assessing the regeneration of invasive northern red oak (*Quercus rubra*) in southwest Germany. 14th Annual Canadian Ecology Center – Nipissing University – University of Toronto Conference. Nipissing University, North Bay, ON. March 5, 2010
- Major KC, Nosko P, Campbell DR (2010) From wallflower to weed: Natural regeneration of introduced red oak (*Quercus rubra* L.) in Germany. Ontario Ecology and Ethology Colloquium. Laurentian University, Sudbury, ON. July 16, 2010
- Dech JP, Nosko P, Roscoe N (2008) Management of red oak stump sprouts in the Great Lakes – St. Lawrence Forest. Great Lakes Forest Science Seminars. Canadian Ecology Centre, Mattawa. Feb 25-26
- Dech JP, Nosko P, Roscoe N (2008) Management of red oak stump sprouts in the Great Lakes – St. Lawrence Forest. Great Lakes Forest Science Seminars. CFS Great Lakes Forestry Centre, Sault Ste Marie. Mar 6-7
- Dech JP, Nosko P (2008) Sprouting behavior of red oak, red maple and sugar maple stumps under three partial harvest treatments. 11th Annual University of Toronto (Faculty of Forestry), Nipissing University and Canadian Institute of Forestry (Algonquin Section) Forestry Symposium, Nipissing University. Mar 14
- Major KC, Nosko P, Dech JP (2008) Is the competitive ability of red oak seedlings enhanced in soils associated with pine stands in GLSL forests? 11th Annual University of Toronto (Faculty of Forestry), Nipissing University and Canadian Institute of Forestry (Algonquin Section) Forestry Symposium, Nipissing University. Mar 14
- Major K, Nosko P, Dech JP (2008) Competitive relations of red oak and sugar maple seedlings in oak and pine soil. Great Lakes Forest Science Seminars. Canadian Ecology Centre, Mattawa. Feb 25-26
- Major K, Nosko P, Dech JP (2008) Red oak seedling growth and competitive ability in oak and pine soil. Great Lakes Forest Science Seminars. CFS Great Lakes Forestry Centre, Sault Ste Marie. Mar 6-7

Major KC, Nosko P, Dech JP (2008) Competitive relations of red oak and sugar maple differ between oak and pine soils. Botany 2008 -Botany without Borders, University of British Columbia, Vancouver, BC. Jul 28, 2008

Nosko P (2008) An overview of red oak regeneration research at Nipissing University. Great Lakes Forest Science Seminars. Canadian Ecology Centre, Mattawa. Feb 25-26

Nosko P (2008) An overview of red oak regeneration research at Nipissing University. Great Lakes Forest Science Seminars. CFS Great Lakes Forestry Centre, Sault Ste Marie. Mar 6-7

Robinson LM, Dech JP, Nosko P (2008) Recruitment of red oak, red maple and sugar maple seedlings under three partial harvest treatments in a red oak-dominated forest. Great Lakes Forest Science Seminars. CFS Great Lakes Forestry Centre, Sault Ste Marie. Mar 6-7

Robinson L, Dech JP, Nosko P (2008) Understorey plant communities in partially harvested hardwood stands in central Ontario; competition implications for red oak seedlings. 11th Annual University of Toronto (Faculty of Forestry), Nipissing University and Canadian Institute of Forestry (Algonquin Section) Forestry Symposium, Nipissing University. Mar 14

Dech JP, Robinson LM, Nosko P (2007) Understorey plant community responses to three different partial harvesting treatments applied in a central Ontario northern red oak forest. North American Forest Ecology Workshop. Vancouver. Jun 18-22

Diebolt T, Nosko P, Dech J (2007) Response of red oak seedlings and stump sprouts to herbivory under three different partial harvest treatments. Nipissing University Red Oak Research Workshop. Nipissing University. Mar 2

Langlois C, Dech J, Nosko, P (2007) Distance dependent recruitment of red oak: does the escape hypothesis apply to temperate forest management? Nipissing University Red Oak Research Workshop. Nipissing University. Mar 2

Nosko P (2007) Sudbury's Abandoned Roast Yards: Toxicity Hotspots – Valuable Living Laboratories for the Study of Ecosystem Recovery. Fourth International Conference on Mining and the Environment. Laurentian University

Quint N, Nosko P, Dech J (2007) The physical and chemical role of sugar maple leaf litter in impeding the seed germination and seedling establishment of red oak. Nipissing University Red Oak Research Workshop. Nipissing University. Mar 2

Robinson L, Dech J, Nosko P (2007) Plant community composition and establishment of red oak seedlings in relation to competing tree species under three different partial harvest treatments. Nipissing University Red Oak Research Workshop. Nipissing University. Mar 2

Robinson LM, Dech JP, Nosko P (2007) Density and growth of northern red oak and maple competitors in relation to site conditions in uncut and partially harvested sites within a central Ontario oak forest. North American Forest Ecology Workshop. Vancouver, Jun 18-22

Roscoe N, Dech J, Nosko, P (2007) Stump sprouting response of red oak, red maple and sugar

- maple under three different partial harvest treatments. Nipissing University Red Oak Research Workshop. Nipissing University. March 2
- Marshall D, Nosko, P, Spiers G (2007) Changes in soil chemistry and plant-community characteristics along a sulfur dioxide and heavy-metal pollution gradient near Sudbury, Canada. Sudbury Restoration Workshop. Laurentian University. Feb 22-23
- Marshall D, Nosko P, Spiers G (2006) Recovery of white birch, red maple, and red oak trees growing on a smelter-impacted landscape following reductions of sulfur dioxide (SO₂) emissions: a dendrochronological analysis. Sudbury Restoration Workshop. Laurentian University. Feb 22-23
- Robinson J, Nosko P (2005) Seasonal patterns in metal accumulation and chlorophyll production in leaves of white birch along a pollution gradient. Biology Days, Laurentian University, Sudbury, Ontario, Canada. March 12-13
- Nosko P (2005) Metal allocation patterns in graminoid plant species colonizing metal-contaminated soils at two abandoned roast bed sites near Sudbury, Canada. Annual Meeting of the Society for Environmental Toxicology and Chemistry (SETAC), Lille, France. May 22-26
- Marshall D, Nosko P, Spiers G (2005) Changes in soil chemistry and plant community characteristics along a sulphur dioxide and heavy metal pollution gradient near Sudbury, Canada. Annual Meeting of the Society for Environmental Toxicology and Chemistry (SETAC), Lille, France. May 22-26
- Marshall D, Nosko P, Spiers G (2005) Recovery of white birch growing on a smelter-impacted landscape following reductions of sulfur dioxide emissions; a dendrochronological analysis. Annual Meeting of the Society for Environmental Toxicology and Chemistry (SETAC), Lille, France. May 22-26
- Keefe AP, Hiscott J, Nosko P, Spiers GA, D'Eon S (2005) Growth, biomass and nutrient status of naturally regenerated red pine (*Pinus resinosa* Ait.) and white pine (*Pinus strobus* L.) seedlings grown under different silvicultural treatments. North American Forest Ecology Workshop. Gatineau, Quebec, Canada. June 12-16
- Marshall D, Nosko P, Spiers GA (2005) Changes in soil metal concentrations and plant-community characteristics along a chemical stress gradient near Sudbury, Canada. International Conference on Mining and the Environment: Metals and Energy Recovery. Skellefteå, Sweden. June 27-July 1
- Marshall D, Nosko P, Spiers GA (2005) Recovery of white birch growing on a smelter-impacted landscape following reductions of sulfur dioxide emissions; a dendrochronological analysis. International Conference on Mining and the Environment: Metals and Energy Recovery. Skellefteå, Sweden. June 27-July 1
- Parker WC, Noland TL, Morneau A, Nosko P, Shank S (2005) The influence of overstory density, site preparation, and seed weight on emergence, growth, and survival of eastern white pine (*Pinus strobus* L.) in a central Ontario shelterwood. The Thin Green Line Symposium on the State-of-the-Art in Reforestation. Thunder Bay, Ontario, Canada. July 22-24
- Marshall D, Nosko P, Spiers G (2004) Plant species diversity, abundance and distribution along a

- heavy-metal pollution gradient. Ontario Ecology and Ethology Colloquium 2004. University of Toronto
- Hiscott J, Keefe A, Nosko, Spiers G (2004) Natural regeneration of pine forests in Ontario. Canadian Institute of Forestry, Forestry Symposium (Nipissing University and University of Toronto). Canadian Ecology Centre, Mattawa, Ontario, Canada
- Marshall D, Nosko P, Spiers G (2004) Changes in soil chemistry and plant community characteristics along a smelter impacted gradient. Sudbury Restoration Workshop. Laurentian University
- Nosko P (2003) Trees in coastal environments of Newfoundland: Wind, salt spray and climate change. International Conference on Wind Effects on Trees, University of Karlsruhe, Karlsruhe, Germany. September 16-18
- Baks N, Nosko P, Winterhalder K, Spiers G (2003) Plant diversity, abundance and distribution on an abandoned copper-nickel roast yard near Sudbury, Canada: The impact of soil toxicity. Third International Conference on Mining and the Environment. Laurentian University. **(Nicole Baks won the best student poster prize from the Canadian Land Reclamation Association for this presentation)**
- Marshall D, Nosko P, Spiers G (2003) Radial growth patterns in deciduous tree species along a pollution gradient. Third International Conference on Mining and the Environment. Laurentian University
- Dech JP, Nosko P (2002) Phenotypic plasticity in *Lythrum salicaria* L. along a competition gradient in central Ontario wetlands. Botany 2002, Joint Meeting of the Canadian Botanical Association and American Botanical Society, University of Wisconsin, Madison. **(Jeff Dech won the best student poster award from the Canadian Botanical Association for this presentation)**
- Frattini K, Marshall D, Nosko P (2002) Stem architecture, leaf morphology and leaf pigmentation in three deciduous tree species along a chemical stress gradient near Sudbury, Ontario. Canadian Institute of Forestry, Forestry Symposium (Nipissing University and University of Toronto), Nipissing University
- Nosko P, Winterhalder K (2001) Elemental composition of tissues in *Deschampsia caespitosa* from three diverse chemical environments. Annual Meeting of the Canadian Botanical Association. Kelowna
- Dech JP, Nosko P (2000) A short-term assessment of population establishment and grazing pressure by two exotic insect species introduced for the biological control of purple loosestrife (*Lythrum salicaria* L.) in central Ontario. Ontario Ecology and Ethology Colloquium. Trent University, Peterborough
- Baxter S, Nosko P (1998) Diversity of native insects using purple loosestrife on control sites and in wetlands having released exotic beetles. Ontario Biology Day, Laurentian University, Sudbury, Ontario
- Lindsay JB, Nosko P (1998) Assessing the relationships among purple loosestrife density, native plant diversity and physical site factors using GIS. Ontario Biology Day, Laurentian University, Sudbury, Ontario

- Nosko P (1997) Growth of two boreal conifer species along salt spray gradients in western Newfoundland. Annual meeting of the American Institute for Biological Sciences, Montreal, Quebec
- Dech JP, Nosko P (1997) Response of the invasive plant purple loosestrife to herbivory by released European beetles in Northern Ontario. Annual meeting of the Canadian Botanical Association. Montreal, Quebec
- Nambudiri V, Nosko, P (1997) Structural features of leaves and wood of two boreal conifers in coastal regions of western Newfoundland. Annual meeting of the American Institute for Biological Sciences, Montreal, Quebec
- Dech JP, Baxter S, Nosko P (1997) Purple loosestrife: Impact of biological control using exotic herbivores. Near North Environmental Symposium, Nipissing University-Canadore College, North Bay, Ontario
- Baxter S, Dech JP, Nosko P (1997) Can native herbivores limit invasions by purple loosestrife. Near North Environmental Symposium, Nipissing University-Canadore College, North Bay, Ontario
- Nosko P (1995) Salt spray and tree growth in coastal forests of western Newfoundland. Annual meeting of the Canadian Botanical Association, University of Guelph, Guelph, Ontario
- Nambudiri V, Nosko P (1995) Cuticular morphology of fir and spruce leaves along a salt spray gradient in Gros Morne National Park, Newfoundland. Annual meeting of the Canadian Botanical Association, University of Guelph, Guelph, Ontario
- Nosko P (1993) The environmental and genetic control of growth processes of boreal conifers in coastal environments. Proceedings of the Technical Workshop for the Integration of Research Programs. Western Newfoundland Model Forest Management Group, Corner Brook, Newfoundland
- Nosko P (1990) Why is the productivity of high arctic tundra unaffected by variation in thermal input? Annual meeting of the Canadian Botanical Association, University of Alberta, Edmonton, Alberta
- Nosko P (1984) Adaptations of *Alopecurus alpinus* to diverse high arctic environments. First Annual Northern Workshop, Boreal Institute for Northern Studies. University of Alberta. Edmonton, Alberta
- Nosko P (1981) Evidence of rhizospheric nitrogen fixation in arctic graminoids. Prairie University Biological Seminars. University of Winnipeg. Winnipeg, Manitoba

Other Presentations

- 2015 Moose versus forest in Gros Morne National Park, Newfoundland. Nipissing Naturalist's Club, North Bay. Apr 14
- 2015 Moose hyperabundance and balsam fir regeneration failure in Gros Morne National Park, Newfoundland. Annual University of Toronto, Faculty of Forestry Field Camp for Masters of Forest Conservation Program. Canadian Ecology Centre, Mattawa. Feb 19

- 2014 Charles Darwin – A Lucky Genius? Science North, Science Café, Sudbury. Feb 11
- 2012 Educational opportunities in Bioenergy, Forestry and Environmental Science at Nipissing University for exchange students participating in the Canada/EU Biopower Program. Karelia University of Applied Sciences, Joensuu, Finland. Mar 20
- 2012 Educational opportunities in Bioenergy, Forestry and Environmental Science at Nipissing University for exchange students participating in the Canada/EU Biopower Program. Slovak University of Agriculture, Nitra, Slovakia. Mar 15
- 2012 Invited Presentation “The Value of a Single Tree”. TEDxNipissingU Event, What’s Possible. Bracebridge, ON, Mar 8
- 2011 Evolution of Nipissing University. Tenth Annual Charles Darwin’s Birthday, Nipissing University, North Bay. Feb 10
- 2011 Charles Darwin in the Galapagos. Nipissing Naturalists Club, North Bay. Feb 9
- 2010 Charles Darwin’s Galapagos. Ninth Annual Charles Darwin’s Birthday, Nipissing University, North Bay. Feb 11
- 2009 Charles Darwin’s Galapagos. Eighth Annual Charles Darwin’s Birthday, Nipissing University, North Bay. Feb 10
- 2009 The quest for fire: regenerating our vanishing oak forests. Research Seminar Series, Nipissing University
- 2006 Evidence for the recovery of industrially damaged terrestrial ecosystems near Sudbury, Ontario. Research Seminar Series, Nipissing University
- 2006 Silvicultural challenges in the Great Lakes-St. Lawrence forests of Canada. Institute of Silviculture, Faculty of Forest and Environmental Sciences, University of Freiburg, Freiburg, Germany

Research Grants / Contracts / Support

- 2013 Faculty Research Exchange Award, Ontario-Baden Württemberg International Exchange Program. (\$3,500.)
- 2013 NU Internal Research Grant. The role of ecological trade-offs between herbivory defense and competitive growth in the differential success of natural regeneration in native and introduced populations of northern red oak (\$3,500.)
- 2010-2017 Biidaaban Community Service-Learning Grant. Indigenous Initiatives Office, Nipissing University. (\$2,000 per year)
- 2010-12 Parks Canada, The regeneration failure of balsam fir in Gros Morne National Park; the role of site conditions and moose overabundance. (\$12,000.)
- 2010 Biidaaban Community Service-Learning Grant, J.W. MacConnell Family Foundation. (\$10,000.)
- 2009 Interact Grant, Ontario Centres of Excellence. Increasing the supply of red oak in Ontario forests: A Canada-Germany collaboration (\$13,500.)

- 2006-09 Enhanced Forest Productivity Science Program, Forestry Futures Trust of Ontario. (\$120,000.). Principal Investigator with various government and industry partners (OMNR, Forestry Research Partnership, Tembec)
- 2003-04 Living Legacy Trust – Regenerating Ontario’s red pine forests in changing climates. (\$80,590.) Principal Investigator with partners at Laurentian University (Centre for Environmental Monitoring) and Canadian Forestry Service
- 2003-04 Living Legacy Trust – Northern Herbarium Network. (\$25,000.) (partner with Principal Investigator Dr. S.J. Meades, Algoma University College)
- 2003-04 Nipissing University Internal Research Grant - Comparative ecological, physiological and structural responses of plants to chemically toxic environments. (\$5,000.)
- 2003-04 Nipwork Program. Funds to support a part-time student research assistant. (\$2,500.)
- 2002-03 Nipissing University Internal Research Grant - Comparative ecological, physiological and structural responses of plants to chemically toxic environments. (\$5,000.)
- 1999-00 Academic Computing Committee, Nipissing University - Computerised dendrochronological system (equipment and software). (\$19,000.)
- 1999 Nipissing University Internal Research Grant - Forest disturbance studies. (\$5300.)
- 1999 Agricultural Research Institute of Ontario (Guelph) - Ontario Forest Research Institute (Sault Ste. Marie). The effect of harvesting method and site preparation on regeneration of white pine. (\$15,000.)
- 1998-99 Nipwork Program. Funds to support two part-time student research assistants. (\$5,000.)
- 1998 Green Plan Fire Research Program, Canadian Forest Service. Competition between planted black spruce seedlings and naturally regenerating balsam fir on burned and clearcut sites at Glide Lake, Newfoundland. (\$4,000.)
- 1997 Green Plan Fire Research Program, Canadian Forest Service. The effect of burn intensity on the water relations of planted black spruce seedlings at Glide Lake, Newfoundland. (\$5,500.)
- 1997 Nipissing University Internal Research Grant. Diversity of wetland plants. (\$3,500.)
- 1996-97 Nipwork Program. Funds to support two part-time student assistants. (\$2,000.)
- 1996 Nipissing University Internal Research Grant. Leaf area meter/herbivory of purple loosestrife. (\$7,000.)
- 1996 Nipissing University Internal Research Grant. Environmental sensors/Metal tolerance of Newfoundland and Sudbury populations of Deschampsia caespitosa. (\$5000.)
- 1996 Green Plan Fire Research Program, Canadian Forest Service. The effect of burn intensity on the water relations of planted black spruce seedlings (\$4500.)
- 1996 Environmental Youth Corps. Funds to support summer students. (\$10,000.)

- 1995 Nipissing University Internal Research Grant. Equipment grant for data logger. (\$5,900.)
- 1994-95 Canadian Forest Service, Newfoundland Forest Research Centre. Chemical analyses of throughfall and bulk precipitation samples along salt spray gradients. (\$5,000.)
- 1994-95 Green Plan Fire Research Program, Canadian Forest Service. The effect of burn intensity on the water relations of planted black spruce seedlings (\$4,800.)
- 1994 Memorial University NSERC General Grant. Physiological Ecology of Coastal and Inland Populations of Boreal Conifers. (\$4,000.)
- 1994 Challenge '94 Programme. Funding to support the employment of a summer student assistant. (\$2,100.)
- 1993-94 Canadian Forest Service, Newfoundland Forest Research Centre. Chemical analyses of plant, soil and precipitation samples along salt spray gradients. (\$6,000.)
- 1993 Challenge '93 Programme. Funding to support the employment of a summer student assistant. (\$1,820.)
- 1992 Women in Science and Engineering (WISE). Funding to support the employment of a summer student assistant.
- 1992 Challenge '92 Programme. Funding to support the employment of a summer student assistant. (\$1,820.)
- 1991 Women in Science and Engineering (WISE). Funding to support the employment of a summer student assistant
- 1991 Challenge '91 Programme. Funding to support the employment of a summer student assistant. (\$1,663.)
- 1990 Challenge '90 Programme. Funding to support the employment of a summer student assistant. (\$1,785.)
- 1989 President's NSERC General Grant, Memorial University. The effect of salt spray on the regeneration and growth of conifers in coastal forests of Western Newfoundland. (\$4,000.)
- 1989 Canadian Forest Service/Department of Supply and Service. Forest bioclimatology and energy balance over forested surfaces. (\$4,500.)
- 1989 Challenge '89 Programme. Funding to support the employment of a summer student assistant. (\$1785)
- 1980 Grant-in-aid, Boreal Institute for Northern Studies, University of Alberta. Rhizospheric nitrogen fixation in arctic graminoids. (\$1,580.)
- 1979-80 Grant-in-aid, Boreal Institute for Northern Studies, University of Alberta. Comparative physiological ecology of *Alopecurus alpinus* in the Canadian High Arctic. (\$2,500.)
- 1978-79 Grant-in-aid, Boreal Institute for Northern Studies, University of Alberta. Comparative physiological ecology of *Alopecurus alpinus* in the Canadian High

Arctic. (\$3,500.)

TRAINING OF HIGHLY QUALIFIED PERSONNEL

Supervision of Honours B.Sc. Students (Nipissing University)

- 2019 Genah, Amanda. Moose browsing of balsam fir saplings as influenced by nutritional chemistry and neighbor palatability. **(Recipient of the Tembec Citizenship Award, Dave Marshall Leadership Award and a Talon Research Assistantship)**
- 2019 Kraft, Emily. Health of balsam fir trees and forests under fluctuating moose densities: a dendroecological approach. **(Recipient of a Talon Research Assistantship in 2019)**
- 2019 Lafontaine, Grant. Temporal changes in the recovery of heavily browsed balsam fir saplings under three scenarios of moose population control. **(Recipient of a Talon Research Assistantship)**
- 2019 Patterson, Sean. Browsing intensity and tree health: do neighbors matter? **(Recipient of a Talon Research Assistantship)**
- 2018 Dumas, Brianna. Health and diversity of the shrub community as an indicator of forest recovery following control of an overabundant moose population in western Newfoundland. **(Recipient of the Ken Adams Memorial Award for Conservation and a Talon Research Assistantship)**
- 2018 McLaren, Lauren. The effect of ecological neighborhoods on the likelihood of moose browsing of balsam fir saplings in western Newfoundland. **(Recipient of the Dave Marshall Leadership Award and a Talon Research Assistantship)**
2018. Talbot, Katherine. The effect of ecological neighborhoods on the likelihood of pollination and fruit set in pink lady's slipper orchids. **(Recipient of the Dave Marshall Leadership Award and a Talon Research Assistantship)**
- 2017 Gauthier, Samantha. The diversity and quality of winter browse for snowshoe hares in deciduous, coniferous and mixed forests stands of the Great Lakes-St. Lawrence Forest Region. **(Recipient of the Ken Adams Memorial Award for Conservation and a Talon Research Assistantship)**
- 2017 Knott, Jordanne. The seasonal cycle of foliar defense chemicals in a palatable and non-palatable conifer in areas of high and low moose density.
- 2017 Lafontaine, Morgan. The effect of moose population control on tree health and forest regeneration in Gros Morne National Park, western Newfoundland. **(Recipient of the Dave Marshall Leadership Award and a Talon Research Assistantship)**
- 2016 Barker, Cory. The role of flower size and colour in the pollination and reproductive success of the pink lady's slipper orchid. **(Co-recipient of the Ken Adams Memorial Award for Conservation and recipient of a Talon Research Assistantship)**
- 2016 Belanger, Lisa. Nutritional chemistry of moose fecal pellets as an indicator of diet quality related to selective winter browsing of balsam fir in Gros Morne National Park, western Newfoundland **(Co-recipient of the Ken Adams Memorial Award for Conservation, the**

Dave Marshall Leadership Award and a Talon Research Assistantship)

- 2016 Embury, Kelsey. Effects of disturbance pattern and timing of foliage removal on the induction of chemical defense in balsam fir seedlings: a simulated moose browsing study
- 2015 Kroeker, Allyson. The effect of simulated moose browsing on foliar concentrations of phenols and condensed tannins of balsam fir saplings in Gros Morne National Park, western Newfoundland **(Recipient of a Talon Research Assistantship)**
- 2015 Warbrick, Montana. The effect of simulated moose browsing on the foliar monoterpene concentrations of balsam fir saplings in Gros Morne National Park, western Newfoundland **(Recipient of the Dave Marshall Leadership Award and a Talon Research Assistantship)**
- 2014 Lefebvre, Maxime. Floral morphology, pollination and fruit production in the pink lady's slipper orchid in a wetland and forest habitat
- 2013 Roberts, Kathleen. Forage quality of balsam fir following release from intensive browsing under conditions of moose hyperabundance: a comparative moose exclosure study in Gros Morne National Park **(Recipient of the Ken Adams Memorial Award for Conservation and a Talon Research Assistantship)**
- 2012 Gray, Emily. The role of site conditions and moose (*Alces alces* L.) browsing pressure on the failed regeneration of balsam fir (*Abies balsamea* L.) in Gros Morne National Park, NL **(Recipient of a Royal Canadian Geographic Society Research Grant and a Talon Research Assistantship)**
https://legacy.rcgs.org/programs/research_grants/research_grants_2011_gray.asp
<https://vimeo.com/64168476>
- 2012 Moreau, Kerri. Is intraspecific variation in shade tolerance responsible for differences in regeneration success of red oak in North America and Europe: a comparison of leaf morphological traits in native and introduced populations
- 2011 Beverly, Joseph. A dendrochronological comparison of balsam fir saplings suppressed or released from intensive moose browsing on landscapes having successful or severely impaired forest regeneration in Gros Morne National Park
- 2011 Hamelin, Alexandra. Links between leaf chemistry and regeneration failure of coastal balsam fir in western Newfoundland
- 2011 Larcher, Samantha. Establishment of red oak (*Quercus rubra*) seedlings in relation to competing tree species six years after the application of partial harvest treatments in central Ontario
- 2010 Bourdon, Diane. Evaluating the allelopathic effect of the invasive herb garlic mustard (*Alliaria petiolata*) on the growth of red oak (*Quercus rubra*) seedlings in north-central Ontario
- 2009 Damude, Kirstin. Evaluating changes in understory plant communities and implications for competition with *Quercus rubra* seedlings four years following partial harvest in mixed hardwood forest of the Great Lakes - St. Lawrence region

- 2009 McGrath, Margaret. Growth response of residual and regrown stump sprouts of northern red oak (*Quercus rubra* L.) following sprout thinning at various intensities
- 2009 Simpson, Camille. Regenerating red oak forest through co-management with white pine: the effect of chemical tending on the growth of planted and naturally regenerated seedlings
- 2008 Major, Kelly. Competitive relations of red oak and red maple seedlings in oak and pine soils
- 2008 Splint, Shawn. Resource allocation to herbivory defense in red oak and sugar maple seedlings
- 2007 Diebolt, Tara. Growth, chlorophyll and phenolic content in relation to herbivory of red oak seedling and stump sprout leaves under three partial harvest treatments
- 2007 Langlois, Caitlin. Distance-dependent recruitment of red oak: Does the escape hypothesis apply to temperate forest management?
- 2007 Quint, Nicole. The physical and chemical role of sugar maple leaf litter in impeding seed germination and seedling establishment of red oak
- 2007 Renton, Jeff. Structural characteristics of balsam fir needles along a coast to inland transect in western Newfoundland (Recipient of Prince of Wales Award for Sustainable Forestry)
- 2007 Robinson, Lisa. Plant community composition and the establishment of red oak in relation to maple competitors under three partial harvest treatments
- 2007 Roscoe, Nick. Stump sprouting response of red oak, sugar maple and red maple to three partial harvest treatments.
- 2006 Morrish, Kathy Lynn. Growth and metal accumulation of a standard mix of revegetation plant species grown on combinations of gold mine tailings and biosolids
- 2006 Wallace, Michael. Plant distribution and diversity at the Coniston roastbed in relation to soil pH and metal concentrations
- 2005 Robinson, Julie. Seasonal variation in metal and chlorophyll content of white birch leaves at various distances from a nickel-copper smelter, near Sudbury, Ontario **(Recipient of a Royal Canadian Geographic Society Research Grant in 2004)**
- 2004 Dickeson, Sean. Patterns of tissue metal concentrations in graminoid species and related soils on an abandoned copper-nickel roast yard
- 2004 Maidment, Mike. A comparison of tissue and soil chemistry in four metal-tolerant graminoids growing in an acid, metal-contaminated environment
- 2003 Baks, Nicole. Patterns of plant colonization, zonation and diversity as influence by toxic soils of an abandoned nickel roast yard
- 2003 Hiscott, Jennifer. Growth, biomass allocation and production of herbivory defense chemicals in purple loosestrife (*Lythrum salicaria* L.) at various levels of grazing pressure **(Recipient of a Royal Canadian Geographic Society Research Grant in 2002)**

- 2003 Keefe, Angie. Salt interception and tree ring increment of two conifer species in coastal environments of Newfoundland
- 2002 Frattini, Katie. Patterns of metal toxicity and nutrient deficiency in leaves of red maple (*Acer rubrum*) growing along a gradient of soil chemical stress
- 2002 Marshall, David. Spatial patterns of growth and reproduction in three deciduous tree species growing along a gradient of soil chemical stress
- 2000 Phaneuf, Tim. Site conditions and tree community characteristics in wind-disturbed and undisturbed mixed-wood forests
- 1999 Baxter, Steve. The influence of released exotic beetles (*Galerucella* spp.) on the diversity of native arthropods on purple loosestrife (*Lythrum salicaria*) in northern Ontario wetlands
- 1999 Landriault, Laura. The effect of simulated herbivory on growth and biomass allocation patterns in purple loosestrife (*Lythrum salicaria*)
- 1999 Lindsay, John. A GIS analysis of the relationship of purple loosestrife (*Lythrum slaicaria*) to physical site conditions and population density of cattails in a northern Ontario wetland
- 1997 Dech, Jeff. Early response of purple loosestrife (*Lythrum salicaria*) to herbivory by exotic leaf-grazing beetles in northern Ontario

Supervision of M.Sc. Students (Laurentian University)

- 2010 Major, Kelly. Regeneration ecology of the alien tree species *Quercus rubra* L. (northern red oak) in southwestern Germany.
- 2006 Keefe, Angela. Growth and biomass allocation of naturally regenerated red pine seedlings in a shelterwood system.
- 2005 Marshall, David. Natural recovery of white birch, red maple, and red oak following reductions of SO₂ emissions: a dendrochronological analysis.
- 2000 Dech, Jeff. Population establishment of *Galerucella pusilla* (Duft.) and *G. californiensis* (L.) (Coleoptera: Chrysomelidae) and their relative impact on the growth of *Lythrum salicaria* L. (Myrtiflorae: Lythraceae) in two central Ontario wetlands.

Supervision of Post-Doctoral Fellows

- 2007-09 Dech, Jeff. (NSERC Industrial Research and Development Fellow – Sponsored by Tembec and the Forestry Research Partnership) Regeneration ecology and enhanced management of red oak forests.

Other Supervision

- 2021 Woodhouse, Kathleen (BIOL 4986). Directed Studies. Compensatory growth of balsam fir saplings in response to simulated moose browsing in Gros Morne National Park, Newfoundland.

- 2021 Jackson, Kristen. Directed Studies (BIOL 4986). Compensatory growth of balsam fir saplings in response to simulated moose browsing in Gros Morne National Park, Newfoundland.
- 2019-20 Kraft, Emily. Plant Ecology Research Assistant. NUWorks Program.
- 2019 Genah, Amanda. Directed Studies (BIOL 4986). Radial growth of balsam fir saplings in response to moose browsing in Gros Morne National Park, Newfoundland.
- 2019 Kraft, Emily. Directed Studies (BIOL 4986). Forest regeneration failure: the role of selective moose browsing by moose.
- 2018-19 Ellen Perry. High School Internship in Environmental Science.
- 2018-19 Aarts, Elizabeth. Plant Ecology Research Assistant. NUWorks Program.
- 2017-18 Uyeda, Alexandra. Eight-month work placement, Biotechnology Program, Canadore College.
- 2017 Lagarde, Perrine (Exchange student from Université Savoie Mont Blanc, France). Directed Studies (BIOL 4986). Red oak stump sprout biomass and productivity 10 years after tree harvest.
- 2017 Eagles, Rachel. Directed Studies (BIOL 4986). Chemical defense compounds in different age classes of balsam fir needles in response to simulated browsing.
- 2017 Duncan Stephens, Skye. Directed Studies (BIOL 4986). Medicinal plants of Jamaica.
- 2016-17 Eagles, Rachel. Forest Regeneration Research Assistant, NUWork Program.
- 2016 LaFontaine, Morgan. Directed Studies (BIOL 4986), Effect of moose population regulation on the recovery of forests in Gros Morne National Park, NL.
- 2014 Embury, Kelsey. Directed Studies (BIOL 4986), Regenerating red oak through coppice silviculture.
- 2014 Barker, Cory. Directed Studies (BIOL 4986), Effect of soils and maple competition on growth and biomass allocation of red oak seedlings.
- 2014 Levebvre, Maxime. Directed Studies (BIOL 4986), Oak/maple competition in soils of coniferous and deciduous forests.
- 2013-14 Mills, Michael. NOHFC Intern, Herbarium and Plant Growth Facilities
- 2013 Faure, Adrien (Exchange student from France). Directed Studies, Chemistry of secondary metabolites of balsam fir foliage.
- 2013 Levebvre, Maxime. Directed Studies (BIOL 4986), Fiber chemistry of moose forage
- 2013 Roberts, Kathleen. Research Assistant, Red oak regeneration in Germany, Institute of Silviculture, Freiburg, Germany
- 2012 Cote, Deanna. Directed Studies (BIOL 4986). Production of red oak stump sprouts under different thinning regimes.
- 2012 Parvianen, Sauli (Exchange student, from North Karelia University, Joensuu, Finland) Canada-EU Biowpower Intern

2011-12 Carter, Myles. NOHFC Intern in Plant Biology

2011-12 Rosabal, Balbina. Plant Ecology Research Assistant. NUWorks

2011-12 Major, Kelly. NOHFC Intern in Forest Regeneration and Restoration

2009 McGrath, Margaret. Research Assistant, Natural regeneration of red oak in Europe

2009. Pigeau, Kevin. Research Assistant, Natural regeneration of red oak in Europe

2008-09 VanderZee, James. Plant Ecology Research Assistant. Nipworks

2008-09 Pigeau, Kevin. Plant Ecology Research Assistant. Nipworks

2007-08 Hunt, David. Plant Ecology Research Assistant. Nipworks

2007-08 Benoit, Lisa. Plant Ecology Research Assistant. Nipworks

2007 -08 Dupuis, Kristin. Herbarium Assistant. Nipworks

2007-08 Blimkie, Melanie. Plant Ecology Research Assistant. Nipworks

2005 Caitlin Langlois. Conservation of dry tropical forests in western Ecuador. Canadian International Development Agency (CIDA) and Association of Universities and Colleges Students for Development Intern. Sponsored by CIDA and the CEIBA Trust for Tropical Conservation.

PROFESSIONAL SOCIETIES

Current Memberships: Canadian Institute of Forestry, Canadian Society for Ecology and Evolution, Society for Ecological Restoration, International Oak Society

Past Memberships: Canadian Botanical Association, Ecological Society of America, British Ecological Society

SERVICE

PROFESSIONAL ACTIVITIES

2016 External reviewer for tenure and promotion application, Memorial University of Newfoundland

2015 External Examiner for MA Thesis in History, Nipissing University

2011 Moderator and Organizer, Ethnobotany and Forest Plant Resources Session, Annual Conference, Canadian Institute of Forestry, Huntsville, September

2010-11 Program Committee, Annual Conference, Canadian Institute of Forestry, Huntsville, ON, September 2011

2009-11 Director, Algonquin Section, Canadian Institute of Forestry

2008 Organizer, Forestry Research Symposium. Nipissing University/University of Toronto School of Forestry/Canadian Institute of Forestry. Nipissing University

- 2007 Presented "Silvicultural Challenges in the Great Lakes Forest Region of Canada" at the Institute of Silviculture, Faculty of Forestry and Environmental Science, University of Freiburg, Germany
- 2007 Session Chair, International Conference on Mining and the Environment. Laurentian University
- 2007 Organizing Committee, Nipissing University Red Oak Research Workshop. Nipissing University, March 2
- 2006 Ontario Universities Faculty Representative. Tour of Partner Universities in Baden-Württemberg, Germany involved in the Ontario/Baden-Württemberg Exchange Program, July 3-9, 2006
- 2003 Organizing Committee, International Conference on Mining and the Environment. Laurentian University.
- 2003 Organizer, Forestry Research Symposium. Nipissing University/University of Toronto School of Forestry/Canadian Institute of Forestry. Nipissing University.
- 2002 Organizer, Forestry Research Symposium. Nipissing University/University of Toronto School of Forestry/Canadian Institute of Forestry. Nipissing University.
- 2001 Organizer, Forestry Research Symposium. Nipissing University/University of Toronto School of Forestry/Canadian Institute of Forestry. Nipissing University.
- 2000 Organizer, Meeting of the Canadian Land Reclamation Association. Nipissing University.
- 2000 Organizer, Forestry Research Symposium. Nipissing University/University of Toronto School of Forestry/Canadian Institute of Forestry. Nipissing University.
- 1999 Symposium Organizer, Ecology of Purple Loosestrife (*Lythrum salicaria*). XVI International Botanical Congress, Missouri Botanical Gardens, St. Louis, Missouri.
- 1999 Organizer, Forestry Research Symposium. Nipissing University/University of Toronto School of Forestry/Canadian Institute of Forestry. Nipissing University.
- 1998 Judge - J.S. Rowe Award for best published student paper in ecology, Canadian Botanical Association.
- 1998 Organizer, Forestry Research Symposium. Nipissing University/University of Toronto School of Forestry/Canadian Institute of Forestry. Nipissing University.
- 1997 Judge - J.S. Rowe Award for best published student paper in ecology, Canadian Botanical Association.
- 1997 Session Chair - Applied Ecology, Community Ecology and Competitive Interactions. Canadian Botanical Association Annual Meeting. Montreal, Quebec.
- 1997 Session Chair. Near North Environmental Symposium II, Canadore College - Nipissing University, North Bay, Ontario.
- 1996-99 Director, Ecology Section, Canadian Botanical Association.
- 1996-97 Steering Committee. Near North Environmental Symposium II, Canadore College -

- Nipissing University, North Bay, Ontario.
- 1996-97 Program Committee. Near North Environmental Symposium II, Canadore College - Nipissing University, North Bay, Ontario.
 - 1996 Session Chair. Near North Environmental Symposium, Canadore College - Nipissing University, North Bay, Ontario.
 - 1994-95 Member of TERRAMON Advisory Committee (TERRAMON is a network of government and educational groups concerned with long-term environmental monitoring in Newfoundland and Labrador).
 - 1994 Advisor. Westviking College, Corner Brook Newfoundland. Development of a diploma program in Adventure Tourism - Outdoor Recreation.
 - 1989-93 Member of the Executive, Ecology Section, Canadian Botanical Association.
 - 1989 Judge (Ecology) for the Lionel Cinq-Mars Award for best student paper at the Annual Meeting of the Canadian Botanical Association with AIBS, University of Toronto.
 - 1985-present Peer Reviewer of manuscripts submitted to various scientific research journals (Acta Botanica Fennica, African Journal of Agricultural Research, Annals of Forest Science, Biodiversity Management and Forestry, Biotechnology Agronomy Society and Environment, Canadian Field Naturalist, Canadian Journal of Botany, Canadian Journal of Forest Research, Forest Ecology and Management, Forests, Journal of Animal Science and Research, Journal of Sustainable Forestry, Plant Cell and Environment, Plant Ecology, PLoS ONE) and book publishers (Academic Press, Benjamin Cummings, Ontario Geological Survey).

ACADEMIC SERVICE

Nipissing University

- 2020 Search Committee, Cluster Hire for Tenure-Track Indigenous Scholar Positions
- 2018-2020 Chair, Department of Biology and Chemistry
- 2018-19 Faculty Tenure and Promotion Committee
- 2018 Search Committee, Biology-Chemistry Technologist
- 2017-18 University Tenure and Promotion Committee
- 2017 Search Committee, Tenure-Track Faculty Position for the Collaborative BScN Nursing Program
- 2016-18 Chair, Department of Biology and Chemistry
- 2016 Search Committee, Vice-President Finance and Administration
- 2016 Search Committee, Indigenous Chair/Professor
- 2015-18 University Senate
- 2015-17 University Tenure and Promotion Committee (alternate)

2015	Debwendizon Aboriginal Youth Education Gathering. Presentation on Biology and Environmental Science programs at NU. Conducted tours of the NU Herbarium and Greenhouse for Indigenous students visiting from local and regional secondary schools.
2014-15	University Senate
2014-15	Planning and Priorities Committee
2014-15	University Tenure and Promotion Committee
2014-15	Search Committee, Dean of Arts and Science
2014-15	Thesis Coordinator, Department of Biology and Chemistry
2014	Debwendizon Aboriginal Youth Education Gathering. Presentation on Biology and Environmental Science programs at NU. Conducted tours of the NU Herbarium and Greenhouse for Indigenous students visiting from local and regional secondary schools.
2013-14	University Tenure and Promotion Committee (alternate)
2012	Organized Biology Booth for visiting Indigenous students participating in the Aiming Higher Program, Office of Aboriginal Initiatives.
2006-07	Academic Planning Committee
2005-06	Arts and Science Subcommittee, Academic Promotion and Tenure Committee
2005-06	Board of Governors
2005-06	University Governance Committee, Board of Governors
2004-05	Academic Planning Committee
2003-present	Organizer of the annual Charles Darwin's Birthday event at Nipissing University
2003-05	Chair, Biology Department
2003-05	Arts and Science Executive Committee.
2003-04	Academic Planning Committee
2002-03	Search Committee, Vice-President Academic and Research
2001-03	Chair, Biology Department
2001-03	Arts and Science Executive Committee
1999-00	Academic Planning Committee
1999-00	Curriculum Committee
1999-05	Coordinator, Exchange Program with Luton University, Luton, U.K.
1999-00	Developed Academic Exchange Program with Luton University, Luton, U.K.
1998-01	Chair, Science Division
1998-99	Research Grants Committee

1998-99. Curriculum Committee

1998-06 Program Coordinator, Bachelor of Applied Technology (Environmental Biology)

1998-present Faculty Advisor, Nipissing University Biology Society

1998 Cofounder of the Nipissing University Biology Society

1997-98 Research Grants Committee

1997-98 Academic Planning Committee

1997 First-Year Seminar Series. Conducted workshop on writing in the science disciplines for first-year students.

1996-97 Academic Planning Committee

1996-98 President's Task Force on Research, Nipissing University.

Memorial University of Newfoundland, Grenfell Campus

1994 Representative on a two-week tour of British (England, Scotland, Northern Ireland) universities offering fine arts and environmental science/studies programs. Sponsored by the British Council and Memorial University.

1993-95 Land Use Committee

1992-95 Senator, Memorial University of Newfoundland.

1992-94 Gros Morne Discovery Centre Steering Committee, Canadian Parks Service.

1992 College Representative, Research at Small Universities Conference. University of Lethbridge, Lethbridge, Alberta.

1991-92 Chair, Nominating Committee, College Academic Council

1991-92 Evaluation Committee, Student Learning Centre

1991-92 Chair, Memorial University Steering Committee for the planning of the Gros Morne Discovery Centre, Canadian Parks Service.

1991-92 Memorial University representative on Parks Canada Steering Committee for the planning of the Gros Morne Discovery Centre

1991-92 Ad hoc Sub-committee of the Academic Planning Committee on General Education courses

1991-94 Principal's Committee on Space Utilization

1991 College Representative, Research at Small Universities Conference. Trent University, Peterborough, Ontario

1990 College Representative, Research at Small Universities Conference. Acadia University, Wolfville, Nova Scotia

1990-91 Chair, Planning Committee for a Multidisciplinary Degree Programme in Environmental Science

1990-91 Computer Utilization Committee. College Academic Council

- 1990-91 Chair, Senate Sub-Committee for Undergraduate Studies, Memorial University of Newfoundland
- 1989-90 Senate Sub-Committee for Undergraduate Studies, Memorial University of Newfoundland
- 1988-89 Special Events Committee. College Academic Council

COMMUNITY SERVICE/OUTREACH/MEDIA

- 2021 Interviewed for CBC Morning North on moose nutritional chemistry and forest regeneration. https://www.cbc.ca/listen/live-radio/1-41-morning-north/clip/15842683-ecologist-north-bay-wants-people-back-country-keep?fbclid=IwAR3kGWYpoM-lDnMwlgm7IC_tCjSSzxTUEWrqUDZ9t-VbII5bMEwOU_oX8
- 2021 Interviewed by Ontario Federation of Anglers and Hunters <https://www.ofah.org/zonej/moose-poop-needed-for-nutrition-study/>
- 2021 Interviewed by CBC News, Sudbury - <https://www.cbc.ca/news/canada/sudbury/research-moose-droppings-1.6020732>
- 2019 Steering Committee – Living with Forests Centre
- 2018 Moose interesting. Newspaper article on forest regeneration research in western Newfoundland. Western Star, Corner Book, NL. June 11 [PressReader.com - Digital Newspaper & Magazine Subscriptions](https://www.pressreader.com/nl/corner-book/digital-newspaper-magazine-subscriptions)
- 2018 Students helping to restore eastern forests. Newspaper article on forest regeneration research in western Newfoundland. North Bay Nugget, North Bay, ON May 30 [Students helping to restore eastern forests | North Bay Nugget](https://www.northbaynugget.com/news/2018/05/30/students-helping-to-restore-eastern-forests/)
- 2016 Interviewed by CBC Radio – Moose and forest regeneration failure in Gros Morne National Park, NL (June 24) <https://www.cbc.ca/player/play/2690807818>
- 2016 Interviewed and featured in the North Bay Nugget for a three-week series of articles on student engagement in research in Gros Morne National Park, NL
- 2015 Interviewed and featured in the North Bay Nugget for a three-week series of articles on student engagement in experiential learning in the Galapagos Islands
- 2015 Where did all the balsam fir go? The Woodland Observer May 15
- 2013 Keynote Speaker, North Bay Heritage Gardeners Annual Symposium (April 21)
- 2012 Interviewed by CTV on forest regeneration following fire
- 2010 Presentation for annual Darwin's Birthday Event, Charles Darwin's England (February 12)
- 2010 Presentation for Nipissing Naturalists – Charles Darwin, Naturalist (February 11)
- 2009 Presentation for annual Darwin's Birthday Event – Charles Darwin's Galapagos (on the occasion of Darwin's 200th Birthday)

2008	Presentation for annual Darwin's Birthday Event – Natural History of the Galapagos Islands
2007	Interviewed by CBC Radio. Red Oak Decline in Ontario Forests (March 6)
2007	Presented "Kew Botanical Gardens" to Powassan Horticultural Society (February 13)
2007	Presentation for annual Darwin's Birthday Event "On the Origin of Darwin's Garden" (February 12 - on the occasion of Darwin's 198 th Birthday)
2006	Presented "Kew Gardens" North Bay Horticultural Society
2006	Presented "Nipissing Botanical Gardens: A Vision for a Community Partnership" to the North Bay Rotary Club.
2005	Presented "Nipissing Botanical Gardens" North Bay Horticultural Society
2004	Presented "The Purple Loosestrife Invasion" Nipissing Naturalists Club
2003	Presented Arctic Plants – North Bay Heritage Gardeners
2001	Interviewed by North Bay Nugget. Biological Control of Purple Loosestrife
2001	Interviewed by North Bay Nugget. Salt Damage to Roadside Trees.
2000	Presented "Natural History of Newfoundland" to the Nipissing Naturalists' Club. North Bay.
2000	Presented "Amazing Plants". Grade Three Class, Vincent Massey Public School. North Bay.
2000	Interviewed by North Bay Nugget. Spiders.
1998	Presented "Arctic Plants and Animals". Grade Three Class, Vincent Massey Public School. North Bay.
1998	Interviewed by CBC Radio – Biological invasion by purple loosestrife
1997-12	Member, Board of Directors, Friends of Laurier Woods, North Bay, Ontario
1997-98	Nipissing University representative, Board of Directors, Canada Ecology Centre, Mattawa, Ontario.
1997	Presented "Arctic Plants and Animals". Grade Two Class, Vincent Massey Public School. North Bay
1997	Interviewed by MCTV, North Bay. Biological control of purple loosestrife.
1997	Interviewed by the North Bay Nugget. Ecology of Wetlands
1996	Judging Committee, Canada-Wide Science Fair '96, Nipissing University
1996	Judge, Canada-Wide Science Fair '96, Nipissing University
1996	Presented "A Stressful Existence: Plants and Animals in Arctic Environments". Nipissing Naturalist's Club. North Bay
1996	Interviewed by MCTV, Sudbury. Ecology of purple loosestrife and its biological

- control - for the television program "Down to Earth"
- 1996 Interviewed by the North Bay Nugget - Purple loosestrife research
- 1995 Interviewed by the Western Star, Corner Brook, Newfoundland - Metal-tolerant grasses for revegetation of disturbed landscapes
- 1994 Taught "Flora and Fauna of Newfoundland". Elderhostel. Grenfell Campus, Memorial University of Newfoundland
- 1991 Taught "Natural History of Newfoundland". Elderhostel. Grenfell Campus, Memorial University of Newfoundland
- 1991 Judge, West Coast Regional Science Fair, Corner Brook, Newfoundland
- 1990 Arctic oases: hot spots in Canada's north. Newfoundland and Labrador Natural History Society, Corner Brook, Newfoundland
- 1990 Presented "Tree Growth: Alleviating the Greenhouse Effect" at G.A. Mercer Junior High School, Corner Brook, Newfoundland, during their Environmental Forum "Saving Our Planet - Educating Our World"
- 1989 Interviewed by CBC radio on the effects of wind and salt spray on tree growth in the coastal forests of Newfoundland
- 1988 Interviewer, McMaster University School of Medicine. Hamilton, Ontario. Selection committee for admission to the M.D. program
- 1987 Interviewer, McMaster University School of Medicine. Hamilton, Ontario. Selection committee for admission to the M.D. program
- 1987 Judge, Wentworth County Elementary Science Fair. Dundas, Ontario
- 1986 Keynote Speaker. Annual Meeting of Wilderness Canoe Association of Ontario. The Leslie M. Frost Natural Resources Centre, Minden, Ontario
- 1985 Instructed the course "The Flora of the Edmonton Region" for the Naturalist Orientation Programme, John Jantzen Nature Centre, Edmonton, Alberta. May
- 1985 Judge, Parkland County Elementary and Junior High School Science Fair. Spruce Grove, Alberta, March
- 1983 Instructed the field course "Edible Plants". Blue Lake Centre, William A. Switzer Provincial Park, Hinton, Alberta. June
- 1982 Instructed the field course "Edible Plants", Blue Lake Centre, William A. Switzer Provincial Park, Hinton, Alberta. June
- 1982 Instructed the field course "Flora of the Foothills". Blue Lake Centre, William A. Switzer Provincial Park, Hinton, Alberta. July
- 1977 Judge, Nickel District Elementary Science Fair. Sudbury, Ontario

AWARDS AND HONOURS

2016	Nipissing University Chancellor's Award for Excellence in Teaching
2015	Nominated for Nipissing University Chancellor's Award for Excellence in Teaching
2013	Nominated for Nipissing University Chancellor's Award for Excellence in Teaching
1981-82	Dissertation Award. Department of Botany, University of Alberta
1978-79	National Research Council of Canada Postgraduate Scholarship
1977-78	National Research Council of Canada Postgraduate Scholarship
1977-78	Ontario Graduate Scholarship (declined)
1976-77	Ontario Graduate Scholarship
1975-76	Laurentian University Graduate Scholarship

Annual APPENDIX K

NIPISSING UNIVERSITY CV FORMAT

Curriculum Vitae
Tony L Parkes

Program: **Month and Year**

Professional Address

Nipissing University
100 College Drive, Box 5002
North Bay, ON, Canada P1B 8L7
Telephone:
Email:

Education

Date	Degree and University
1996	PhD Molecular Biology & Genetics, University of Guelph
1989	BSc Biology, University of Guelph

Professional Experience

Date	Activity
2006-2021	Associate Professor, Department of Biology & Chemistry, Nipissing University
2002-2006	Assistant Professor, Department of Biology, Nipissing University

Related Professional Experience

Date	Professional Experience
2000-2002	Resident Biologist, Space Life Sciences, Canadian Space Agency
1996-2000	Postdoctoral Fellow, Department of Molecular Biology & Genetics, University of Guelph

Awards and Honours

Date	Award/honour
2004	Canadian Foundation for Innovation New Opportunities Fund
1998	Young Investigator Award, Society for Free Radical Biology & Medicine

External Research Funding

Date	Funding body	Type	Amount
2012-2013	CUCC	G	\$18,000
2008-2009	NSERC	C	\$40,000
2005-2007	NSERC	C	\$63,500
2004-2008	CFI	G	\$187,768
2003-2005	Temagami Stewardship	O	\$17,500

*Type: C-Granting councils; G-Government; F-Foundations; O-Other

Internal Research Funding

Date	Type	Institution	Amount
2003	IRG	Nipissing University	\$5000
2002	O	Nipissing University	\$5000

*Type: IRG – Internal Research Grant; RCA-Research Achievement Award; O-Other

Publication Summary (Lifetime total)

	<u>Count</u>
Articles in Refereed Journals & Refereed Book chapters	12
Technical Reports	7
Non-refereed Articles	1
Conference Papers	29
Keynotes, Invited Papers, & Public lectures	6
Shared Computer Software and Documentation	1
Works in Progress	4

Publications

Articles in Refereed Journals & Refereed Book Chapters

Doran, M.L., Knee, J.M., Wang, N., Rzezniczak, T.Z., Parkes, T.L., Li, L., Merritt, T.J.S. 2017. Metabolomic analysis of oxidative stress: Superoxide dismutase mutation and paraquat induced stress in *Drosophila melanogaster*. Free Radical Biology & Medicine 113: 323-334
PubMed Citations: 4

Lessel, C.M., Parkes, T.L., Merritt T.J.S. 2017. Sex and genetic background influence superoxide dismutase (cSOD) related phenotypic variation in *Drosophila melanogaster*. Genes, Genomes, and Genetics 7(8): 2651-2664
PubMed Citations: 2

Bernard K.E., Parkes T.L., Merritt T.J.S. 2011. A model of oxidative stress management: moderation of carbohydrate metabolizing enzymes in SOD1-Null *Drosophila melanogaster*. PLoS ONE 6(9): e24518. doi:10.1371/journal.pone.0024518
PubMed Citations: 5

Strub, B.R., Parkes, T.L., Mukai, S.T., Coulthard, A.B., Hall, N., Phillips, J.P., Hilliker, A.J. 2008. Mutations of the withered (whd) gene in *Drosophila melanogaster* confer hypersensitivity to oxidative stress and are lesions of the carnitinepalmitoyltransferase I (CPT 1) gene. Genome 51(6):409-420
PubMed Citations: 11

Shaver S.A., Riedl C.A., Parkes T.L., Sokolowski M.B., Hilliker A.J. 2000. Isolation of larval behavioral mutants in *Drosophila melanogaster*. J Neurogenet. 14(4):193-205.
PubMed Citations: 8

Phillips J.P., Parkes T.L., Hilliker A.J. 2000. Targeted neuronal gene expression and longevity in *Drosophila*. Exp Gerontol. 35(9-10):1157-64.
PubMed Citations: 14

Parkes T.L., Hilliker A.J., Phillips J.P. 1999. Motorneurons, reactive oxygen, and life span in *Drosophila*. Neurobiol Aging. 1999 20(5):531-5. Review.
PubMed Citations: 11

Elia A.J., Parkes T.L., Kirby K., St George-Hyslop P., Boulianne G.L., Phillips J.P., Hilliker A.J. 1999. Expression of human FALS SOD in motorneurons of *Drosophila*. Free Radic Biol Med. 26(9-10):1332-8.
PubMed Citations: 22

Parkes T.L., Kirby K., Phillips J.P., Hilliker A.J. 1998. Transgenic analysis of the cSODnull phenotypic syndrome in *Drosophila*. Genome. 41(5):642-51
PubMed Citations: 15

Parkes T.L., Elia A.J., Dickinson D., Hilliker A.J., Phillips J.P., Boulianne G.L. 1998. Extension of *Drosophila* lifespan by overexpression of human SOD1 in motorneurons. Nat Genet. 19(2):171-4.
PubMed Citations: 202

Duttaroy A, Parkes T, Emtage P, Kirby K, Boulianne GL, Wang X, Hilliker AJ, Phillips JP. 1997. The manganese superoxide dismutase gene of *Drosophila*: structure, expression, and evidence for regulation by MAP kinase. DNA Cell Biol 16(4):391-9
PubMed Citations: 13

Parkes TL, Hilliker AJ, Phillips JP. 1993. Genetic and biochemical analysis of glutathione-S-transferase in the oxygen defense system of *Drosophila melanogaster*. Genome 36(6):1007-14
PubMed Citations: 17

Technical Reports

Parkes, T.L. and Pyle, G. 2005. Getting to Know the Lake Trout of Lake Temagami: Mitochondrial DNA Haplotypes and Lake Trout Conservation. Research Report to the Lake Temagami Stewardship Council, Living Legacy Trust, & the Ontario Ministry of Natural Resources.

Parkes, T.L. 2004. Biological and Engineering Services Support for Insect Habitat – Final Report. Submitted to Ron Wilkinson, Canadian Space Agency, Margaret Button, PWGSC.

Parkes, T.L. 2003. Insect Habitat Bio-test Program Phase I Final Report. Submitted to Glen Campbell, IH Project Manager, Canadian Space Agency, for distribution to IH Science Advisory Committee.

Parkes, T.L. 2001. Investigation of the Effect of Colloidal Silver on *Drosophila* Development and Fecundity. Prepared for Routes AstroEngineering and the Canadian Space Agency.

Parkes, T.L. 2001. Investigation and Validation of the Insect Habitat Humidity Control Concept. Prepared for Routes AstroEngineering and the Canadian Space Agency.

Parkes, T.L. 2001. The Effect of Colloidal Silver on *Drosophila* Development and Fecundity. Prepared for Routes AstroEngineering and the Canadian Space Agency.

Parkes, T.L. 2001. Fruit Flies In Space. Prepared for Routes AstroEngineering and the Canadian Space Agency.

Non-refereed articles

Bernard, K., Parkes, T., and Merritt, T. 2009. Demonstrating behavioral genetics using *Drosophila* larval phototaxis. *Drosophila Information Service* 92:172-174

Conference Papers

Daley, C., and Parkes, T. 2017. Metformin Fails To Rescue SOD1-null Phenotypes But Reduces Female Body Mass In *Drosophila melanogaster*. 9th Annual Undergraduate Research Conference, Nipissing University, North Bay ON, March 24-25, 2017

Perry, K., and Parkes, T. 2017. Metformin and French Lilac (*Galega officinalis*) Ameliorates Neuromuscular Dysfunction in Glutathione-Impaired *Drosophila*. 9th Annual Undergraduate Research Conference, Nipissing University, North Bay ON, March 24-25, 2017

Daley, C., and Parkes, T. 2017. Metformin Fails To Rescue SOD1-null Phenotypes But Reduces Female Body Mass In *Drosophila melanogaster*. Ontario Biology Days Undergraduate Research Conference, Laurentian University, Sudbury ON, March 18-19 2017

Perry, K., and Parkes, T. 2017. Metformin and French Lilac (*Galega officinalis*) Ameliorates Neuromuscular Dysfunction in Glutathione-Impaired *Drosophila*. Ontario Biology Days Undergraduate Research Conference, Laurentian University, Sudbury ON, March 18-19 2017

Gauthier, G.P., and Parkes, T.L. 2016. A Novel Neurological Syndrome Induced By Neuronal-Specific Inhibition of Glutathione Synthesis in *Drosophila melanogaster*. Ontario Biology Day Undergraduate Research Conference, Ryerson University, Toronto ON, March 19-20 2016

Lessel, C.E., Parkes, T.L., and Merritt, T.J.S. 2015. Analysis of the cSOD-null Phenotypes of *Drosophila melanogaster* Across A Suite of Genetic Backgrounds. 56th Annual Genetics Society of America *Drosophila* Research Conference, Chicago, Ill, USA, March 4-8, 2015

Gauthier, G.P., and Parkes, T.L. 2015. A Novel Neurological Syndrome Induced By Neuronal-Specific Inhibition of Glutathione Synthesis in *Drosophila melanogaster*. 7th Annual Undergraduate Research Conference, Nipissing University, North Bay ON, March 7-8, 2015

Jacobs, B., and Parkes, T. 2015. SOD1-mediated Oxidative Stress Enhances Neuropathological Phenotypes in a *Drosophila* Model of Alzheimer's Disease. 7th Annual Undergraduate Research Conference, Nipissing University, North Bay ON, March 7-8, 2015

Elliott, D, Parkes, T., Cholewa, C., and Ambekar, C. 2014. Phytochemical Screening of Methanolic and Aqueous Extracts of the Native Plant *Comptonia peregrina*. 6th Annual Undergraduate Research Conference, Nipissing University, North Bay ON, March 21-22, 2014

Dart, M., Parkes, T., Amberkar, C., and Cholewa, E. 2014. Comparative RAPD-PCR Analysis of *Eriophorum vaginatum* L. and *Eriophorum virginicum*. 6th Annual Undergraduate Research Conference, Nipissing University, North Bay ON, March 21-22, 2014

Slivitzky, K., Cholewa, E., and Parkes, T. 2014. *In Vivo* Efficacy of Sweet Fern & Ginkgo Biloba in a *Drosophila* Model of Chronic Endogenous Oxidative Stress. 6th Annual Undergraduate Research Conference, Nipissing University, North Bay ON, March 21-22, 2014

Wray, N., and Parkes, T. 2012. Generation and characterization of Chico/SOD double mutants in *Drosophila melanogaster*. 1st Annual North Bay Regional Health Centre Research Conference, North Bay, ON, June 15th, 2012

Rantz, L., Babady, P., Parkes, T., and Cholewa, E. 2012. The antioxidant and antibacterial properties of sweet fern (*Comptonia peregrina*). 1st Annual North Bay Regional Health Centre Research Conference, North Bay, ON, June 15th, 2012

Bernard, K., Parkes, T., and Merritt, T. 2010. The evolution of aging: metabolism in a chronic oxidative stress condition. 5th Annual Meeting of the Canadian Society for Ecology and Evolution, Quebec City, PQ, May 9-12, 2010

Arora, M, Rantz, L., Cholewa, E., and Parkes, T.L. 2010. A novel assay utilizing SOD1-*Drosophila* to test the *in vivo* efficacy of nutraceutical antioxidants. 2nd Annual Undergraduate Research Conference, Nipissing University, North Bay ON, March 26-27, 2010

Cholewa, E., Rantz, L., Duquette, B., Babady-Bila, P, and Parkes, T. 2009. A novel assay utilizing *Drosophila melanogaster* confirms *in vitro* determined high antioxidant properties of

Sweet Fern (*Comptonia perigrina*). Proceedings of the Canadian Society of Plant Physiologists Eastern Regional Meeting. University of Guelph, Dec 4th-5th, 2009

Rantz, L., Cholewa, E., and Parkes, T.L. 2009. SOD1- *Drosophila* as a model to establish the *in vivo* efficacy of nutraceutical antioxidants. 1st Annual Undergraduate Research Conference, Nipissing University, North Bay ON, 2009

Hunt, D., Mahon, C., Westwood, J.T., and Parkes, T.L. 2009. Microarray analysis of SOD1-null *Drosophila* reveals a unique and fundamental response to chronic oxidative stress. 1st Annual Undergraduate Research Conference, Nipissing University, North Bay ON, 2009

Edwards, M., Duquette, B.B., Babady-Bila, P., Parkes, T., and Cholewa, E. 2008. Laboratory assays confirm native uses of Sweet Fern (*Comptonia perigrina*) for its medicinal properties. Proceedings of the Canadian Society of Plant Physiologists Eastern Regional Meeting. Royal Ontario Museum/University of Toronto, Dec 5th-6th, 2008

Mahon, C.G., Parkes, T.L., and Westwood, J.T. 2007. Genome-wide transcriptional changes in response to oxidative stress in *Drosophila*. World Conference of Stress, Budapest, Hungary, Aug. 23-26, 2007

Timmons, A.A., Down, K.-A., Parkes, T.L. 2007. Role of MTF-1 in protection against oxidative stress in *Drosophila melanogaster*. Ontario Biology Day Undergraduate Research Conference, Hamilton ON Mar 17-18, 2007

Chirico, A.V., Down, K.-A., Parkes, T.L. 2007. Antioxidant depletion enhances Rac1/JNK signaling in *Drosophila melanogaster*. Ontario Biology Day Undergraduate Research Conference, Hamilton ON Mar 17-18, 2007

Bernard, K., Parkes, T.L. 2007. Behavioural deficits in SOD1- *Drosophila*. Ontario Biology Day Undergraduate Research Conference, Hamilton ON Mar 17-18, 2007

Mahon, C.G., Parkes, T.L. 2004. SOD1 performs a cell autonomous function during wing maturation in *Drosophila*. Midwest *Drosophila* Conference, Allerton, Illinois, Oct 8-9, 2004.

Strub, B., Parkes, T.L., and Hilliker, A.J. 2003. Identification of novel oxygen defense genes in *Drosophila melanogaster* using a positional candidate approach. 7th Biennial Canadian *Drosophila* Research Conference, Halifax, Nova Scotia, June 8-11, 2003

Parkes, T.L., Buckley, N., Brune, S., Campbell, G., and Wilkinson, R. 2003. Design and Science Testing of the Experiment Planning Model for the International Space Station Insect Habitat. 19th Annual Conference of the American Society for Gravitational and Space Biology, Huntsville, Alabama, 2003.

Phillips, J.P., Parkes, T.L., Martin, M., Kirby, K., Boulianne, G.L., and Hilliker, A.J. 1999. Critical Cell Types for Longevity in *Drosophila*. 6th Annual Meeting of the American Aging Association, Seattle, WA, 1999.

Parkes, T.L., Elia, A.J., Kirby, K., Dickinson, D., Klebasz, N., Hilliker, A.J., Phillips, J.P., and Boulianne, G.L. 1999. Extending Lifespan: Antioxidants and Motorneurons. 5th Biennial Canadian *Drosophila* Research Conference, Saint-Sauveur, Quebec, 1999.

Parkes, T.L., Atoum, M.F., Dickinson, D.A., Kirby, K., Boulianne, G.L. Hilliker, A.J., and Phillips, J.P. 1998. Genetic Enhancement of Lifespan Through Manipulation of Reactive Oxygen Metabolism in Motorneurons. 5th Annual Meeting of the Oxygen Society, Washington, D.C. Nov. 19-23, 1998.

Keynotes, Invited Papers, & public lectures

“Biochemical and Genetic Inhibition of Glutathione Synthesis Reveals *In Vivo* Neuroprotective Functions in *Drosophila melanogaster*”, Invited Plenary Address, Biology Undergraduate Thesis Symposium, Laurentian University, April 2, 2015

“Insect Habitat Science Safety Overview” presented at Insect Habitat Phase II Safety Review, NASA/CSA meeting, NASA Johnson Space Center, Houston, Texas, Nov 12-14, 2002.

“Insect Habitat Outstanding Science Concerns” presented at Insect Habitat Critical Design Review, NASA/CSA meeting, Embassy West Hotel, Ottawa, Ontario, May 5-6, 2002.

“The ISS Insect Habitat Bio-test Program” presented at Insect Habitat Science Advisory Committee Meeting, Airport Sheraton Hotel, Toronto, Ontario, September 21, 2000.

“Insect Habitat Science Considerations” presented at Insect Habitat Preliminary Design Review, NASA/CSA meeting, Kanata, Ontario, July 15-16, 2000

“Why build the Insect Habitat: The Use of *Drosophila* in Biomedical Research” presented at Insect Habitat Engineers Meeting, Routes AstroEngineering, Kanata, Ontario, May 30, 2000

Shared Computer Software and documentation

2004-2005	Beta Testing of Molecular Biology Educational Software developed by Virtual In Vivo Technologies Inc (VIVE), Guelph, ON

Works in Progress

Gauthier, G., Timmons, A., Perry, K., Down, K.-A., Chirico, A., Copeland, B., Stacey-Dowdall, M., Hilliker, A., Phillips, J., and Parkes, T.. Consequences of Glutathione Deficiency in *Drosophila melanogaster*: Pathophysiology & Neuropathy
Manuscript in preparation for submission to Free Radical Biology & Medicine, 2022

Parkes, T., Butti, A., Timmons, A., Paul, R., and Lawley, E. Catalase and MTF-1 are required for viability in SOD1-null *Drosophila*: Insights on Fenton Chemistry *In Vivo*

Manuscript in preparation for submission to Biochemical & Biophysical Research Communications, 2022

Rantz, L., Slivitzky, K., Cholewa, E., and Parkes T. A Novel Assay Utilizing SOD1-null *Drosophila* to Assess *In Vivo* Efficacy of Antioxidant Nutraceuticals.
Manuscript in preparation for submission to Journal of Nutritional Biochemistry, 2022

Parkes, T., Gauthier, G., Porter, A., Schlosser, R., Lawton, R., Johnson C. A *Drosophila* Model of Human Glutathione Synthetase Deficiency
Manuscript in preparation for submission to Disease Models & Mechanisms, 2022

Graduate and Post-Doctoral Supervisions

2014-2016 Courtney Lessel, MSc, Laurentian University
Effects of Sex and Genetic Background on Variation in Superoxide Dismutase (cSOD)-related Phenotypes in *Drosophila melanogaster*.

2009-2011 Kristine Bernard, MSc, Laurentian University
A Model of Oxidative Stress Management: Moderation of Carbohydrate Metabolism in SOD1-null *Drosophila*

2005-2007 Chris Mahon, MSc, University of Toronto
Microarray Analysis of SOD1-null *Drosophila melanogaster*

Undergraduate Teaching

Course Name	Level	Credits	Times Taught
BIOL1006 Introduction To Molecular & Cellular Biology	1000	3	5
BIOL1007 Introduction To Whole Organism and Evolutionary Bio (*Team-taught – was responsible for 1/3)	1000	3	3*
BIOL2116 Principles of Microbiology	2000	3	7
BIOL2116 Principles of Microbiology - Laboratory	2000	-	2
BIOL2206 Principles of Biochemistry	2000	3	15
BIOL2557	2000	3	17

Genetics

BIOL2557 Genetics - Laboratory	2000	-	5
BIOL3557 Genetics & Society	3000	3	14
BIOL4557 Developmental & Behavioural Genetics	4000	3	15
BIOL4706 Literature Review (*Team-taught – was responsible for 1/6)	4000	3	3*
BIOL4886 Professional Internship	4000	3	9
BIOL4986 Directed Studies	4000	3	2
BIOL4995 Undergraduate Thesis	4000	6	66

Service

University Level

Date	Type	Participation	Committee
2021	Nursing Curriculum Committee	Member	
2019	Tenure & Promotion University Committee (TPU)	Member	
	Nipissing University Undergraduate Research Conference Moderator	Member	
2017	Student Appeals Committee	Member	
	Undergraduate Studies Committee	Member	
	Nipissing University Senate	Senator	
2016	Student Appeals Committee	Co-Chair	
	Undergraduate Studies Committee	Member	
	Nipissing University Senate	Senator	
2015	Undergraduate Studies Committee	Member	
	Nipissing University Senate	Senator	

2014	Bio-Safety Committee Undergraduate Studies Committee	Chair Member	
2013	Bio-Safety Committee Undergraduate Studies Committee	Chair Member	
2012	Bio-Safety Committee	Chair	
2011	Action Planning Committee #11 (STEM) Bio-Safety Committee	Co-Chair Chair	
2010	Bio-Safety Committee	Chair	
2009	Student Appeals Committee	Member	
2008	Faculty Review Committee Student Appeals Committee Selection Committee University Research Council	Member Member Member Member	Tenure Review Animal Care Tech
2007	University Research Council	Member	
2005	New Student Orientation Selection Committee	Advisor Member	Animal Care Tech
2004	Nipissing Up Close New Student Orientation Selection Committee	Participant Advisor Member	CRC Chair Biogeochemistry
2003	Ontario University Fair Nipissing Up Close New Student Orientation Selection Committee	Representative Participant Advisor Member	CRC Chair Biogeochemistry
2002	Ontario University Fair	Representative	

Department Level

Date	Type	Participation	Committee
2021	IQAP Review Response Committee	Member	Planning Committee

2014	IQAP Review Response Committee Nipissing/Canadore Joint Collaborative Biotech Committee	Member Member	Planning Committee
2013	Nipissing/Canadore Joint Collaborative Biotech Committee	Member	Planning Committee
2012	Nipissing/Canadore Joint Collaborative Biotech Committee	Member	Planning Committee
2011	Nipissing/Canadore Joint Collaborative Biotech Committee Selection Committee	Member Member	Planning Committee Biology Lab Instructor (Rossi)
2010	Selection Committee	Member	Laboratory Instructor (Mulligan)
2009	Undergraduate Thesis Coordinator Selection Committee	Coordinator Member	Biology Faculty (Mirza)
2008	Interim Chair, Biology Undergraduate Thesis Coordinator Selection Committee Selection Committee	Chair Coordinator Member Member	Chemistry Tech Chemistry Faculty (Jha)
2007	Undergraduate Thesis Coordinator	Coordinator	
2006	Undergraduate Thesis Coordinator	Coordinator	
2005	Undergraduate Thesis Coordinator Selection Committee	Coordinator Member	Laboratory Instructor (Dew)
2004	Undergraduate Thesis Coordinator Selection Committee Selection Committee	Coordinator Member Member	Chemistry Faculty (Kariuki) Biology Faculty (Cholewa)
2003	Selection Committee	Member	Analytical Technician

Selection Committee	Member	(Vadnais) Laboratory Instructor
Selection Committee	Member	(Currie) Laboratory Instructor
		(Vernescu/Irwin)

Provincial, National, and International Service

Date	Type	Participation	Committee
2013	College University Consortium Council Transfer Project	Member	Biotechnology Pathways
2012	College University Consortium Council Transfer Project	Member	Biotechnology Pathways

Professional Memberships

Canadian Genetics Society



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Protected when completed

Dr. Mukund Jha

Correspondence language: English

Contact Information

The primary information is denoted by (*)

Address

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Protected when completed

Dr. Mukund Jha

Language Skills

Language	Read	Write	Speak	Understand	Peer Review
English	Yes	Yes	Yes	Yes	Yes
French	No	No	No	No	No
Hindi	Yes	Yes	Yes	Yes	No

Degrees

- 2006/4 Doctorate, Organic Chemistry, University of Saskatchewan
Supervisors: Prof. M. Soledade C. Pedras, 2001/1 - 2006/2
- 2000/6 Master's non-Thesis, Organic Chemistry, University of Delhi
- 1998/6 Bachelor's, Chemistry, University of Delhi

Recognitions

- 2019/6 - 2020/5 Chancellors Award for Excellence in Research - 1,500
Nipissing University
Prize / Award
The purpose of the Award is to recognize and celebrate the value of research conducted by Nipissing University full-time faculty whose research makes a significant impact on their discipline or field.
- 2018/5 - 2019/4 Research Achievement Award - 5,000
Nipissing University
Prize / Award
The award is given to recognize meritorious research achievement and to enhance the research productivity and external reputation of full-time faculty members at Nipissing University.

User Profile

Research Specialization Keywords: antioxidants, bio-organic chemistry, chemical biology, enzyme inhibition, free-radical chemistry, heterocyclic compounds, natural product chemistry, organic chemistry, organic syntheses, synthetic methodologies

Employment

2016/7	Professor Biology and Chemistry, Nipissing University Full-time, Professor Tenure Status: Tenure Teaching and Research
2010/8	Adjunct Professor Chemistry, Acadia University Full-time, Adjunct, Professor Tenure Status: Tenure Research
2009/7	Adjunct Professor Chemistry, Laurentian University of Sudbury Full-time, Adjunct, Professor Tenure Status: Tenure Research
2012/7 - 2016/6	Associate Professor Biology and Chemistry, Nipissing University Full-time, Associate Professor Tenure Status: Tenure Teaching and Research
2008/7 - 2012/6	Assistant Professor Biology and Chemistry, Nipissing University Full-time, Assistant Professor Tenure Status: Tenure Track Teaching and Research
2006/2 - 2008/6	Postdoctoral Fellow Chemistry, Queen's University at Kingston Full-time Tenure Status: Non Tenure Track Research
2001/1 - 2006/2	Research Assistant Chemistry, University of Saskatchewan Part-time Tenure Status: Non Tenure Track Research
2001/1 - 2005/12	Teaching Assistant Chemistry, University of Saskatchewan Part-time Tenure Status: Non Tenure Track Teaching and supervising undergraduate teaching laboratory

Leaves of Absence and Impact on Research

2020/3 - 2020/11	Medical, Nipissing University I was unable to work during this period due to medical reasons

2020/3 - 2020/11

Special, Nipissing University

My research program is a lab based. COVID-19 pandemic has had a devastating impact on my research productivity this year as our university campus has been under complete lockdown since March 2020 until now. Research projects that were near completion could not be finished because of the abrupt closure. Data collection, completion of manuscripts for publications, conference presentations and training of HQP were severely affected. The campus closure also impeded the recruitment of new crop of students in my lab this year.

Research Funding History

Awarded [n=2]

2021/5 - 2026/4

Principal Applicant

Development of synthetic methodologies to access novel fused polycyclic frameworks, Grant

Funding Sources:

Natural Sciences and Engineering Research Council of Canada (NSERC)

Discovery Grant

Total Funding - 120,000

Portion of Funding Received - 0

Funding Competitive?: Yes

2017/6 - 2021/6

Principal Applicant

Analysis of small organic molecules, Grant

Funding Sources:

Canada Foundation for Innovation (CFI)

Total Funding - 623,385

Portion of Funding Received - 623,385

Funding Competitive?: Yes

Co-applicant : Justin Carre

Completed [n=6]

2015/5 - 2019/4

Principal Applicant

Synthesis of Novel Indole-based Heterocycles, Grant

Funding Sources:

Natural Sciences and Engineering Research Council of Canada (NSERC)

Discovery Grant Individual

Total Funding - 100,000

Portion of Funding Received - 100,000

Funding Competitive?: Yes

2018/2 - 2019/2

Principal Applicant

Northern Ontario Internship Program-Organic Analyst, Grant

Funding Sources:

Northern Ontario Heritage Fund Corporation (NOHFC) (ON)

Northern Ontario Internship Program

Total Funding - 30,000

Portion of Funding Received - 30,000

Funding Competitive?: Yes

2012/5 - 2017/4

Principal Investigator

Nipissing University Organic and Medicinal Chemistry Research Laboratory, Grant

Funding Sources:

Canada Foundation for Innovation (CFI)

Leaders Opportunity Fund

Total Funding - 304,411

Portion of Funding Received - 304,411

	Funding Competitive?: Yes
2013/11 - 2014/9 Principal Applicant	Antioxidant and Nutraceutical Potential of mushrooms from Northern Ontario Forests, Contract Funding Sources: Industrial Support Total Funding - 6,000 Portion of Funding Received - 6,000 Funding Competitive?: No
2011/11 - 2014/8 Co-investigator	Antioxidant and Nutraceutical Potential of Inonotus obliquus (Chaga) from Ontario Forests, Contract Funding Sources: Moon Bay Biologics Inc Industrial Support Total Funding - 8,000 Portion of Funding Received - 8,000 Funding Competitive?: No
2013/9 - 2014/8 Principal Investigator	Antioxidant and Nutraceutical Potential of mushrooms from Northern Ontario Forests, Grant Funding Sources: Industry Canada Northern Ontario Development Program Youth Internship Total Funding - 35,000 Portion of Funding Received - 35,000 Funding Competitive?: Yes

Student/Postdoctoral Supervision

Bachelor's [n=5]

2019/9 - 2020/4 Principal Supervisor	Samantha Lavallee (Completed) , Nipissing University Student Degree Expected Date: 2021/5 Thesis/Project Title: Hetero Diels-Alder reaction on indole-based enol-ethers Present Position: Graduate Student (MSc), Dalhousie University
2016/10 - 2017/4 Principal Supervisor	Meghan Boscombe (Completed) , Nipissing University Thesis/Project Title: Synthesis of various types of Balis-Hillman alcohols Present Position: Unknown
2016/5 - 2016/8 Co-Supervisor	Laura Hogg (Completed) , McMaster University Thesis/Project Title: Studies on inoculation of chaga under laboratory conditions (summer intern) Present Position: Unknown
2016/5 - 2016/8 Principal Supervisor	Vida Erfani (Completed) , University of Toronto Thesis/Project Title: Balis-Hillman reaction in indoline-2-thione Present Position: Undergraduate student, University of Toronto
2015/9 - 2016/8 Principal Supervisor	Erik Rapo (Completed) , Nipissing University Thesis/Project Title: Balis-Hillman reaction in indoline-2-thione Present Position: Graduate student (MSc), University of Ottawa

Bachelor's Honours [n=13]

2019/9 - 2020/4 Co-Supervisor	Tylar Edwards (Completed) , Nipissing University Thesis/Project Title: The Analysis of Antioxidant Activity from Extracts of <i>Fomitopsis pinicola</i> Present Position: Graduate Student (MSc), University of Manitoba
2018/9 - 2019/4 Principal Supervisor	Michelle O'Donnell (Completed) , Nipissing University Thesis/Project Title: LC-MS analysis of medicinal mushroom chaga Present Position: Graduate student (MSc), Western University
2017/9 - 2019/8 Principal Supervisor	Ryoga Hojo (Completed) , Nipissing University Thesis/Project Title: Cu-Catalyzed hydroamination of 2-(prop-2-yn-1-ylthio)-1 <i>H</i> -indole-3-carbaldehyde Present Position: Graduate student (PhD) - Hudson Group, University of British Columbia
2017/9 - 2018/5 Principal Supervisor	Morgan Jennings (Completed) , Nipissing University Thesis/Project Title: Antibacterial activity of mushroom extracts Present Position: Graduate Student (MSc), University of Ottawa
2017/9 - 2018/4 Principal Supervisor	Jennifer Tropiano (Completed) , Nipissing University Thesis/Project Title: Insecticidal properties of French Marigold Present Position: Graduate Student (MSc), McMaster University
2016/9 - 2018/8 Principal Supervisor	Spencer Short (Completed) , Nipissing University Thesis/Project Title: Cu-Catalyzed synthesis of indole disulfides Present Position: Graduate Student (MSc) - Pratt Group, University of Ottawa
2016/9 - 2017/4 Principal Supervisor	Benjamin Souriol (Completed) , Nipissing University Thesis/Project Title: Exploring the reactions of alcohols with indoline-2-thiones Present Position: Applied to Grad program in Bioproducts Discovery and Development Centre, University of Guelph
2016/1 - 2019/2 Principal Supervisor	Steven Rhodes (Completed) , Nipissing University Thesis/Project Title: Expedient synthesis of gamma-carbolines Present Position: Technician, Canadore College
2015/9 - 2016/4 Principal Supervisor	Brittney Gill (Completed) , Nipissing University Thesis/Project Title: Development of a GST Impaired Strain for Cytotoxicity Testing in <i>Drosophila</i> Present Position: Unknown
2015/5 - 2016/8 Principal Supervisor	Jordan Rydzik (Completed) , Nipissing University Thesis/Project Title: Development of Hetero-Diels Alder Reaction using 2-oxindole Present Position: Quality Assurance Specialist, Canopy Growth
2014/3 - 2015/12 Principal Supervisor	Julia Fazzari (Completed) , Nipissing University Thesis/Project Title: Study of the Reaction Between Indole-based Enol Ethers and Various Nucleophiles Present Position: PharmD, University of Waterloo
2012/9 - 2015/5 Principal Supervisor	Cody Butler (Completed) , Nipissing University Thesis/Project Title: Synthetic manipulations on indole nucleus Present Position: Lab Technician, Water Quality Centre, Trent University
2012/9 - 2014/1 Principal Supervisor	Jane Agnew (Completed) , Nipissing University Thesis/Project Title: Synthesis of cinchonine analogs Present Position: Business Owner

Master's Equivalent [n=1]

2013/11 - 2014/10 Connor Davis (Completed) , Nipissing University
 Principal Supervisor Thesis/Project Title: Antioxidant and Nutraceutical Potential of mushrooms from Northern Ontario Forests
 Present Position: Technician, Canadian Nuclear Laboratories

Master's Thesis [n=1]

2012/9 - 2016/2 Imane Meddah (Completed) , Nipissing University
 Co-Supervisor Thesis/Project Title: Identification & characterization of Ostariophysan alarm cue
 Present Position: Senior Telephone Interviewer, Statistics Canada

Doctorate [n=2]

2016/5 - 2019/9 Shiv Dhiman (Completed) , Birla Institute of Technology and Science
 Co-Supervisor Thesis/Project Title: Synthesis of quinolone and indole based herterocycles using C-H activation strategy
 Present Position: Postdoctoral Fellow, University of Manitoba

2012/7 - 2017/5 Ganesh M Shelke (Completed) , Birla Institute of Technology and Science
 Co-Supervisor Thesis/Project Title: Development of Synthetic Methods for Selected Indole-based Heterocyclic Compounds from Indole, Isatin and Indoleine-2-thione
 Present Position: R & D Manager, Tagoor Chemicals Pvt. Ltd.

Certificate [n=1]

2014/9 - 2015/4 Mario Vitali (Completed) , Canadore College
 Principal Supervisor Thesis/Project Title: Investigating chemical constituents of mushrooms from Northern Ontario
 Present Position: Business Owner

Research Associate [n=2]

2015/9 - 2016/1 Iman Ahmed (In Progress) , Nipissing University
 Principal Supervisor Student Degree Expected Date: 2021/5
 Thesis/Project Title: Application of Baylis Hillman reaction in synthesis of heterocycles
 Present Position: Undergraduate student at Western, Western University

2009/5 - 2015/4 Ashley Marcellus (In Progress) , Nipissing University
 Principal Supervisor Thesis/Project Title: NMR-based studies in organic synthesis
 Present Position: Technician at Nipissing University, Nipissing University

Event Administration

2019/6 - 2019/6 Chaired a Symposium, Organic Chemistry (General), 102nd Canadian Chemistry Conference and Exhibition, Conference, 2019/6 - 2019/6

International Collaboration Activities

2018/7 - 2023/7 Collaborator, United States
 Cytotoxicity evaluation of synthetic compounds: School of Pharmacy, Georgia Campus - Philadelphia College of Osteopathic Medicine

2018/5 - 2023/5 Collaborator, United States
 Anticancer assays: Department of Biology, University of North Georgia, GA, USA

2012/5 - 2022/4 Collaborator, India
Collaboration on Synthetic Chemistry related projects

Committee Memberships

2018/9 - 2020/8 Committee Member, Tenure and Promotion - University, Nipissing University
The committee reviews the tenure and promotion applications and makes recommendations to the Vice President Academic and Research

2012/9 - 2014/8 Committee Member, Faculty Review Committee, Nipissing University
The committee reviews the tenure and promotion applications and makes recommendations to the University Review Committee

Presentations

1. (2019). Synthesis of indole-fused polycycles. 102nd Canadian Chemistry Conference and Exhibition, Quebec, Canada
Main Audience: Researcher
Invited?: No, Keynote?: No
2. (2019). Synthesis of indole-fused S-containing heterocycles. 46th National Organic Chemistry Symposium, Indiana, United States
Main Audience: Researcher
Invited?: No, Keynote?: No
3. O'Donnell M. (2019). LC-MS analysis of medicinal mushroom chaga. 12th Annual Nipissing University Undergraduate Research Conference, North Bay, Canada
Main Audience: General Public
Invited?: No, Keynote?: No
4. Hojo R. (2019). Cu-Catalyzed hydroamination of 2-(prop-2-yn-1-ylthio)-1H-indole-3-carbaldehydes. 47th Southern Ontario Undergraduate Student Chemistry Conference, Toronto, Canada
Main Audience: Researcher
Invited?: No, Keynote?: No
5. (2019). Synthesis of indole-fused S-containing heterocycles. Seminar, Department of Chemistry, University of Saskatchewan, Saskatoon, Canada
Main Audience: Researcher
Invited?: Yes, Keynote?: No
6. R. Hojo. (2019). Synthesis of 3-methylene-2,3-dihydrothiazolo[3,2-a]indoles via a copper catalyzed hydroamination step. 12th Annual Nipissing University Undergraduate Research Conference, North Bay, Canada
Main Audience: General Public
Invited?: No, Keynote?: No
7. (2018). Synthesis of novel indole-annulated polycyclic heterocycles. Seminar, Department of Chemistry, Acadia University, Wolfville, Canada
Main Audience: Researcher
Invited?: Yes, Keynote?: No
8. Jennings M, Rossi L. (2018). Antibacterial Properties of Northern Ontario Yellow Birch Chaga (*Inonotus Obliquus*) extracts. 46th Ontario Biology Days Conference, Waterloo, Canada
Main Audience: Researcher
Invited?: No, Keynote?: No

9. Short S. (2018). Synthesis of indole-annulated S-containing polycycles. 46th Southern Ontario Undergraduate Student Chemistry Conference, Waterloo, Canada
Main Audience: Researcher
Invited?: No, Keynote?: No
10. Tropiano J, Lovett-Daust L. (2018). Biological and Chemical Properties of Marigold (*Tagetes Patula*). 11th Annual Nipissing University Undergraduate Research Conference, North Bay, Canada
Main Audience: General Public
Invited?: No, Keynote?: No
11. Rhodes S, Dhiman S. (2017). Cu-Catalyzed synthesis of α -carbolines using 2-bromo-3-formylindoles and phenylacetylenes. 10th Nipissing University Undergraduate Research Conference, North Bay, Canada
Main Audience: General Public
Invited?: No, Keynote?: No
12. Rhodes S, Dhiman S. (2017). Cu-Catalyzed one-pot atom economical synthesis of pyrido[4,3-b]indoles using 2-bromo-3-formylindoles and phenylacetylenes. 45th Southern Ontario Undergraduate Student Chemistry Conference, Toronto, Canada
Main Audience: Researcher
Invited?: No, Keynote?: No
13. (2017). Synthesis of Indole Heterocycles. Seminar, Department of Chemistry, Birla Institute of Technology and Science (BITS), Pilani, India
Main Audience: Researcher
Invited?: Yes, Keynote?: No
14. Rydzik J. (2016). Synthesis of Indole Annulated Thiopyrans Using Benzyl Alcohols. 99th Canadian Chemistry Conference and Exhibition, Halifax, Canada
Main Audience: Researcher
Invited?: No, Keynote?: No
15. (2015). Synthesis of Indole-fused Thiopyrans. 98th CCCE Conference, Ottawa, Canada
Main Audience: Researcher
Invited?: No, Keynote?: No
16. (2015). Synthetic Routes to Indole-fused Thiopyrans. 44th National Organic Chemistry Symposium, College Park, United States
Main Audience: Researcher
Invited?: No, Keynote?: No
17. (2015). My Adventures with Indole. Seminar, Department of Chemistry, Birla Institute of Technology and Science (BITS), Pilani, India
Main Audience: Researcher
Invited?: Yes, Keynote?: No
18. (2015). Synthesis of Indole-fused Thiopyrans. 98th Canadian Society for Chemistry conference, Ottawa, Canada
Main Audience: Researcher
Invited?: No, Keynote?: No
19. (2015). Synthetic Routes to Indole-fused Thiopyrans. 44th National Organic Chemistry Symposium, College Park, United States
Main Audience: Researcher
Invited?: No, Keynote?: No
20. (2014). Synthesis of Substituted Indoles. Guest Lecture, Sudbury, Canada
Main Audience: Researcher
Invited?: Yes, Keynote?: No

Broadcast Interviews

2016/02/08 - Chaga, un champignon thérapeutique, Documentary in French, TFO 24.7
2016/02/08

Text Interviews

2017/04/12 The Latest 'Superfood'? Hideous Mushrooms Called Chaga, The Walrus Magazine

Publications

Journal Articles

1. Short S,* Rhodes S,* Hojo R,* Bhawe V S, Jha M. (2019). Metal-free hydroamination of alkynes: A mild and concise synthesis of thiazolo[3,2-a]indoles. *Synthesis*. 51: 4263 - 4270.
Published
Refereed?: Yes, Open Access?: No
2. Rhodes S,* Short S,* Sharma S,* Kaur R, Jha M. (2019). One-pot mild and efficient synthesis of [1,3]thiazino[3,2-a]indol-4-ones and their anti-proliferative activity. *Organic & Biomolecular Chemistry*. 17: 3914-3920.
Published
Refereed?: Yes, Open Access?: No
3. Hojo R,* Short S,* Jha M. (2019). Synthesis of 1,2-fused tricyclic indoles via Cu-/base-mediated hydromaination of alkynes. *Journal of Organic Chemistry*. 84: 16095-16104.
Published
Refereed?: Yes, Open Access?: No
4. Dhiman S,* Nandwana N K, Saini H K, Kumar D, Rangan K, Robertson K, Jha M, Kumar A. (2018). Nickel-Catalyzed tandem cross-aldol/intramolecular direct arylation: A convenient route to pyrazolo[5,1-a]isoquinoline derivatives. *Advanced Synthesis & Catalysis*. 360: 1973-1983.
Published
Refereed?: Yes, Open Access?: No
5. Dhiman S,* Rhodes S,* Kumar D, Kumar A, Jha M. (2017). Copper-catalyzed tandem imine formation, Sonogashira Coupling and intramolecular hydroamination: A facile synthesis of 3-aryl-??carbolines. *ChemistrySelect*. 2: 8922-8926.
Accepted
Refereed?: Yes, Open Access?: No
6. Jha M, Dhiman S,* Cameron T S, Kumar D, Kumar A. (2017). Synthesis of thiopyrano[2,3-b]indoles featuring gold-mediated tandemrearrangement and hydroarylatio. *Organic Letters*.
Published
Refereed?: Yes, Open Access?: No
7. Shelke G M,* Jha M, Kumar A. (2016). Synthesis of indole-annulated sulfurheterocycles using copper catalyzed C-N coupling and palladium-catalyzed directarylation. *Organic and Biomolecular Chemistry*. 14: 3450-3458.
Published
Refereed?: Yes, Open Access?: No
8. Thigulla Y, Akula M, Trivedi P, Ghosh B, Jha M, Bhattacharya A. (2016). Synthesis and anti-cancer activity of 1,4-disubstituted imidazo[4,5-c]quinolines. *Organic & Biomolecular Chemistry*. 14: 876-883.
Published
Refereed?: Yes, Open Access?: No

9. Akula M, Yogeewari P, Sriram D, Jha M, Bhattacharya A. (2016). Synthesis and anti-tubercular activity of fused furo-/thieno-quinoline compounds. *RSC Advances*. 6: 46073-46080.
Published
Refereed?: Yes, Open Access?: No
10. Jha M, Shelke G M,* T.S. Cameron, Kumar A. (2015). Access to substituted dihydrothiopyrano[2,3-b]indoles via sequential rearrangements during S-alkylation and Au-catalyzed hydroarylation on indoline-2-thiones. *The Journal of Organic Chemistry*. 80: 5272-5270.
Published
Refereed?: Yes, Open Access?: No
11. Shelke G M,* Rao V K, Jha M, Cameron S T, Kumar A. (2015). Microwave assisted catalyst-free synthesis of substituted 1,2,4-triazoles. *Synlett*. 26: 404-407.
Published
Refereed?: Yes, Open Access?: No
12. Akula M, Thigulla Y, Davis C,* Jha M, Bhattacharya A. (2015). Synthesis of 4-substituted oxazolo[4,5-c]quinolines by direct reaction at C-4 position of oxazole. *Organic and Biomolecular Chemistry*. 13: 2600-2605.
Published
Refereed?: Yes, Open Access?: No
13. Rao V K, Shelke G M,* Ryan A,* Jha M, Kumar A. (2015). Iodine-mediated microwave assisted synthesis of 2-arylnaphthofurans via cyclization of 1-(1'-arylvinyl)-2-naphthols. *Synthesis*.
In Press
Refereed?: Yes
14. Jha M, Davis C,* Fazzari F,* Vitali M*. (2014). BF₃ Etherate-mediated microwave-assisted facile synthesis of thiopyrano[2,3-b]indol-2-one. *Tetrahedron Letters*. 55: 7043-7046.
Published
Refereed?: Yes, Open Access?: No
15. Muthyala M K, Choudhary S, Pandey K, Shelke G M,* Jha M, Kumar A. (2014). Synthesis of Ionic-Liquid-Supported Diaryliodonium Salts. *European Journal of Organic Chemistry*. 2014: 2365-2370.
Published
Refereed?: Yes, Open Access?: No
16. Jha M, Shelke G M,* Kumar A. (2014). Catalyst-free one-pot tandem reduction of oxo and ene/yne functionalities by hydrazine: Synthesis of substituted oxindoles from isatins. *European Journal of Organic Chemistry*. 2014: 3334-3336.
Published
Refereed?: Yes, Open Access?: No
17. Jha M, Edmunds M,* Lund K,* Ryan A*. (2014). A new route to the versatile synthesis of thiopyrano[2,3-b:6,5-b']diindoles via 2-(alkylthio)-indole-3-carbaldehydes. *Tetrahedron Letters*. 55: 5691-5694.
Published
Refereed?: Yes, Open Access?: No
18. Jha M, Shelke G M,* Pericherla K, Kumar A. (2014). Microwave assisted copper triflate-catalyzed rapid hydration of aryl acetylenes. *Tetrahedron Letters*. 55: 4814-4816.
Published
Refereed?: Yes, Open Access?: No

CURRICULUM VITAE

NAME: STEPHEN KARIUKI

PRESENT RANK AND CATEGORY: Associate Professor of Chemistry (Tenured), Biology and Chemistry Department, North Bay, Ontario

A. ACADEMIC AND PROFESSIONAL QUALIFICATIONS

1. Academic Background:

<u>Year</u>	<u>Degree Received</u>	<u>Institution and Address</u>
1998	PhD Chemistry	Ohio University, Athens Ohio, USA
1988	MSc Chemistry	Nairobi University, Nairobi, Kenya
1983	B.Ed. Science	Nairobi University, Nairobi, Kenya

2. Professional Certification

<u>Year</u>	<u>Certification Received</u>	<u>Awarding Agency and Address</u>
1983	Teaching Certificate	Teacher's Service Commission, Nairobi, Kenya

3. Previous Academic Appointments

<u>Year of Appointment</u>	<u>Limited Term, Probationary or Tenures</u>	<u>Rank of Appointment</u>	<u>Category (if Applicable)</u>	<u>Institution and Address</u>
2009 - present	Tenured	Associate Professor	Chemistry	Nipissing University, North Bay, ON
2004 - 2009	Tenure-track	Assistant Professor	Chemistry	Nipissing University, North Bay, ON
2003-2004	Limited Term	Assistant Professor	Chemistry	Nipissing University, North Bay, ON
2002-2003	Limited Term	Assistant Professor	Chemistry	Northern Michigan University, Marquette, Michigan, USA
2001-2002	Limited Term	Assistant Professor	Chemistry	Augustana University College, Camrose, Alberta

4. Academic, University and Professional Awards

<u>Year</u>	<u>Award Received</u>	<u>Awarding Agency or Institution and Address</u>
1998	Postdoctoral Fellowship	Department of Plants and Soil, University of Idaho, Moscow, Idaho, USA
1998	Condensed Matter and Surface Sciences Studentship	Ohio University, Athens, Ohio, USA
1997	Department of Chemistry Outstanding Research Award	Ohio University, Athens, Ohio, USA
1996	College of Arts and Sciences Outstanding Teaching Assistant Award	Ohio University, Athens, Ohio, USA

B. TEACHING AND RELATED EXPERIENCE

1. Full-time University Teaching and Related Experience:

<u>Initial Year of Service</u>	<u>Final Year of Service</u>	<u>Rank, Department and Faculty</u>	<u>Institution and Address</u>
2009	present	Associate Professor of Chemistry, Department of Biology & Chemistry, Faculty of Arts and Science	Nipissing University, North Bay, Ontario
2004	2009	Assistant Professor of Chemistry, Department of Biology, Faculty of Arts and Science	Nipissing University, North Bay, Ontario
2003	2004	Assistant Professor of Chemistry, (<i>limited term</i>) Department of Biology, Faculty of Arts and Science	Nipissing University, North Bay, Ontario
2002	2003	Assistant Professor of Chemistry, Department of Chemistry, Faculty of Science	Northern Michigan University, Marquette, Michigan, USA
2001	2002	Assistant Professor of Chemistry, Department of Biological Sciences	Augustana University College, Camrose, Alberta

2. Courses Prepared and Taught

a. At Nipissing University

<u>Course Title</u>	<u>Course Level</u>	<u>Course Number</u>	<u>Number of Times Taught</u>
Chemical Approaches to Air and Water Pollutants	Graduate	ENST 5656	4
Environmental Analytical Chemistry	Undergraduate	CHEM 2046	8
General Chemistry I	Undergraduate	CHEM 1006	9

General Chemistry II	Undergraduate	CHEM 1007	8
General Chemistry (6 Cr.)	B.Sc.	CHEM 1005	8
Analytical Chemistry I (3 Cr.)	B.Sc.	CHEM 2106	16
Analytical Chemistry II (3 Cr.)	B.Sc.	CHEM 2206	5
Instrumental Analysis (3 Cr.)	B.Sc.	CHEM 3017	8
Electrochemistry	B.Sc.	CHEM 4206	2

b. At Other Institutions

<u>Course Title</u>	<u>Course Level</u>	<u>Institution</u>	<u>Number of Times Taught</u>
Atomic Absorption, Flame Emission, and UV/Vis Spectrometry	B.Sc. and M.Sc.	Northern Michigan University	1
Gas and Liquid Chromatography	B.Sc. and M.Sc.	Northern Michigan University	1
Environmental Science	B.Sc.	Northern Michigan University	1
Chemical Equilibria	B.Sc.	Northern Michigan University	2
Quantitative Analysis	B.Sc.	Northern Michigan University	2
General Chemistry I	B.Sc.	Northern Michigan University	1
General Chemistry II	B.Sc.	Northern Michigan University	1
Analytical Chemistry I	B.Sc.	Augustana University College	1
General Chemistry I	B.Sc.	Augustana University College	1
General Chemistry II	B.Sc.	Augustana University College	1

C. SCHOLARLY ACTIVITIES

1. Scholarly and/or Professional Works:

a) Articles in Referred Contribution:

Year of Published Work	Reference	Type of publication

2019	Roscoe, S., Kariuki, S., “The Novel Application of the Electro-Fenton Reaction for the Extraction of Copper and Iron from Chalcopyrite”, <i>JARG</i> , 2019, Volume 11, Issue 27, pp. 10-19.	Referred Article
2018	Janes, C., Kariuki, S., “ <i>Acidithiobacillus ferrooxidans</i> in bioleaching of sphalerite”, <i>JAGR</i> , 2018 , Volume 11, Issue 25, pp. 65-74.	Referred Article
2015	Klodnicki, D., Kariuki, S., “Sources of Metal Contaminants in Water and Aquatic Sediments: A Review”, <i>JAGR</i> , 2015 , Volume 8, Issue 21, pp. 40-55.	Referred Article
2014	S. Kariuki, L. Hagan, A. Treleaven, “Impact of chloride ion in recovery of gold from a gold-containing ore”, <i>JAGR</i> , 2014 , Volume 7, Issue 19, pp. 12-23	Referred Article
2013	S. Kariuki, J. Salabie, B. Sigouin, “Impact of temperature, oxidant-concentration, and reaction time to the leaching of a pure sample of zinc sulphide”, <i>JAGR</i> , 2013 , Volume 6, Issue 16, pp. 44-54	Referred Article
2012	S. Kariuki, M. Edmunds, B. Sigouin, “Influence of temperature and acidity on dissolution of zinc-concentrate ores”, <i>JAGR</i> , 2012 , 5(12), 24-32	Referred Article
2010	S. Kariuki and K. Caruso, “Influences of agricultural activities and soil nitrate-adsorption to the levels of nitrate in Veuve river, Ontario Canada”, <i>JAGR</i> , 2010 , 3(2), 1-11	Referred Article
2009	S. Kariuki, C.M. Simpson, and A.M. McDonald, “Chlorate-based oxidative hydrometallurgical extraction of copper and zinc from copper concentrate sulfide ores using mild acidic conditions”, <i>Hydrometallurgy</i> , 2009 , 96, 72–76	Referred Article
2008	S. Kariuki, P. Babady-Bila, and B. Duquette, “N,N-Diethyl-p-phenylenediamine effectiveness in analysis of polysulfides and polythionates in water”, <i>Environ. Chem.</i> , 2008 , 5, 226-230	Refereed Article
2008	S. Kariuki, C.M. Simpson and A.M. McDonald, “The role of oxidizing agents in hydrometallurgical extraction of sulfur-based minerals from low-grade ores containing large proportions of iron”, <i>JAGR</i> , 2008 , 1(2), 6-13	Referred Article
2001	S. Kariuki, M.J. Morra, K.J. Umiker, and I.F. Cheng, “Analysis of ionic Polysulfides by Differential Pulse Polarography”, <i>Anal. Chim. Acta</i> , 2001 , 442, 277-285	Refereed Article
2000	M. Zhao, S. Kariuki, H.D. Dewald, F.R. Lemke, R.J. Staniewicz, E.J. Plichta, R.A. Marsh, “Electrochemical stability of copper in lithium-ion-battery electrolytes”, <i>J. Electrochem. Soc.</i> , 2000 , 147 (8), 2874-9	Refereed Article
2000	S. Kariuki, H.D. Dewald, J. Thomas, R.W. Rollins, “Current	Refereed

	Oscillations of Indium(III) at a Dropping Mercury Electrode”, <i>J. Electroanal. Chem.</i> , 2000 , 486(2), 175-180.	Article
1998	S. Kariuki, H.D. Dewald “Current Oscillations in the Reduction of Indium(III) and Gallium(III) in Dilute Chloride and Nitrate Solutions at the Dropping Mercury Electrode”, <i>Electrochim. Acta</i> , 1998 , 43(7), 701-4	Refereed Article
1997	S. Kariuki, H.D. Dewald, “Polarographic Determination of Diffusion Coefficient Values of In(III) in Potassium Chloride and Nitrate Supporting Electrolytes”, <i>Talanta</i> , 1997 , 44(10), 1765-71	Refereed Article
1997	S. Kariuki, H.D. Dewald, “Diffusion Coefficients of Gallium(III) in KNO ₃ and KCl Supporting Electrolytes”, <i>Electroanalysis</i> , 1997 , 9, 231-4	Refereed Article

b) Other Refereed contributions:

Year of Published Work	Reference	Type of publication
2017	C. Janes and S. Kariuki, “Effectiveness of bioleaching of a sulphur-containing ore by acidithiobacillus ferrooxidans”, <i>Intellectbase International Consortium peer-reviewed conference proceedings, Volume 51</i> , October 20-21, 2017 , pp. 1, Atlanta, GA, USA	Referred Article (Conference Proceeding)
2014	D. Klodinki and S. Kariuki, “Sources of metal contaminants in water and aquatic sediments: A review”, <i>Intellectbase International Consortium peer-reviewed conference proceedings, Volume 37</i> , Las Vegas, NV, USA, December 17-19, 2014 , pp. 195-205	Referred Article (Conference Proceeding)
2013	S. Kariuki, L. Hagan and A. Treleaven, “Impact of chloride ion in recovery of gold from a gold-containing ore”, <i>Intellectbase International Consortium peer-reviewed conference proceedings, Volume 31</i> , Las Vegas, NV, USA, December 17-20, 2013 , pp. 311-319	Referred Article (Conference Proceeding)
2012	S. Kariuki, J. Salabie and B. Sigouin, Kinetics in leaching of zinc sulphide under acidic conditions”, <i>Intellectbase International Consortium peer-reviewed conference proceedings, Volume 25</i> , Las Vegas, NV, USA, December 13-15, 2012 , pp. 318-325	Referred Article (Conference Proceeding)
2011	S. Kariuki, M. Edmunds, B. Sigouin, and J. Salabie, “Presence of zinc sulphide in zinc-ore concentrates”, <i>Intellectbase International Consortium peer-reviewed conference proceedings, Volume 20</i> , Las Vegas, NV, USA, December 15-17, 2011 , pp. 235-240	Referred Article (Conference Proceeding)
2009	S. Kariuki and M. Edwards, “Current Methods for the Trace Analysis of phenoxy Acid, Triazine and Phenyl Urea Herbicides in Water”, <i>Intellectbase International Consortium peer-reviewed conference proceedings, Volume 7</i> , Atlanta, GA, USA, October 15-17, 2009 , pp. 199-203	Referred Article (Conference Proceeding)

2009	S. Kariuki, M. Edwards, and R A-Muhong, "Role of solid phase extraction (SPE) in the analysis of herbicides in water", <i>JAGR</i> , 2009 , 2(4), 70-78 A review	Referred Review Article
2008	S. Kariuki and J. Drouin , "Analysis of commonly used antibiotics in aqueous samples: a review", <i>Intellectbase International Consortium peer-reviewed conference proceedings, Volume 3</i> , Atlanta, GA, USA, October 9-12, 2008 , pp. 58-65	Referred Article (Conference Proceeding)
2008	S. Kariuki, C.M. Simpson , and A.M. McDonald, "Hydrometallurgical Extraction of Copper and Zinc from Low-Grade Ores Containing High Iron Concentration", <i>Intellectbase International Consortium peer-reviewed conference proceedings, Volume 2</i> , Nashville, TN, USA, May 28-30, 2008 , pp. 278-282	Referred Article (Conference Proceeding)
2008	S. Kariuki, J. Drouin, "Analysis of commonly used antibiotics in aqueous samples: A review". <i>International Journal of Social Health Information Management (IJSHIM)</i> , 2008 , 1(2), 1-11	Referred Review Article
1996	S. Kariuki, H.D. Dewald, "Evaluation of Diffusion Coefficients of Metallic Ions in Aqueous Solutions", <i>Electroanalysis</i> , 1996 , 8, 307-13	Refereed Review Article

c) Non-referred contributions

Year of Published Work	Reference	Type of publication
2017	S. Kariuki and C. Jones, Effectiveness of bioleaching of a sulphur-containing ore by acidithiobacillus ferrooxidans, <i>Intellectbase International Consortium conference (Abstract: Vol. 51, pp. 1)</i> , Atlanta, Georgia, USA	Talk
2016	S. Kariuki and M. Latham, Hydrometallurgy of zinc from sphalerite by Electro-Fenton Reaction, 99 th Canadian Chemistry Conference and Exhibition, Halifax, NS, 5 th – 9 th June, 2016, 2016	Poster presentation
2015	S. Kariuki, A. Ryan, and J. McLarren, "Spectrophotometric analysis of sulfide (S^{2-}) and thiosulfate ($S_2O_3^{2-}$) ions in water using the ethylene blue method", <i>Intellectbase International Consortium conference (Abstract: Vol. 44, pp.30)</i> , Las Vegas, Nevada, USA	Talk
2015	R. Roscoe and S. Kariuki, "Hydrometallurgy and the Electrofenton Reaction", 98 th Canadian Chemistry Conference and Exhibition, Ottawa, Ontario, 13 th – 17 th June, 2015	Poster presentation
2015	R. Roscoe and S. Kariuki, "The Novel Application of the Electro-Fenton Reaction to Hydrometallurgical Extraction of Copper", 43 rd Southern Ontario Undergraduate Student Chemistry Conference, University of Toronto Mississauga (UTM), March 21 st 2015	Poster presentation
2015	R. Roscoe and S. Kariuki, "The Novel Application of the Electro-Fenton	Poster

	Reaction to Hydrometallurgical extraction of Copper”, “8 th Annual Nipissing University Undergraduate Conference, 6 th -7 th March, 2015	presentation
2015	C. Peart and S. Kariuki, “Total Phosphorus Analysis on the Veuve River: The Impact of Agriculture”, 8 th Annual Nipissing University Undergraduate Conference, 6 th -7 th March, 2015	Poster presentation
2014	D. Klodinki and S. Kariuki, “Sources of metal contaminants in water and aquatic sediments: A review”, <i>Intellectbase International Consortium peer-reviewed conference proceedings, Volume 37</i> , Las Vegas, NV, USA, December 17-19, 2014 , pp. 195-205	Talk
2014	L. Hagan and S. Kariuki, “Leaching of a gold-containing ore with chlorate solutions”, 42 nd Southern Ontario Undergraduate Student Chemistry Conference, University of Windsor, March 29 th 2014	Poster presentation
2013	W. Sogbein and S. Kariuki, “Removal of metal toxins from mining and other industrial wastewaters using processed peat and mined zeolite”, 96 th Canadian Chemistry Conference and Exhibition, Quebec City, Quebec, 26 th – 30 th May, 2013	Poster presentation
2012	S. Kariuki and B. Sigouin, “Influence of oxychlorides on the leaching of zinc-ore concentrates”, 95 th Canadian Chemistry Conference and Exhibition, Calgary, Alberta, 26 th – 30 th May, 2012	Poster Presentation
2011	S. Kariuki, M. Edmunds and D. Blanchard, “Leaching strength of chlorine oxoacids in the hydrometallurgical processes of metal ores such as chalcopyrite”, 94 th Canadian Chemistry Conference and Exhibition, Montréal, Quebec, 5 th – 9 th June, 2011	Poster Presentation
2010	S. Kariuki and K. Caruso, “Reliability of the Methods used for the Analysis of Nitrate in Water, Specifically by use of the Titanium (III) Reduction Method”, 93rd Canadian Chemistry Conference and Exhibition (CSC 2010), Toronto, ON, 29th May – 2nd June, 2010	Poster Presentation
2009	S. Kariuki and R. Babady, Determination of Reduced Sulphur Compounds in Water by High-Performance Liquid Chromatography of N,N-Diethyl-p-phenylenediamine Derivatives, 92nd Canadian Chemistry Conference and Exhibition (CSC 2009), Hamilton, ON, 30th – 3rd June, 2009	Poster Presentation
2008	Duquette B., Kariuki S. and Babady-Bila P., Effectiveness of p-diethylphenyldiamine in the determination of odor-causing sulfur compounds in water, Northern Health Research Conference (Third Annual Conference), North Bay, Ontario, 30th-31st May, 2008	Poster Presentation
2008	Kariuki S., Babady-Bila P. and Drouin J., The usefulness of p-dialkylphenylenediamine compounds in the analysis of inorganic sulfides, polysulfides, thiosulfate, polythionates, and other sulfur compounds likely to be found in water, 91st Canadian Chemistry Conference and Exhibition (CSC 2008), Edmonton, Alberta, 24th – 28th May, 2008	Poster Presentation
2006	Kariuki S. and Moore C., Influence of temperature, pressure, pH, and oxidizing agents on the hydrometallurgical processes for the treatment of copper and zinc from their sulfide-based ores, 89th Canadian Chemistry Conference, Saskatoon, Saskatchewan, 27th-31st May, 2006	Poster Presentation

2005	Kariuki S. and Moore C., Selective Leaching and Dissolution of Metals Contained in Major Sulfide-based Ores by Use of Oxidizing Agents under Controlled Acidic Conditions, The 88th Canadian Chemistry Conference, Saskatoon, Saskatchewan, 28th May-1st June, 2005	Poster Presentation
2000	Kariuki S. and Morra M., Determination of ionic polysulfides in the presence of other sulphur species by differential pulse polarography, Pittsburgh Conference, New Orleans, Louisiana, March 21, 2000	Talk
1997	Kariuki S. and Dewald H., Electrochemical oscillations of indium(III) in nitrate and chloride solutions, The 24th Annual Conference of the Federation of Analytical Chemistry and Spectroscopy Societies (FACSS), Providence, RI, October, 1997	Talk
1997	Kariuki S. and Dewald H., Electrochemical oscillations of gallium(III) and indium(III) at a dropping mercury electrode, Pittsburgh Conference, Atlanta, Georgia, March, 1997	Talk
1995	Kariuki S. and Dewald H., Evaluation of diffusion coefficients of In(III) and Ga(III) ions in aqueous solutions, 22nd Annual Conference of the Federation of Analytical Chemistry and Spectroscopy Societies (FACSS), Cincinnati, OH, October, 1995	Poster Presentation

2. Research Grants/Awards:

<u>Year Received</u>	<u>Value of Grant</u>	<u>Title of Proposal</u>	<u>Granting Agency or Institution</u>
2015	\$25,000	Efficient extraction of precious metals and base metals from their respective ores using an environmentally friendly leaching process	NSERC Engage Plus Grant: \$12,500; Harrison Environmental Services Inc. (company partner): \$12,500
2013	\$38,999	Efficient extraction of precious metals and base metals from their respective ores using an environmentally friendly leaching process	NSERC Engage Grant: \$24,999; Harrison Environmental Services Inc. (company partner): \$14,000
2010	\$5000 (Award)	Study of antibiotics that leach from cow-manure into River Veuve	Nipissing University Achievement Research Award
2007-2012	\$92,500	Study of inorganic and organic sulphur-based compounds on the quality of water	NSERC Discovery Grant (spread over 5 years)
2007	\$39,793	Equipment supporting the study of inorganic and organic sulphur-based compounds on the quality of water	NSERC Research Tools and Instruments

2006	\$5,000	Determination of polysulfide compounds found in various drinking water distribution systems	Nipissing University Internal Grant
2004	\$30,077	An alternative method of extracting minerals, specifically silicon from mined ores	Ontario Centres for Excellence (OCE)
2004	\$5,970	Determination of polysulfide compounds found in various drinking water distribution systems	Nipissing University Start-up Grant

3. Scholarly Research in Progress

<u>Nature of Project</u>	<u>Current Status of Project</u>
Bioleaching of metallic ores by use of the <i>Acidithiobacillus ferrooxidans</i> microorganisms	In progress
Development of an environmentally friendly hydrometallurgical method for processing of mineral ores	In progress
How the reduced sulphur-based compounds influence the formation of the organic sulphur compounds which result in the offensive odours found in anoxic waters	In progress
Synthesis of N,N-dialkyl-p-phenylenediamine compounds for analysis of sulphur compounds in water	In progress
Analysis of antibiotics, phosphorus, and nitrates in rivers that feed into Lake Nipissing	In progress

D. SERVICE TO THE UNIVERSITY OTHER THAN TEACHING

<u>Year(s)</u>	<u>Nature of Service</u>	<u>Level of Involvement (Chair, Member, etc.)</u>
2021	Nipissing University Institutional Quality Assurance Process (IQAP) for the Department of Biology and Chemistry	Member
2017-2020	Camilla Arbour committee for her MESC Thesis project entitled "Freshwater Ecosystem Health in the Upper Ottawa River near Temiscaming, Quebec"	Member
2017-2019	Douglas Chase committee for his MESC Thesis project entitled "Patterns of contaminant distribution in Lake Nipissing"	Member
2015-present	Honours Specialization and Specialization in Environmental Chemistry (Proposal Stage 1 approved and now Proposal Stage 2 in progress)	Heading preparation of the documents
2012-2017	MESC (Masters in Environmental Science) committee for Ashley Ryan here at Nipissing University. Thesis title:	Supervisor

Efficiency of electroanalytical-based sensors for the analysis of sulfur containing compounds in water.

2015-2017	Tenure and Promotion University Committee (TPU)	Member
2013-2015	Students Appeal Committee	Member
2014	Hiring Committee for chemistry lab instructor (<i>Kandasamy</i>)	Member
2013-14	Academic Regulations and Curriculum Committee (ARCC)	Member
2013	Hiring Committee for chemistry and biology technologist (<i>Sarah</i>)	Member
2012-2013	Admissions & Enrolment Subcommittee of the Planning & Priorities Committee 2012-2013	Member
2012-2013	MESc (Masters in Environmental Science) committee for Nathan Mountain here at Nipissing University. Thesis title: EMMA Analysis of Isotopic and Geochemical Tracer Contribution in Wasi Watershed Stream Flow	Member
2012-2013	MESc (Masters in Environmental Science) committee for Wale Sogbein here at Nipissing University. MRP title: Investigating the removal of dissolved heavy metals from industrial wastewaters using processed-peat and mined zeolite.	Supervisor
2011-2012	MacKenzie King Scholarship Selection Committee	Member
2010-2011	Student Appeals Senate Committee	Member
2009-2010	University Senate	Member
2009-2010	Programs Reviews and Appraisals Subcommittee	Member
2008-2009	Senate Academic Planning Committee (APC)	Member
2008	Hiring Committee for Canada Research Chair (Tire 2)	Member
2005-2011	Right of First Refusal Committee	Member
2005-2007	Appeals Committee for Ethics	Member
2004-2008	University Senate	Member
2008	Hiring Committee for tenure-track Organic Chemistry Instructor	Member
2008	Hiring Committee for CAF (Central Analytical Facility) Peter Yao replacement	Member
2008	Hiring Committee for Chemistry Lab Instructor (Paul's temporary replacement)	Chair
2007	Hiring Committee for Chemistry Lab Instructor	Member
2007	Hiring Committee for 3 rd Chemistry Technologist (Paul)	Member
2006	Hiring Committee for the 2 nd Chemistry Technologist (Michelle)	Chair

2006	Hiring Committee for the 1 st Chemistry Technologist (Monica)	Chair
2004-Present	Nipissing University Faculty Association	Member
2004-Present	Faculty Council (Arts and Science)	Member

E. SERVICE TO THE COMMUNITY-AT-LARGE

a) Related to Area(s) of Professional Expertise:

<u>Year(s)</u>	<u>Nature of Service</u>	<u>Level of Involvement (Chair, Member, etc.)</u>
2019	North Bay Regional Science Fair Judge for Grades 7-12 projects	Judge
2018	North Bay Regional Science Fair Judge for Grades 7-12 projects	Judge
2018	11th Nipissing University Annual Undergraduate Research Conference (UGRC)	Judge
2017	North Bay Regional Science Fair Judge for Grades 7-12 projects	Judge
2016	North Bay Regional Science Fair Judge for Grades 7-12 projects	Judge
2015	North Bay Regional Science Fair Judge for Grades 7-12 projects	Judge
2014	North Bay Regional Science Fair Judge for Grades 7-12 projects	Judge
2013	North Bay Regional Science Fair Judge for Grades 7-12 projects	Judge
2012	MSc Thesis Committee for Josée Bertrand MSc Thesis entitled: Synthesis of mosquito oviposition pheromone analogues and the control of culex restuans/piapiens species.	External Examiner
2012	North Bay Regional Science Fair Judge for Grades 7-12 projects	Judge
2011	A \$100,000 American Chemical Society (ACS) Grant Review concerning "effect of sulphide, sulphite and photoproducts on the generation of hydrogen by visible light using CdS based photocatalysts"	Reviewer
2011	North Bay Regional Science Fair Judge for Grades 7-12 projects	Judge

2010	North Bay Regional Science Fair Judge for Grades 7-12 projects	Judge
2009	North Bay Regional Science Fair Judge for Grades 7-12 projects	Judge
2008	North Bay Regional Science Fair Judge for Grades 7-12 projects	Judge
2007	North Bay Regional Science Fair Judge for Grades 7-12 projects	Judge
2006	North Bay Regional Science Fair Judge for Grades 7-12 projects	Judge

b) Not Related to Area(s) of Professional Expertise

<u>Year(s)</u>	<u>Nature of Service</u>	<u>Level of Involvement (Chair, Member, etc.)</u>
2007-2017	North Bay Food Bank	Advisor
2003-2017	International Connections, North Bay	Member
2005	Canadian Cancer Society's Relay for Life	Volunteer
2005	North Bay Youth Soccer	Assistant Couch for Soccer

F. OTHER RELEVANT INFORMATION

Professional Affiliations:

<u>Year(s)</u>	<u>Nature of Service</u>	<u>Level of Involvement (Chair, Member, etc.)</u>
2003-Present	Canadian Society for Chemistry	Member
2000-2004	American Chemical Society	Member

Graduate Students Committees:

2013	M.Sc. Chemistry External Examiner for Josee Bertrand of Laurentian University. Thesis title: Synthesis of Mosquito Oviposition Pheromone analogues and the control of culex restuans/piapiens species	External Examiner

MOST SIGNIFICANT CONTRIBUTIONS TO RESEARCH AND/OR TO PRACTICAL APPLICATIONS

Analysis of polysulphides and polythionates in water: The importance of hydrogen sulphide as well as some of the reduced sulphur species such as polysulphides as environmental pollutants

is a result of their toxicity, unpleasant odour, and their reactivity with metals and metallic ions found in various environmental samples. Although known to be popular, the effectiveness of *N,N*-diethyl-*p*-phenylenediamine and other related compounds in the spectrophotometric analysis of such sulphur compounds in water as well as in other environmental samples has not been fully investigated. Our lab performed this investigation spectrophotometrically using *N,N*-diethyl-*p*-phenylenediamine. Our findings show that although the quantification of simple sulphides in the environmental samples may be easily accomplished spectrophotometrically by using *N,N*-diethyl-*p*-phenylenediamine, the level of difficulty in analysing such compounds may increase with their increasing sulphur chain. Specifically, we found that sulphate, sulphite, and other long chain polysulphides and polythionates are not reduced by chromium II. The results of our work have been published in the journal “Environmental Chemistry” (*Environ. Chem.*, **2008**, 5, 226-230). Further work has continued on this project. Our results indicate that even at temperatures of 100 °C, sulphate is not reduced sufficiently by Cr^{2+} . These results are very significant for water and sediment analysis. This work was published in a journal with a good rating. In addition, I have had inquiries from other labs on how they could use my work to further their research agenda.

Extraction of minerals metallurgically: My lab investigated the ability of chlorate in light of other oxidizing agents to leach minerals from their sulphur-based ores. Specifically, we investigated how chlorate can facilitate the leaching of copper, zinc, and iron from a copper concentrate, from mining wastes and from low-grade ores. The chlorate ion oxidizes the sulphide in the sulphur-based ore to either elemental sulphur (S^0), to sulphate (SO_4^{2-}) or to other sulphur compounds with intermediate oxidation states. The method that we developed is an example of a hydrometallurgical process. The traditional process used for the extraction of metals from their ores is pyrometallurgy. In the latter process, the sulphur oxide gases may easily be emitted to the environment, unless extreme care is taken to contain them. In the hydrometallurgical method that we developed, the chlorate ion is reduced to chloride (Cl^-) while most of the sulphide tied up in the ore is oxidized into sulphate. The chloride and the sulphate ions when disposed of, are much friendlier to the environment than sulphur oxide gases are. In addition, the reactions that we investigated were carried out under mild acidic conditions. Any solutions that may therefore become disposed off at the end of the hydrometallurgical extraction would not require as much base for neutralization of the acids as is the case with some other processes that use strong acids for the processing of minerals. The results thus far obtained, indicate a great potential for the mining of metals without necessarily using the traditional smelting procedures, most of which are generally not environmentally friendly. Factors such as choice of the oxidant and pH control have been important in this study. The method developed is being investigated further for its potential in large scale extraction processes. Our results in this area of study have been published in two journals: *Hydrometallurgy*, **96** (2009) 72–76 and *Journal of Applied Global Research (JAGR)*, **2008**, 1(2), 6-13. The results of these findings are at the moment being explored by a local mining company for possible commercialization.

3. Contribution to the Training of Personnel

Over the past nine years, I have had the opportunity of training two graduate students and several undergraduate research assistants. Wale Sogbein is one of the graduate students that I supervised in his research towards Masters in Environmental Science program offered here at Nipissing University. He worked on a project involving ways of removal of metallic based toxins from industrial wastewaters using processed peat and mined zeolite. Wale graduated in 2013. Ashley Ryan is working on the development of an electroanalytical technique for analysis of sulphur compounds with low oxidation states. She is enrolled in a Masters Degree program in environmental science.

Matthew Edwards (2007-2009), a former NSERC-USRA holder in my lab has been the highlight of the HQP students that I have trained. Even though he was pursuing a biology degree here at Nipissing University, the training that he acquired from my lab prepared him for MSc studies in chemistry. He has now successfully graduated in MSc in chemistry. And, at the moment, Matt is pursuing a PhD program in chemistry at the University of Waterloo. Jennifer Drouin (2007-2009), also a former NSERC USRA holder in my lab ended up at Laurentian University where she successfully graduated with an MSc (thesis option) in biology. Breanna (2007), a student assistant researcher has had an outstanding contribution in my lab. She analyzed sulphur-compounds in Lake Nipissing water samples, spectrophotometrically. Her work has already been published at the *Environmental Chemistry* journal as a refereed article. Breanna was able to get the NSERC-USRA in the summer of 2007 which allowed her to accomplish much research in my lab. Breanna has now graduated with a bachelor's degree in biology with honours. Cory is one of the students that I trained from 2004 to 2007. Cory was trained in performing wet-lab experiments. He was mainly analyzing metallic ions using an atomic absorption spectrometry (AAS). Cory has co-authored two conference presentations at the 88th and the 89th CSC conferences. He has also co-authored with me a refereed article at the "*Hydrometallurgy*" journal. He is now a registered nurse in the province of Ontario.

Cody Janes (2016-present) is working on the bioleaching of sulfur-containing ores. Mark Latham (2015-2016) is working on leaching of sphalerite using the electro Fenton reaction for his 4th year thesis. Jeffry McLaren (2015) worked on the hydrometallurgy of gold from gold ores. He is now registered in the Medical School at Laurentian University. Scott Roscoe (2014-2015) worked on hydrometallurgy and the electro Fenton reaction. Scott is now graduated with a Honours Biology degree and is now pursuing a Masters degree in Science at the University of Windsor. Lyndsey Hagan (2013-2014) is now graduated with a biology degree worked on the leaching of a gold-containing ore with chlorate solutions. Bryce Sigouin (2011-2014) worked on hydrometallurgy and low-oxidation state sulphur compounds in water. He has now graduated with a 1st degree in biology. Jasmine (2013-2014) worked on hydrometallurgy and is now enrolled in BSc in Nursing. Alex Hamline (2010-2011) and Darian Blanchard (2010-2011) trained in my lab. Alex has recently graduated with an Honours degree in Biology, while Blanchard is still pursuing his biology degree. Rose Babady (2007-2008) has also obtained substantial training in performing research in water chemistry. She is now pursuing a professional degree in nursing. These two students have been trained in using of high performance liquid chromatographic, atomic absorption spectrophotometric, and the electrochemical-based analytical instrumentation. They have also been trained on writing of scientific papers. Jennifer's and Matt's research output has already been published in reputable journals. Camille (2006-2007) has trained in my lab as a student research assistant. She performed mineral-ore sample digestions and went ahead with their total analysis using atomic absorption spectrophotometry. She has also performed oxidative hydrometallurgical extractions in my lab. She performed very fine research some of which has been published at a referred Conference Proceeding. Sara (2005), Ashley Marcellus (2005) and Kristine (2005-2007) have also had an opportunity of working in my lab as my research assistants. Just like Cory, they learnt AAS skills and performed analysis of various metals in various ores. Sara and Kristine have already obtained their BSc. Degrees in Biology while Ashley has landed herself a full-time Biology Technologist job here at Nipissing University. These students learnt the techniques of sample handling and processing. They are able to prepare standards of very low concentration (ppm levels) for a calibration curve. Further they are very conversant with the standard addition method of calibration.

3. Highly Qualified Personnel (HQP)

Name	Type of HQP (training and status)	Years of research	Title of project	Present position
Nicole Payne	Undergraduate	2019-2020	Acidithiobacillus ferrooxidans in the Bioleaching of a Zinc-containing Ore in 9K and ATCC Bacterial-Growth Media	Done 4 th year Thesis project. Joining B.Ed. program at NU in the period 2020-2022
Ashley Ryan	Graduate	2012-2017	Developing an electroanalytical technique for analysis of sulphur compounds with low oxidation states	Research Lab Technologist
Wale Sogbein	Graduate	2012-2013	Removal of metallic based toxins from industrial wastes	MESc (MRP) student and R.A. in my lab
Cody Janes	Undergraduate	2016-2019	Bioleaching of sulfur-containing ores	High School Teacher
Mark Latham	Undergraduate	2015-2016	Leaching of zinc using the electro Fenton reaction	Now graduated with Biology (Hons.)
Scott Roscoe	Undergraduate	2014-2015	Hydrometallurgy of copper from a copper containing ore	MESc candidate at University of Windsor
Jeffery McLeran	Research Associate	2015	Hydrometallurgy of gold from a gold-containing ore (NSERC PLUS Engage project)	Medical School at Laurentian University
Alicia Treleaven	Research Associate	2013-2014	Hydrometallurgy of gold from a gold-containing ore (NSERC Engage project)	Graduated Hon. Biology
Bryce Sigouin	Research Associate	2014	Hydrometallurgy of gold from a gold-containing ore (NSERC Engage project)	Graduated Hon. Biology
Lyndsey Hagan	Undergraduate	2013-2014	Using oxygenated chlorides to estimate the recovery of gold from their sulfide and oxide ores	Graduated Hon. Biology
Jasmine Salabie	Undergraduate	2011-2013	Chemical reduction of sulphite and sulphate compounds	B.Sc. Biology candidate

Bryce Sigouin	Undergraduate	2011-2012	Leaching methodologies	B. Sc. Biology candidate
Darian Blanchard	Undergraduate	2010-2011	Adsorption characteristics of nitrates to substrates	B.Sc. Biology candidate
Alex Hamline	Undergraduate	2010-2011	Suitability of organic acids on leaching of minerals	Graduated – Hon. Biology
Matt Edwards	Undergraduate	2008 - 2010	How various oxidizing agents influence leaching of ores	PhD candidate U. Waterloo (2011-)
Kimberly Caruso	Undergraduate	2009 - 2010	Determination of nitrate in River Veuve	Graduated – Hon. Biology and B.Ed. (Nip. Univ.)
Jennifer Drouin	Undergraduate	2007 - 2009	Spectrophotometric analysis of sulphides in water	MSc Biology, Laurentian U.
Rose Babady	Undergraduate	2007 - 2009	Synthesis of N,N-dipropylphenylenediamine	Graduated – Hon. Biology
Breanna Duquette	Undergraduate	2007	Spectrophotometric analysis of sulphide compounds in water	Graduated
Camille Simpson	Undergraduate	2006-2007	Leaching and dissolution of metals contained in various ores	Ontario Certified Teacher
Cory Moore	Undergraduate	2004-2007	Hydrometallurgical extraction of Zn, Cu, and Fe from ores	Graduated
Kristine Bernard	Undergraduate	2005-2006	Hydrometallurgical extraction of Zn, Cu, and Fe from ores	MSc. Biology candidate
Ashley Marcellus	Undergraduate	2005	Leaching and dissolution of metals contained in various ores	Biology technologist
Sarah Nay	Undergraduate	2004	Leaching and dissolution of metals contained in various ores	Ontario Certified Teacher

April L. James

Professor

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Websites: <https://www.nipissingu.ca/users/april-james>
<https://faculty.nipissingu.ca/aprilj/>

DEGREES

- PhD 2005 Geography, McGill University, Montreal, Quebec, Canada.
Dissertation: Investigating small multiple catchment runoff generation in a forested temperate watershed.
- MS 1994 Earth Sciences, Clemson University, South Carolina, USA
Thesis: Optimization of Vapor Well Extraction
- BEng 1992 Engineering Physics, The Royal Military College of Canada, Kingston, Canada.
Thesis: Construction of a Piezoelectric Material.

PROFESSIONAL APPOINTMENTS

- 2020-present Professor, Department of Geography, Nipissing University, North Bay, ON, CA
- 2013-2020 Associate Professor, Department of Geography, Nipissing University, North Bay, ON, CA
- 2010-2013 Assistant Professor, Department of Geography, Nipissing University, North Bay, ON, CA
- 2007-2010 Assistant Professor, Department of Forestry and Environmental Resources, North Carolina State University, Raleigh, NC, USA (July/07 – June/10)
- 2005-2007 Faculty Research Associate, Department of Forest Engineering, Oregon State University, Corvallis, OR, USA (January/06 - June/07)
- 2002-2004 Contract Instructor, Department of Geography, McGill University, Montreal, Canada, (Sept-Oct/02; May/03; May/04; Sept-Dec/04)
- 1999-2005 Research Assistant, Geography, McGill University, QC, CA
- 1995-1999 Senior Research Associate, Earth Sciences Division, Lawrence Berkeley National Lab, Berkeley, CA, USA (January/95 to April/99)
- 1992-1994 Research Assistant, Dept. Earth Sciences, Clemson University, Clemson, SC, USA

HONOURS/RECOGNITION

- 2010-2020: Canada Research Chair in Watershed Analysis and Modeling (2010-2015; renewed 2015-2020)

SCHOLARLY AND PROFESSIONAL ACTIVITIES

2021-present Secretary, Canadian Geophysical Union – Hydrology Section.

2020 Leadership Development for Women: Mid to Senior Career, Emerging Leaders program – Initiative for Women in Business, Rotman School of Management, University of Toronto, Nov 18-21, 2019.

2020-2025 *Adjunct Professor* (renewed) Department of Biology, Laurentian University.

2019 External Reviewer, Promotion to Associate Professor, Colorado State University

2019-present *Member*, NSERC Evaluation Group for Geosciences (1506)

2019-2022 *Associate Editor*, Canadian Water Resources Journal

2018-present *Member at Large*, Executive Committee - Hydrology Section, Canadian Geophysical Union

2018 *Grant Reviewer*, National Science Foundation, Hydrological Sciences, USA (1 proposal @ USD \$249,862)

2017-2020 *Adjunct Professor*, Department of Biology, Laurentian University.

2017 *Opponent*, PhD defense of Nino Amvrosiadi, Uppsala University, Faculty of Science and Technology, Sweden, 15 Dec 2017. Advisors: Dr Jan Seibert, Dr. Keith Beven

2017 *Grant Reviewer*, Natural Sciences Research Council (NSERC), Collaborative Research and Developments Grant (1 proposal at \$271,991)

2017 *Grant Reviewer*, Natural Sciences Research Council (NSERC), Discovery Grant Program (1 proposal @ \$203,328)

2017 *External Reviewer*, for Tier II Canada Research Chair, Athabasca University

2017 *External Reviewer*, Master of Sciences, Department of Geography & Environmental Studies, Carleton University, Advisor: Dr. Murray Richardson

2016 *Grant Reviewer*, Natural Sciences Research Council (NSERC), Strategic Partnership Grants for Projects (1 proposal @ \$523,606)

2016 *External Reviewer*, for Tier II Canada Research Chair, University of British Columbia

2016 *External Reviewer*, PhD defense of Carly Delavau, University of Manitoba, Department of Civil Engineering, 24 Nov 2016. Advisor: Dr. Tricia Stadnyk

2016 *External Reviewer*, Promotion to Associate Professor, Thompson River University

2015-2018 *Associate Editor*, Canadian Water Resources Journal

2015-2020 *Chair*, Nipissing University Integrative Watershed Research Centre

2012-2017 *Adjunct Assistant Professor*, Department of Forestry and Environmental Resources, North Carolina State University, Raleigh, North Carolina, USA.

2013 *Grant Reviewer*, Natural Sciences Research Council (NSERC), Discovery Grant Program (1 proposal)

2013 *Grant Reviewer*, Natural Sciences Research Council (NSERC), Strategic Partnership Project Grants (1 proposal @ \$505,675)

2013 *Conference co-chair*, Lake Nipissing Research Conference, Nov 2013 (with D. Walters).

2012 *Grant Reviewer*, Natural Sciences Research Council (NSERC), Discovery Grant Program (1 proposal @ \$262,350)

2011 *Grant Reviewer*, Canada Foundation of Innovation (CFI), Leaders Opportunity Fund (1 proposal @ \$205,300)

- 2011-14 *Member at Large*, Executive Committee - Hydrology Section, Canadian Geophysical Union
- 2010 *Grant Reviewer*, Natural Sciences Research Council (NSERC), Discovery Grant Program (1 proposal @ \$359,400)
- 2010-11 *Member*, American Geophysical Union Water Quality Technical Committee
- 2010 *Co-Convener conference session*, AGU Fall Meeting, San Francisco, USA. H11C, From Pores to Catchments: Coupling Hydrologic Concepts and Models Across Multiple Scales I Posters; H14B. From Pores to Catchments: Coupling Hydrologic Concepts and Models Across Multiple Scales II. Co-convenor: Dr. Steve Lyon.
- 2010 *Co-convener conference session*, CGU Annual Meeting, Ottawa, Canada. Classification, modeling, and inter-comparison studies of environmental controls on catchment hydrologic response. Co-convenor: Dr. Ija Tromp-van Meerveld.
- 2009 *Co-convenor conference session*, AGU/CGU Joint Assembly, Toronto, Canada. H74A, Controls on Hydrologic Processes Across Scales; H13B, Advances in Modeling of Hydrologic Systems. Co-convenor: Dr. Ija Tromp-van Meerveld.
- 2009 *External Reviewer*, for Graduate Student Thesis: Krystal S. Chin. 2009. "The spatial variability on throughfall and soil moisture in a coastal British Columbia Forest". Master of Science. Dept. of Geography, Simon Fraser University. Advisor: Dr. Ija Tromp-van Meerveld.
- 2009 *External Reviewer*, Sigma Delta Epsilon Graduate Women in Science Fellowships (SDE/GWIS) (1 proposal @ USD \$8,875)
- 2009 *Grant Reviewer*, Natural Resources and Applied Sciences (NRAS) Endowment Fund, British Columbia Innovation Council (1 proposal at \$289,500)
- 2008 *Grant Reviewer*, National Science Foundation, Hydrological Sciences (1 proposal at USD \$397,034)
- 2008-10 *Member*, Forestry in Wetlands Regulatory Guidance Group, North Carolina
- 2004 *Co-convenor conference session*, AGU/CGU Joint Assembly, Montreal, Canada. H03, Issues of Scale in Catchment Hydrobiogeochemistry. Co-covenor: Dr. Jamie Shanley, USGS, Vermont, USA.
- 2004-present *Reviewer* for peer-reviewer journals (full listing): Ecohydrology, Water Resources Research, Journal of Hydrology, Hydrol. Earth Syst. Sci. Discuss (HESSD), Geophysical Research Letters, Hydrological Processes, Wetlands, Ambio, Advances in Water Resources, Biogeosciences, Ecoscience, Journal of Association of Water Resources of America (JAWRA), American Journal of Science, Journal of Environmental Management, Journal of Geophysical Research – Biogeosciences, Vadose Zone Journal, Journal of Environmental Management.

SIGNIFICANT UNIVERSITY ADMINISTRATION DUTIES

- 2021- present *Chair*, Ad hoc Environmental Science Program Development Committee. Stage 2 Proposal for Bachelor of Science in Environmental Sciences. Submitted to the Dean of Arts & Science, August 2021.
- 2021-present *Member*, Biosafety committee
- 2020-present Graduate Program Coordinator, Masters of Environmental Studies/Masters of

	Environmental Sciences
2020	<i>Member</i> , Search Committee, Associate Dean, Faculty of Arts & Sciences, Jul-20.
2020	<i>Member</i> , Search Committee, Indigenous Scholars Cluster Hire, May 2020.
2019	<i>Developer</i> , Proposal for CRC in Climate and Environmental Change (successful).
2019	<i>Member</i> , Search Committee, Associate Dean, Faculty of Arts & Sciences, Aug-19.
2019	<i>Developer</i> , New Program Proposal (Stage 1 - Letter of Intent), Bachelor of Science in Environmental Sciences. Submitted to the Dean of Arts & Science, April 2019
2018	<i>Member</i> , Search Committee, Assistant Dean of Research and Graduate Studies
2017-18	<i>Member</i> , Masters of Environmental Studies/Masters of Environmental Sciences IQAP Review subcommittee
2017-18	<i>Member</i> , Department of Geography IQAP Review subcommittee
2017-19	<i>Chair</i> , Social Committee - Faculty Association
2016-17	<i>Member</i> , Social Committee - Faculty Association
2016-18	<i>Member</i> , Undergraduate Research Conference Organizing Committee.
2015-17	<i>Member</i> , University Planning and Priorities Committee
2017	<i>Member</i> , Search Committee, Graduate Studies and Research Coordinator
2016	<i>Member</i> , Search Committee, Dean of Research and Graduate Studies
2015-17	<i>Member</i> , Faculty of Arts and Science, Tenure and Promotion University Tenure and Promotion
2010-16	<i>Member</i> , University Research Council
2010-14	<i>Member</i> , Environmental Protection Program Advisory Committee, Canadore College, ON, CA.
2013-14	<i>Member</i> , Faculty Search Committee (Climatologist), Geography
2013	<i>Member</i> , Faculty Search Committee (CRC Environmental History), Geography & History
2007	<i>Member</i> , Faculty Search Committee (Urban Ecologist), Forestry and Environmental Resources, North Carolina State University.
2007-09	<i>Graduate Coordinator</i> , Natural Resources, Hydrology Technical Option, Forestry and Environmental Resources, North Carolina State University
2007-09	<i>Undergraduate Program Coordinator</i> , Environmental Sciences, Watershed Hydrology, Forestry and Environmental Resources, North Carolina State University
2009	<i>Graduate Student Representative</i> , Dr. Ho Sun Lim, Ph.D. Textile Technology Management, North Carolina State University.
2008-11	<i>Member</i> , Forestry in Wetlands Regulatory Guidance Group, North Carolina

OUTREACH

2021	Research in Watershed Hydrology – Case Studies from Northeastern Ontario. Canada Ecology Centre, 11 August 2021
2020	WISES Sudbury (Women In Science and Engineering) Virtual Science and Engineering Career Café, November 19, 2020. Presenter

- 2020 Community Workshops with the North Bay-Mattawa Conservation Authority. "Changing Rural Landscapes. A Conversation with Agriculture" (February 13); "Is Your Rural Property Climate Change Resilient?" (February 27), Corbeil, ON.
- 2019 Exhibitor and Panelist, Science North - North Bay Science Festival, "Monitoring of Weather and Water Conditions in Lake Nipissing", North Bay ON (26 Oct); Panelist, Science Festival Climate Change Action Panel, Schollard Hall and West Ferris Secondary School (22-Oct).
- 2018 Exhibitor, Science North - North Bay Science Festival, "Monitoring of Weather and Water Conditions in Lake Nipissing", North Bay ON (18-Nov)
- 2018 Public presentation, "The Health and Workings of Our Watersheds: Examples of Contemporary Research in Canadian Shield Watersheds", Canadian Federation of University Women's (21-Feb)
- 2017 Public presentation, Ontario Confederation of University Faculty Association (OCUFA) Advocacy Day. "Tracing Water Movement and Water Quality in Northeastern Ontario" (28 Feb – 1 Mar)
- 2017 Exhibitor, Science North - North Bay Science Festival, "Monitoring of Weather and Water Conditions in Lake Nipissing", North Bay ON (18-Nov)
- 2017 Presenter, "A 5 minute primer on Catchment Science - physics to fish in 2042". Nipissing University Faculty Speaker Series - NU 2042 Time Travellers Wanted. The Event Centre, North Bay ON (7-Dec)
- 2016 CTV Interview, Nipissing University's Integrative Research Watershed Centre (IWRC) (22 Sept)
- 2016 Presenter, Innovation, Creativity and Entrepreneurial skills (ICE) Training Day. Canadian Ecology Centre and Near North District School Board. Presentation to Business SHSM (Specialist High Skills Major) students in preparation for their participation in the Great Lakes St. Lawrence Student Summit in tandem with the Great Lakes Public Forum in Toronto on October 4-6th, 2016 (20 Sept)
- 2016 CBC Interview - Summer "U" Series (16-Aug)
- 2016 Public presentation, "The French River Stable Water Isotope Survey, 2016", French River Stewardship Committee Annual General Meetings (24 July)
- 2015 Invited Seminar, James AL, L Bradford, T Steelman. 2015. Perceptions of Water Security in South Africa. Seminar delivered in ENVS 990: Seminar in Environment and Sustainability, School of Environment and Sustainability, University of Saskatchewan, Friday, Nov 20th, 2015
- 2014 Interview with Vice magazine, Lake Nipissing Health (25-Feb)
- 2014 Public presentation, Research Matters: What Matters Now?, Thunder Bay, ON, research (4-Mar), Research Matters profile: <http://yourontarioresearch.ca/team-rm/2013/april-james/>
- 2013 Launch of Lake Nipissing State of the Basin Report website. In 2013, Dan Walters and I received funding from the Northern Ontario Internship Program for preliminary development of a 'Lake Nipissing State of the Basin Report'. As part of this effort, a website was launched to serve as a project and community resource: iwrc.nipissingu.ca
- 2013 Co-host of First Annual Lake Nipissing Research Conference (co-host with Hosts:

- DrDan Walters) (22-Nov), North Bay Nugget. Conference puts lake under microscope. <http://www.nugget.ca/2013/11/22/conference-puts-lake-under-microscope>, CTV Northern Ontario: Ecosystem health.<http://www.ctvnews.ca/search-results/search-ctv-news-7.137?q=blue+green+algae+north+bay>
- 2012-13 Participant, Lake Nipissing Summit (2012, 2013). 10 May, 2013. CTV Northern Ontario: Lake Nipissing Summit. <http://www.ctvnews.ca/video?clipId=160093> Lake Nipissing Summit website: <http://www.lakenipissingsummit.ca/>, 3-4 April, 2012.
- 2012 This Week In Science and Education, Episode #84; Freshwater Sustainability (11 Oct), <http://www.vroc.ca/video/view/C-ce6b9adc-825d-4dae-a472-09334f03bbbc:1>
- 2011 Interview, Rodgers Radio (27-Jun)
- 2011 Participant, Nipissing University Science campNorth Bay Nugget (4-Jul) <http://www.nugget.ca/2011/07/04/nipissing-university-opens-first-science-camp>
- 2011 Public presentation, IION (Innovators and Entrepreneurs) Forum in North Bay, OM (2-Nov)
- 2010 Public presentation, Canada Research Chair unlocking secrets of watersheds (24-Nov)
- 2009 Workshop presenter, North Carolina Educator Workshop module development and delivery, “How is surface water and groundwater connected in your backyard? “. Model delivered as one component of the workshop “Water From the Ground Up!”, on 13 August 2009 in partnership with North Carolina State University Department of Forestry and Environmental Resources Extension and Project Learning Tree

EXTERNAL RESEARCH FUNDING - Received

Title	Dates	Total Amount	Agency	PI/ Co-Investigators	% of Award to A. James
Study of Climate Change and Groundwater- Surface water interactions in the Whitson River Watershed	2020-2022	\$178,825	Ontario Ministry of Environment and Climate Change	M Wachowiak	100%
Linking Road Salt Application, lake chloride concentration, and biotic thresholds in Canadian Shield Lakes	2017-2020	\$94,123.08	Ontario Ministry of Environment and Climate Change	S. Arnott, AL. James	46.5%
Wasi Watershed Storm Monitoring Project	2016	\$10,483	North Bay-Mattawa Conservation Authority	AL. James	100%
CRC – Renewal (2015-20) The SNF Watershed System: Linking Lake to Watershed	2015-2020	\$500,000	Canada Research Chair Program	AL. James	40%
CFI: The SNF Watershed System: Linking Lake to Watershed	2015	\$51,722	Canada Foundation of Innovation –	AL. James	100%

			Leaders Opportunity Fund		
NSERC – Discovery Grant: Water Cycling Study of the SNF Basin	2015-2020	\$110,000	NSERC- Discovery Program	AL. James	100%
MOECC-Nipissing U Partnership: From Headwaters to the Working Watershed: Improving Catchment Modeling Tools for Management of Water Quality and Quantity	2015-2020	\$300,000	Ontario Ministry of Environment and Climate Change	AL. James, H. Yao.	100%
Wasi Watershed Storm Monitoring Project	2015	\$10,000	North Bay-Mattawa Conservation Authority	AL. James	100%
High Frequency Monitoring of water conditions in Lake Nipissing Embayments	2014	\$50,000	Ontario Ministry of Environment	D. Walters, AL. James, K. Chutko.	100% to all.
NSERC Canadian Network for Aquatic Ecosystem Services	2012-2016	\$4,416,625	NSERC Strategic Grant	D.Jackson + 15 others.	1%
Managing cumulative effects in the Muskoka River Watershed: Monitoring, research and predictive modeling	2012-2015	\$600,000	Canadian Watershed Network	C. Eimers (PI) + 13 others	7.4%
Enhancing the capacity to protect drinking water in Dokis First Nation	2011-12	\$50,000	Health Canada	D. Walters, AL. James, Dokis First Nations.	2%
Integrated geospatial data and visualization technology for agricultural applications	2010-13	\$410,500	NOHFC	D. Walters + 6 others.	0%
Investigating relationships between headwater catchment form and function under changing environmental conditions	2010-2015	\$100,000	Canada Research Chair Program	AL. James	30%
Investigating relationships between headwater catchment form and function under changing environmental conditions	2010	\$25,000	Ontario Ministry of Research and Innovation PDF Round 4	AL. James	100%
Investigating relationships between headwater catchment form and function under changing environmental conditions	2010	\$104,300	Ontario Ministry of Research and Innovation – Ontario Research Fund	AL. James	100%
Investigating relationships between headwater catchment form and function under changing environmental conditions	2010-	\$104,818	CFI-Leaders Opportunity Fund	AL. James	100%
Development of Hydrology Standard for Restoration of Nonriverine Wet Hardwood Forests	2007-2010	\$162,019	Environmental Protection Agency – USA.	T. Shear, AL. James.	0%
Investigating small multiple catchment runoff generation in a forested temperate watershed	1999-2000	\$19,100/yr	Natural Science and Engineering Research Council of Canada (NSERC) post-graduate scholarship		100%

INTERNAL UNIVERSITY RESEARCH FUNDING

Title	Dates	Total Amount	Agency	PI/ Co-Investigators	% of Award to A. James
CRC – Renewal (2015-20) The SNF Watershed System: Linking Lake to Watershed	2015-2020	\$117,000 NU match	Nipissing U.	AL. James	100%
CFI: The SNF Watershed System: Linking Lake to Watershed	2015	\$92,582 NU match	Nipissing U.	AL. James	100%
CRC (2010-14). Investigating relationships between headwater catchment form and function under changing environmental conditions	2010	\$406,500	Nipissing U.	AL. James	100%
Quantifying active flowpaths and mechanisms of streamflow generation in Piedmont headwater catchments under changing states-of-wetness	2009	\$4,000	NSCU Research and Graduate Studies – FRPD Individual Program	AL. James	100%
Education as a Pathway to Water Conservation: Focus on groundwater - surface water connections in North Carolina	2008-2009	\$10,000	NCSU Extension, Engagement and Economic Development Seed Grant	AL. James	100%
NCSU Start-up grant	2007	\$180,000	NSCU	AL. James	100%
Investigating small multiple catchment runoff generation in a forested temperate watershed	2002	\$5,000	McGill Graduate Studies Fellowship	AL. James	100%
Investigating small multiple catchment runoff generation in a forested temperate watershed	2001-2002	\$10,000/yr	J.W. McConnell McGill Major Fellowship	AL. James	100%

RESEARCH INDICES (as of 1 May 2020)

Research Gate RG Score: 27.71 Citations: 1,133
 Google Scholar Citations: 1,349 H-index= 18 i10-index = 21

PUBLICATIONS/REPORTS/PRESENTATIONS

REFEREED PUBLICATIONS:

In review (*student or postdoc)

1. *Snider R, **AL James**, H Yao, AM Paterson, D Walters. Chloride and Total Phosphorus Budgets for Lake Nipissing and the French River Tributary of Georgian Bay, Lake Huron, Ontario, Canada. Submitted to Journal of Great Lakes Research, April 2020; Rejected, Resubmitted July 2021.

Journal Articles (*student or postdoc)

1. Yao H, AM Paterson, **AL James**, C McConnell, T Field, R Ingram, D Zhang, S Arnott, SB Higgins. 2020. Contrasting long-term trends of chloride level in remote and human-disturbed lakes in south-central Ontario, Canada. Resubmitted with revisions to Lake and Reservoir Management DOI: 10.1080/10402381.2020.1820642. (published online on 7 Oct 2020).

2. Zhang D, H Yao, **AL James**, Q Lin, W Fu. 2020. Modifying SWAT-CS for simulating chloride dynamics in a Boreal Shield headwater catchment in south-central Ontario, Canada. *Science of the Total Environment*. 717, 137213
3. **James AL**, *E Dusome, T Field, H Yao, C McConnell, A Beaton. 2019. The Isotope Hydrology of the Muskoka River Watershed, Ontario Canada. *Hydrological Processes*. DOI:10.1002/hyp.13664.
4. *England N, **AL James**, KJ Chutko, R Pyrcce, H Yao. 2019. Hydrologic and Water Isotope Characterization of a Regulated Canadian Shield River Basin. *Hydrological Processes*. DOI: 10.1002/hyp.13371.
5. Wachowiak MP, **AL James**, R Wachowiak-Smolíková, DF Walters, KJ Chutko, JA Rusak. 2018. Visual analytics of high-frequency lake monitoring data. *Int J Data Sci Anal*, <https://doi.org/10.1007/s41060-017-0072-z>.
6. Wachowiak M, D Walters, J Kovacs, R Wachowiak-Smolíková, **AL James**. 2017. Visual Analytics and Remote Sensing Imagery to Support Community-Based Research for Precision Agriculture in Emerging Areas. Submitted to *Computers and Electronics in Agriculture*. 143, 149-164.
7. *Birch AL, RE Emanuel, **AL James**, EG Nichols. 2016. Hydrologic Impacts of Municipal Wastewater Irrigation to a Temperate Forest Watershed. *J. Env. Quality*. doi:10.2134/jeq2015.11.0577.
8. Yao H, **AL James**, C McConnell, B Turnbull, T Field, KM Somers. 2016. Relative contributions of stream concentration, stream discharge and shoreline load to base cation trends in Red Chalk and Harp lakes, south-central Ontario, Canada. *Hydrological Processes*, DOI:10.1002/hyp.10627.
9. Zhang D, X Chen, H Yao, **A James**. 2016. Moving SWAT model calibration and uncertainty analysis to an enterprise Hadoop-based cloud. *Environmental Modelling & Software*, 140-148.
10. Lin B, X Chen, H Yao, M Liu, L Gao, **A James**. 2015. Analysis of landuse change impacts on catchment runoff using different time indicators based on SWAT model. *Ecological Indicators* 58, 55-63. <http://dx.doi.org/10.1016/j.ecolind.2015.05.031>.
11. Steelman T, EG Nichols, **A James**, L Bradford, L Ebersöhn, V Scherman, F Omidire, DN Bunn, W Twine, MR McHale. 2015. Practicing the science of sustainability: the challenges of transdisciplinarity in a developing world context. *Sustainability Science*. DOI.10.1007/s11625-015-0334-4.
12. *Mountain N, **AL James**, K Chutko. 2015. Groundwater and surface water influences on streamflow in a mesoscale Precambrian Shield catchment. *Hydrological Processes*, 29, 3941-3953.
13. *Fu C, **AL James**, H Yao. 2015. Investigations of uncertainty in SWAT hydrologic simulations: a case study of a Canadian Shield catchment. *Hydrological Processes*, 29 (18), 4000-4017. DOI:10.1002/hyp/10477.
14. *Fu C, **AL James**, H Yao. 2014. SWAT-CS: Revision and testing of SWAT for Canadian Shield catchments. *Journal of Hydrology*, 511, 719-735, <http://dx.doi.org/10.1016/j.jhydrol.2014.02.023>.
15. *Dreps C, **AL James**, G Sun, J Boggs. 2014. Water balances of two Piedmont headwater catchments: implications for regional hydrologic landscape classification. *Journal of the American Water Resources Association*, 1-17. DOI: 10.1111/jawr.12173.
16. Dech JP, *S Mayhew-Hammond, **AL James**, B Pokharel. 2014. Modeling Canada yew (*Taxus Canadensis* March.) distribution and abundance in the boreal forest of northeastern Ontario, Canada. *Ecological Indicators*. 36, 48-58, <http://dx.doi.org/10.1016/j.ecolind.2013.06.017>.
17. *Johnson YB, Shear, TH, and **AL James**. 2013. Novel ways to assess forested wetland restoration in North Carolina using ecohydrological patterns from reference sites. *Ecohydrology*, DOI:10.1002/eco.1390.
18. *Edwards AE, Amatya DM, Williams TM, Hitchcock DR and **AL James**. 2013. Flow characterization in the Santee Cave System in the Chapel Branch Creek Watershed, Upper Coastal Plain of South

- Carolina, USA, *Journal of Cave and Karst Studies*, 75 (2), 136-145.
19. *Inkiläinen ENM, MR McHale, GB Blank., **AL James**, E Nikinmaa. 2013. The role of the residential urban forest in regulating throughfall: A case study in Raleigh, North Carolina, USA. *Landscape and Urban Planning*, 119, 91-103. <http://dx.doi.org/10.1016/j.landurbplan.2013.07.002>.
 20. *Fu C, **AL James**, M Wachowiak. 2012. Analyzing the combined influence of solar activity and El Nino on streamflow across southern Canada. *Water Resources Research* 48(5), doi:10.1029/2011WR011507.
 21. Yao H, C McConnell, **A James**, *C Fu. 2012. Comparing and modifying eight empirical models of snowmelt using data from Harp Experimental station in Central Ontario. *British Journal of Environment & Climate Change*, 2(3): 259-277.
 22. *Segura C, **James AL**, Lazzati D, Roulet NT, 2012. Modeling event-based rainfall-runoff and stable isotope tracer response from small-forested catchments in Eastern Quebec, *Water Resources Research* 48(7), W07502, doi:10.1029/2012WR011890.
 23. *Johnson YB, Shear TH, **AL James**. 2011. Identifying ecohydrological patterns in natural forested wetlands useful to restoration design, *Ecohydrology*. DOI.10.1002/eco.227.
 24. **James AL**, JJ McDonnell, HJ Tromp van Meerveld, NE Peters. 2010. Gypsies in the palace: experimentalist's view on the use of 3-D physics-based simulation of hillslope hydrological response, *Hydrological Processes*, doi: 10.1002/hyp.7819.
 25. McDonnell JJ, McGuire, K, Aggarwal P, Beven KJ, Biondi D, Destouni G, Dunn S, **James AL**, Kirchner J, Kraft P, Lyon S, Maloszewski P, Newman B, Pfister L, Rinaldo A, Rodhe A, Sayama T, Seibert J, Solomon K, Soulsby C, Stewart M, Tetzlaff D, Tobin C, Troch P, Weiler M, Western A, Wörman A. and Wrede S. 2010. How old is streamwater? Open questions in catchment transit time conceptualization, modelling and analysis. *Hydrological Processes*, 24: 1745–1754. doi: 10.1002/hyp.7796.
 26. **James AL** and NT Roulet. 2009. Antecedent moisture conditions and catchment morphology as controls on spatial patterns of runoff generation in small forest catchments. *Journal of Hydrology*. 377, 351-366, doi:10.1016/j.hydrol.2009.08.039.
 27. Tromp-van Meerveld, HJ, **AL James**, JJ McDonnell, and NE Peters. 2008. A reference data set of hillslope rainfall-runoff response, Panola Mountain Research Watershed, United States, *Water Resources Research* 44, W06502, doi:10.1029/2007WR006299.
 28. **James AL** and NT Roulet. 2007. Investigating hydrologic connectivity and its association with threshold change in runoff response in a temperate forested watershed. *Hydrological Processes*, 21(25), 3391-3408, doi:10.1002/hyp.6554.
 29. **James AL** and NT Roulet. 2006. Investigating the applicability of end-member mixing analysis (EMMA) across scale: A study of eight small, nested catchments in a temperate forested watershed, *Water Resources Research*, 42, W08434, doi:10.1029/2005WR004419.
 30. Wang JSY, Trautz RC, Cook PJ, **James AL**. 1999. Field tests and model analyses of seepage into drift, *Journal of Contaminant Hydrology*, 38(1-3), 323-347.
 31. Bennett D, **AL James**, CM Oldenburg and TE McKone. 1998. On uncertainty in remediation analysis: variance propagation from subsurface transport to exposure modeling, *Reliability Engineering & System Safety*, 62, 117-129.
 32. **James AL** and CM Oldenburg. 1997. Linear and Monte Carlo uncertainty analysis for subsurface contaminant transport simulation, *Water Resources Research*, 33(11), 2495-2508.

Published Abstracts – Refereed Presentations (talks and/or posters).

(* = HQP; presenting author)

1. *Tafvizi A, James AL, Stadnyk T, Yao H, Ramcharan C. 2021. Calibration and Validation of isoWATFLOOD, a Tracer-Aided Hydrologic Model, for a Mesoscale Precambrian Shield Watershed in Northeastern Ontario, Canada. Canadian Geophysical Union Summer Series, 2021 (virtual).
2. *Tafvizi A, James AL, Stadnyk T, Yao H, Ramcharan C. 2021. Investigation of Lake and Wetlands Influence on Streamflow in Mesoscale Precambrian Shield Watersheds. EGU21-5907 (virtual poster session).
3. *Tafvizi A, **James AL**, Yao H, Stadnyk T, Ramcharan C. Hydrologic and Water Isotope Characterization of three mesoscale Precambrian Shield watersheds in Ontario, Canada. Canadian Geophysical Union Summer Series, 28 August 2020 (virtual).
4. *White J, **James AL**, Macrae M, Harrison J. 2020. Effects of Mixed Landuse on Total Phosphorus Transport in a Canadian Shield River. Canadian Geophysical Union Summer Series, 28 August 2020 (virtual).
5. *Snider R, **James AL**, Yao H. Chloride and total phosphorus budgets for Lake Nipissing and the French River tributary of Georgian Bay, Lake Huron. 2020: Focusing on the Future. 63rd Annual Conference on Great Lakes Research. International Association of Great Lakes Research, Virtual, June 9-11, 2020.
6. **James AL**, H Yao, C McConnell, T Field, K Montgomery, C Oswald, CPJ Mitchell. 2019. Streamflow Chloride Concentration Trends in the Dorset Catchments, ON Canada, and Efforts to Harness High-Frequency Specific Conductivity-Chloride Monitoring for event Chloride Load and Flowpath Investigations. H43G-2082. American Geophysical Union Fall Meeting, 9-13 December, San Francisco, CA USA.
7. **James AL**, H Yao, C McConnell, T Field, C Oswald, CPJ Mitchell, SA Watmough, C Eimers, JM Buttle. 2019. The Dorset Catchments: A History of Boreal Shield Catchment Research in Central Ontario, CA. PA11C-0981. American Geophysical Union Fall Meeting, 9-13 December, San Francisco, CA USA.
8. Wachowiak M, **AL James**, D Walters, J Rusak, K Chutko. 2019. Relationships and Correlations in Environmental Time Series for a Large Inland Lake System. Global Lake Ecological Observatory Network (GLEON) 21 All Hands' Meeting. 4-8 November, Huntsville, ON CA.
9. **James AL**, E Dusome*, T Field, H Yao, C McConnell, A Beaton, A Tafvizi. 2019. The Isotope Hydrology of the Muskoka River Watershed, ON CA. EGU Leonardo Topical Conference: Global change, landscape ageing and the pulse of catchments. 16-18 October, Luxembourg Institute of Science and Technology, Esch-Sur-Alzette, Luxembourg.
10. **James AL**, E Dusome*, H Yao, C McConnell, T Field, A Beaton. 2019. Isotope hydrology of the Muskoka River watershed, Integrating Water Isotopes into Water Quality Surveys in a Regulated Mesoscale Boreal Shield Basin: Muskoka River, ON, CA. Session H05b, IUGG19-4177. 27th IUGG General Assembly, Montreal QC, CA, July 8-18. (talk)
11. **James AL**, K Montgomery*, H Yao, T Field, C McConnell, C Oswald. 2019. Investigating event-based chloride delivery and regression modeling in rural streams in central Ontario using high frequency electrical conductivity. H06p-273. 27th IUGG General Assembly, Montreal QC, CA, July 8-18. (poster)
12. White J*, **AL James**, M Macrae, J Harrison. Phosphorus and sediment loading in a Boreal Shield River. IAGLR 62nd Annual Conference. Large Lakes Research: Connecting People and Ideas. Brockport NY, June 10-14. (talk)
13. Jones R*, **AL James**, D Walters, A Paterson. Weather-related drivers of thermal mixing and the dissolved oxygen regime of a polymictic bay. IAGLR 62nd Annual Conference. Large Lakes Research: Connecting People and Ideas. Brockport NY, June 10-14. (talk)

14. Snider R*, **AL James**, H Yao, C McConnell, T Field. 2019. Water quality in the Lake Nipissing - French River tributaries of Georgian Bay, Lake Huron. IAGLR 62nd Annual Conference. Large Lakes Research: Connecting People and Ideas. Brockport NY, June 10-14. (talk)
15. Dusome E*, **AL James**, H Yao, C McConnell, T Field, A Beaton. 2018. Isotope hydrology of the Muskoka River watershed, Central Ontario, Canada. Joint Meeting of CGU, CSSS, CIG, ES-SSA, CSAFM, Niagara Falls, ON CA, 10-14 June (poster).
16. England N*, **AL James**, K Chutko, R Pyrcce, H Yao, C McConnell. 2018. Hydrologic and waters isotope characterization of a regulated Canadian Shield river basin. Joint Meeting of CGU, CSSS, CIG, ES-SSA, CSAFM, Niagara Falls, ON CA, 10-14 June (talk).
17. Jones R*, **AL James**, D Walters. 2018. Annual variation in anoxia in a polymictic shield lake. International Association of Great Lakes Research. Toronto, Ontario, Canada, June 18-22. (poster)
18. White J*, **AL James**, M Macrae, and J Harrison. 2018. Concentration-discharge relationships controls on phosphorus for a river in a cold temperate climate. International Association of Great Lakes Research. Toronto, Ontario, Canada, June 18-22. (talk)
19. Rashid I*, **AL James**, H Yao. 2018. Modelling of Road Salk influences on surface waters: Application of SWAT to Harp Lakes, ON. International Association of Great Lakes Research. Toronto, Ontario, Canada, June 18-22. (talk)
20. Harrison JW, DF Walter, **AL James** and SL Miller. 2018. Drivers of spatiotemporal patterns in cyanobacterial fluorecence in Callander Bay, Lake Nipissing. International Association of Great Lakes Research. Toronto, Ontario, Canada, June 18-22. (talk)
21. Yao H, C McConnell, T Field, **AL James**. 2018. Spatial-temporal changes of nutrients in Muskoka River, an example of undeveloped area. International Association of Great Lakes Research. Toronto, Ontario, Canada, June 18-22. (talk).
22. Yao H, C McConnell, T Field, **AL James**, A Beaton. 2017. Comparing SWE estimation methods: CS725 sensor, empirical models, and engery-balance models in south central Ontario, Eastern Snow Conference, University of Ottawa, 6-8 Jun 2017 (talk).
23. Chutko K, **AL James**, BL Rundle Germain*. 2017. A summary of snow research activities involving undergraduate stdent volunteers at Nipissing University. Eastern Snow Conference, University of Ottawa, 6-8 Jun 2017 (poster).
24. Yao H., A Paterson, C McConnell, R Ingram, J Rusak, T Field, **AL James**, L Molot. 2017. Non-significant trends in inorganic and organic nitrogen concentrations in headwater lakes of south-central Ontario, despite declines in runoff and atmospheric loading. Canadian Geophysical Union, CGU and CSAFM Joint Annual Scientific Meeting, Vancouver, 28-31 May, 2017 (poster).
25. Wachowiak MP, **AL James**, R Wachowiak-Smolikova, D Walter, K Chukto, J Rusak. 2017. Visual Exploration of High-Frequency Lake Monitoring Data. An Interactive Visualization Platform for "Thinking With and Beyond Watersheds". GLEON 19 All Hands' Meeting. 27 Nov – 1 Dec 2017, Mohonk Lake, NY (poster).
26. Germain BL*, AL James, B Branfireun. 2017. Applying a Hydrologic Classification Approach to Low Gradient Boreal Catchments. Session 11. James and Hudson Bay Watershed Studies. Canadian Conference for Fisheries Research (CCFFR) & Society of Canadian Limnologists (CCRP). Montreal QC, 5-8 Jan 2017 (poster).
27. McConnell CJ*, **AL James**, H Yao. 2016. The Simplified Isotope Mass Balance Approach in Seasonally Stratified Lakes, South-Central Ontario. International Association for Great Lakes Research (IAGLR) 59th Annual Conference on Great Lakes Research. Guelph, Ontario, June 6-10 (talk).
28. Chutko K, **James AL**, Yao H, McConnell C. 2016. Stable Water Isotope Patterns in Large Shield Basins in Northeastern and Central Ontario. Great Lakes Solutions: Integrating Across Disciplines

- & Scales. 59th Annual Conference, International Association of Great Lakes Research, 6-10 June, Guelph ON (talk).
29. Prescott M*, Chutko K, Walters D, **James AL**, Paterson AM, Rusak JA, McConnell C, Yao H. 2016. A Multi-Year Study of Mixing and Stratification Using Buoy Observations, Lake Nipissing, Ontario. Great Lakes Solutions: Integrating Across Disciplines & Scales. 59th Annual Conference, International Association of Great Lakes Research, 6-10 June, Guelph ON (talk).
 30. **James AL**, Chutko K, Prescott M*, Macrae ML. 2016. Investigating Seasonal Variation and Surrogate Measures of Phosphorus Loading to Lake Nipissing, ON. Great Lakes Solutions: Integrating Across Disciplines & Scales. 59th Annual Conference, International Association of Great Lakes Research, 6-10 June, Guelph ON (talk).
 31. **James AL**, K Greer. 2016. Integrating Hydrology and Historical Geography in an Interdisciplinary Environmental Masters Program in Northern Ontario, Canada. Geophysical Research Abstracts, vol.18. European Geophysical Union, 2016 (talk).
 32. **Story A**, A Rees, M Story, K Korman, AL James, K Chutlo, J Cayouette, J-F Doyon, D Noel, M Julien. Use of Stable Water Isotopes to Characterize Groundwater-Surface Water Interactions for Closure Planning in the Historic Cobalt Mining Camp, Northeastern Ontario. 6th Mining and the Environment International Conference, Laurentian University, Sudbury, ON, 20-25 June.
 33. Prescott M*, K Chutko, D Walters, **AL James**, M Wachowiak, C McConnell, H Yao, A Paterson and JA Rusak. 2015. Exploring Thermal Stratification and Mixing of Lake Nipissing Embayments: An Analysis of High Frequency Buoy Data. North American Lake Management Society (NALMS) 35th International Symposium. 17-20 Nov, Saratoga Springs, NY (poster).
 34. Chutko, KJ, **AL James**, C McConnell*, H Yao. 2015. Comparing catchment mean transit times and landscape characteristics for mesoscale catchments in northeastern Ontario. Session H14D (poster), AGU-GAC-MAC-CGU Joint Assembly. Montreal, QC, 3-7 May (poster).
 35. Chutko, KJ, D Walters, **AL James**, M Wachowiak, C McConnell*, H Yao, A Paterson, J Rusak. 2015. High frequency monitoring of lake and weather conditions in Lake Nipissing, Ontario: Exploring the 2014 hydrographical dataset. Session H14D (poster), AGU-GAC-MAC-CGU Joint Assembly. Montreal, QC, 3-7 May (poster).
 36. McCorkell DR*, **AL James**, KJ Chutko, ML Macrae, S Miller. 2015. Storm-based tracer response of a mesoscale Precambrian Shield catchment with mixed landuse. Session H24F (poster), AGU-GAC-MAC-CGU Joint Assembly. Montreal, QC, 3-7 May (poster).
 37. McConnell C*, **James AL**, Yao H, Mitchell CPJ. 2014. The Simplified Isotope Mass Balance Approach for Headwater Lakes in South-Central Ontario. Session H4 (poster), CGU-CSSS Scientific Meeting. Banff, AB 4-7 May (poster).
 38. Chutko K, **James AL**, B. Rundle*. 2014. Stable Water Isotope (O and H) Evolution of a Boreal Snowpack. 71th Annual Eastern Snow Conference, Jun 3-5. Boon, NC. Session 4 (talk).
 39. **James, AL**, Chutko K, Mountain N*, England N*, Rundle B*. 2014. Examining Source Water Dynamics within the Lake Nipissing-French River System Using Stable Water Isotopes (SWI). Session H4 (poster), CGU-CSSS Scientific Meeting. Banff AB 4-7 May (poster).
 40. Yao H, Samal N, Rusak JA, Pierson D, **AL James**. 2013. Impacts of climate and ice variability on water quality of lakes in Ontario and New York, using simulation models. 70th Annual Eastern Snow Conference, Jun 4-6. Huntsville, ON. Session 4 (talk).
 41. Fu C*, **AL James**, H. Yao. 2013. Modeling of nitrogen dynamics in a Canadian Shield watershed: testing of SWAT-CS. Abstract 6555, Session 2D05.4, CMOS-CGU-CWRA Joint Scientific Congress, 28 May 2013 (poster).
 42. Mountain N*, **AL James**, and K Chutko. 2013. Source Water Contributions to Streamflow in the Wasi Watershed Using Stable Isotope and Geochemical Tracers. Abstract 6553, Session 2D32.6, CMOS-CGU-CWRA Joint Scientific Congress, 28 May 2013 (poster).

43. *Fu C, **AL James** and H Yao. 2012. SWAT-CS: Revision and testing of SWAT (Soil and Water Assessment Tool) for forested Canadian Shield watersheds. Abstract H21G-1256 presented at 2012 Fall Meeting, AGU, San Francisco, Calif., 3-7 Dec (poster).
44. **James AL**, K Kuntukova*, C Fu*, C Dreps*, G Sun. 2011. Comparative analysis of threshold rainfall-runoff response of small catchments in North Carolina's Piedmont region. Abstract H44F-02 presented at 2011 Fall Meeting AGU, San Francisco, CA, 5-9 Dec (talk).
45. Fu C*, **ALJames** and MP Wachowiak. 2011. Analyzing the influence of solar activity and El Nino on streamflow across southern Canada. Abstract H431-1358 presented at 2011 Fall Meeting, AGU, San Francisco, CA, 5-9 Dec (poster).
46. Tromp-van Meerveld HJ, Penna, D, McMillan H, **James AL**. 2010. Comparison of the relationships between antecedent wetness indices and runoff response for four small experimental catchments, Abstract 3553, CGU-CMOS Joint Meeting, Ottawa, Canada (poster).
47. Segura C*, and **AL James**. 2009. Investigating variability in small multi-scale catchment response using lumped conceptual modeling of storm-based runoff and stable isotope data. *EOS Trans.* AGU, 90(52), Fall Meeting Suppl., Abstract H32D-04 (talk).
48. **James AL**, C Segura*, JJ McDonnell, K McGuire. 2009. Can Stream Hydrographs be Used to Estimate How Long Water Resides in the Catchment? *Eos Trans.* AGU, 90(22), Jt. Assem. Suppl., Abstract H74A-06 (talk).
49. **James AL** and NT Roulet. 2009 **(INVITED)**. Antecedent moisture conditions and catchment morphology as controls on spatial patterns of runoff generation in small forest catchments. *Geophysical Research Abstracts*, Vol. 11, EGU2009-0, 2009, EGU General Assembly 2009, 18-24 April, Vienna, Austria (talk).
50. **James AL**, JJ McDonnell, HJ Tromp van Meerveld, NE Peters. 2008. Physics-based hydrologic-response simulation at the hillslope scale: An experimentalist's view. CGU Annual Meeting, Banff (poster).
51. **James AL**, JJ McDonnell, and KL McGuire. 2007. On the Link Between Streamflow Transit Time and Hydrograph Recession, *Eos Trans.* AGU, 88(52), Fall Meet. Suppl., Abstract H12E-03 (talk).
52. **James AL** and JJ McDonnell. 2006. Investigating nonlinear rainfall-runoff response from a trenched hillslope using TOUGH2 3-D simulations, Proceedings, TOUGH Symposium 2006, Lawrence Berkeley National Laboratory, Berkeley, CA, May 15-17 (talk).
53. **James AL** and NT Roulet. 2005 **(INVITED)**. Investigating the influence of topography and landscape organization on scaling of small catchment storm runoff generation, *Eos Trans.* AGU, 86(52), Fall Meet. Suppl., Abstract H21F-03 (talk).
54. **James AL** and NT Roulet. 2005. Examining spatial hydrologic connectivity as a control on runoff response in a temperate forested watershed, CGU Annual Meeting, Banff, Alberta (talk).
55. **James AL** and NT Roulet. 2004. A multi-basin analysis of runoff generation in a temperate forested watershed, *Eos Trans.* AGU, 85(47), Fall Meet. Suppl., Abstract H51B-1120 (talk).
56. **James AL** and NT Roulet. 2004. Examining runoff generation across scale: a test of mixing models, *EOS Trans.* AGU, 85(17), Jt. Assem. Suppl., Abstract, B44A, Montreal, Quebec (talk).
57. **James AL** and NT Roulet. 2003. Examining runoff generation across scale in a forested watershed in temperate, Eastern Canada, *Geophysical Research Abstracts*, vol. 5, 00676 (talk).
58. **James AL** and NT Roulet. 2002. Examination of a multi-scale dataset of storm response from a forested watershed: A tale of two storms, CGU Annual Meeting, Banff, Alberta (talk).
59. **James AL** and CM Oldenburg. 1998. Enhanced data analysis of VOC plume movement in a thick vadose zone, H42G-07, AGU Fall Meeting, 79(45) (talk).
60. **James AL**, CM Oldenburg and S Finsterle. 1997. Analysis of uncertainty for 2-D fracture flow and seepage into an excavated niche, H42E-07, AGU Fall Meeting, 78(46) (talk).

61. Hall D, **AL James**, CM Oldenburg and TE McKone. 1996. Uncertainty propagation from subsurface transport to exposure modeling, H31B-17, AGU Fall Meeting, 77(36) (poster).
62. **James AL** and CM Oldenburg. 1995. Uncertainty analysis for large-scale subsurface transport simulation, H12A-6, AGU Fall Meeting, 76(46) (poster).
63. **James AL** and RW Falta. 1993. Optimization of soil vapor extraction well design, American Institute of Chemical Engineers (AIChE) Annual Meeting, Advances in soil venting, Session 157, St. Louis, Missouri (talk).

NON-REFEREED PUBLICATIONS:

Published Abstracts or Talks – Non-Refereed Poster Presentations

(* = HQP; presenting author)

1. *Dusome E, **AL James**, H Yao. 2017. Isotope Hydrology of the Muskoka River Watershed, Central Ontario, Canada. Canadian Association of Geographers Ontario Conference, 20-21 Oct 2017.
2. *Snider R, **AL James**, 2017. A One-Year Survey of Water Quality for River Flow into Lake Nipissing, ON, Canadian Association of Geographers Ontario Conference , 20-21 Oct 2017.
3. *England N, **AL James**, R. Pyrcce, K. Chutko. 2014. Informing Water Management of the Sturgeon River Watershed In Northeastern Ontario via Historical Hydrometric Data Review and Isotopic Analysis (poster). Muskoka Summit on the Environment: Environment –Economy. May 8-9.
4. *Hodiak J, A Lambert, S Shifflett, **A James**, D Bunn, M McHale, EG Nichols. 2012. IMAGINE Safe Drinking Water in South Africa: Student/Community Collaborations to Assess Ground Water Quality and Availability. NCSU Summer Undergraduate Research Symposium, Talley Student Center, NC State Univeristy, August 1st, 2012.
5. *Fu C and **AL James**, 2011. Catchment hydrological modeling of threshold rainfall-runoff response, SHARCNET Research Day, Sheridan College, Oakville, 18 May 2011.
6. *Dreps C, *Kuntukova K, **James AL**, Boggs J and G Sun. 2010. Comparing Slate Belt and Triassic Basin headwater catchment hydrology: a study of reference hydrologic conditions for headwaters of the Neuse River Basin. North Carolina Water Resources Research Institute Annual Conference, Raleigh, NC, USA, Mar 30.
7. **James AL** and NT Roulet. 2003. How does runoff generation change with scale: examining geochemical evidence across nested catchments in a forested watershed, Gordon Research conference on Catchment Science: Interactions of hydrology, biology and geochemistry, July 20-25.
8. **James AL** and NT Roulet. 2003. Examining runoff generation across scale: a test of mixing models, *CGU Hydrology Section Student Conference*, University of Toronto, 5 December.
9. **James AL** and NT Roulet. 2002. The hydrologic and biogeochemical response of a forested watershed, *AGU Chapman Conference on State-of-the-Art Hillslope Hydrology*, Sunriver, Oregon, October 8-12.
10. **James AL** CM Oldenburg and S Finsterle. 1998. Analysis of uncertainty for 2-D fracture flow and seepage into an excavated niche, *TOUGH Workshop '98*, Lawrence Berkeley National Laboratory, University of California, Berkeley, CA.
11. **James AL**, CM Oldenburg and S Finsterle. 1997. Analysis of uncertainty for 2-D fracture flow and seepage into an excavated niche, Field Testing and Associated Modeling (FTAM) of Potential High-Level Nuclear Waste Geologic Disposal Sites, *FTAM workshop*, Lawrence Berkeley National Laboratory, University of California, Berkeley, CA.

12. **James AL** and RW Falta. 1993. Optimization of Soil Vapor Extraction Well Design, ER'93 Environmental Remediation Conf. Proc., U.S. Dept. of Energy. Office for Environmental Restoration, 2, 859-863.

Non-Refereed Professional Presentations

1. **James AL**, K Montgomery*, A Tafvizi*, D Zhang, Y Lin, T Chai, H Yao, T Field, C McConnell. 2019. Modeling Stream Chloride Concentrations in Rural Catchments Impacts by Road Salts in Central and Northeastern Ontario. Ontario Ministry of Environment, Conservation and Parks Inland Lakes and Northern Science Unit - Science Day, Bracebridge ON, 29 May 2019.
2. **James AL**. 2017. Applications of Water Isotopes in Hydrologic Studies in Northeastern and Central Ontario, Canada, **(INVITED)** 20 April 2017 – Sun Yat-sen University, Guangzhou City, Guangdong Province, China; 21 April 2017 – Fujian Normal University, Fuzhou, Fujian Province, China.
3. **James AL**. 2011. Hydrology of Piedmont headwater catchments: similarities and differences in water balance and storm response, University of Toronto at Mississauga **(INVITED)**, 18-Nov.
4. **James AL**. 2011. State-of-the-art scientific research on headwater streamflow generation: a hydrologic and geomorphic perspective, Eastern Region Headwaters Workshop, Ottawa, Canada, 25-Feb.
5. **James AL**, C Segura, JJ McDonnell, KJ McGuire. 2009. Using hydrograph recession as a proxy for Residence Time estimation across scale. State of the art of catchment-scale residence time: conceptualization, modeling and analysis, 19-21 January, Vienna, Austria.
6. ***Segura C** and **AL James**. 2009. Combining hydrometric, stable isotope and hydrochemical analysis in the development of a multi-scale catchment model of a forested headwater system. Second International Conference on Forests and Water in a Changing Environment, Raleigh, NC, Sept 14-16.
7. **James AL** and NT Roulet. 2008. A scale-base study of stream runoff generation and riparian area contributions in small forested catchments and the effects of varying hydrologic conditions. American Water Resources Association (AWRA) Summer Specialty Conference, Riparian Ecosystems and Buffers: Working at the Water's Edge, Session 25, Groundwater-surface water runoff contributions to streamflow under varying hydrologic and geologic conditions.
8. **James AL** and NT Roulet. 2003. Examining runoff generation across scale: a test of mixing models, CGU Hydrology Section Student Conference, University of Toronto, 5 December.

Reports and Conference Proceedings – Non-refereed

1. Snider R*, **James AL**, Yao H, Field T. 2019. Assessing Water Quality in the Lake Nipissing-Sturgeon River-French River Basin, a Tributary of Georgian Bay, Lake Huron. Submitted to Ontario Ministry of Environment, Conservation and Parks, and the North Bay-Mattawa Conservation Authority. 20 February, 2019, 30p.
2. E Dusome*, **AL James**, Y Yao, C McConnell, R Field, A Beaton. 2018. Characterization of Stable Water Isotopes for the Muskoka River Watershed. August 2018. Submitted to the Ontario Ministry of Environment, Conservation and Parks. 24 Aug 2018, 47p.
3. **AL James** and R Snider*. 2017. Wasi Watershed Storm Monitoring Project – Status Update, December 2017, Submitted to the North Bay-Mattawa Conservation Authority. 18 December, 2017, 13p.
4. **AL James**, M Robidoux*, M Prescott*. 2016. Wasi Watershed Storm Monitoring Project – Status Update, August 2016. Submitted to the North Bay-Mattawa Conservation Authority. 22 August, 2016, 23p.

5. McCorkell*, K Chutko, B Rundle*, **AL James**. 2014. 2014 Wasi Watershed Storm Monitoring Project. Submitted to the North Bay-Mattawa Conservation Authority. 20 January, 2015. 10p.
6. B Rundle*, K Chutko, **AL James**. 2013. 2013 Wasi watershed streamflow monitoring activities: Graham Creek tributaries. Submitted to the North Bay-Mattawa Conservation Authority. 28 January 2014. 29p.
7. D Walters, **AL James**, M Malette . 2012. Dokis First Nation Source Water Protection Plan. 27 June 2012. 34p.
8. **James AL** JJ McDonnell. 2006. Investigating Nonlinear Rainfall-Runoff Response from a Trenched Hillslope Using TOUGH2 3-D Simulations, Proceedings of TOUGH Symposium 2006, Lawrence Berkeley National Laboratory, Berkeley, California, May 15-17, 2006.

Internal Reports at Lawrence Berkeley National Laboratory

1. **James AL** and CM Oldenburg. 1998. Site S-7 representative model and application for the vadose zone monitoring system (VZMS), McClellan AFB Semi-Annual Report, LBNL-42643, Lawrence Berkeley National Laboratory, University of California, Berkeley, CA, 26p.
2. **James AL** and CM Oldenburg. 1998. Enhanced data analysis for the VZMS: conceptual model design and initial application for the vadose zone monitoring system (VZMS), McClellan AFB Semi-Annual Report, LBNL-41909, Lawrence Berkeley National Laboratory, University of California, Berkeley, CA, 38p.
3. Finsterle S, **AL James**, A Ritcey and JSY Wang. 1998. Model Prediction of cross-drift impact on moisture, Yucca Mountain Site Characterization Project Level 4 Milestone SP33T1M4, Lawrence Berkeley National Laboratory, University of California, Berkeley, CA, 32p.
4. **James AL** and S Finsterle. 1998. Chapter 4. Prediction of construction water migration at cross-over point, Model prediction of local plume migration from the cross drift, Yucca Mountain Site Characterization Project Level 4 Milestone SP33S3M4, Rev. 1, Lawrence Berkeley National Laboratory, University of California, Berkeley, CA, 46-60.
5. Finsterle S, and **AL James**. 1998. Chapter 3: Sensitivity analysis of drift seepage with two-dimensional and three-dimensional models, Testing and modeling of seepage into drifts. Input of exploratory study facility seepage test results to unsaturated zone models, Yucca Mountain Site Characterization Project Level 4 Milestone SP33PLM4, Lawrence Berkeley National Laboratory, University of California, Berkeley, CA, 40-46.
6. **James AL** and S Finsterle. 1997. Chapter 4: Fracture flow models for niche liquid release tests, Field testing and observation of potential fast flow paths, Phase 1 status report for the drift seepage test and niche moisture study, Yucca Mountain Site Characterization Project Level 4 Milestone SPC314M4, Lawrence Berkeley National Lab, University of California, Berkeley, CA, 23p.
7. **James AL**, J Hinds and J Wang. 1997. Chapter 8: ESF data and analysis. The site-scale unsaturated zone model of Yucca Mountain, Nevada, for the viability assessment, Yucca Mountain Site Characterization Project Milestone SP24UFM, LBNL-40376, UC-814, Lawrence Berkeley National Laboratory, University of California, Berkeley, CA, 23p.

Dissertation and Thesis

1. **James AL** 2005. Investigating small multiple catchment runoff generation in a forested temperate watershed. Ph.D. Dissertation, McGill University, Montreal, 165p (Dean's Doctoral Honors List).
2. **James AL** 1994. Optimization of soil vapor extraction well design. Master of Science Thesis. Clemson University, Clemson, SC, 131p.

SUPERVISION

A. PDF Research, Graduate and Undergraduate Theses

Students listed are primary supervision unless otherwise indicated.

Advisee – Graduate/PDF	Degree/status	Dates	University	Co-Advisor
K Montgomery	MSc - in progress	2020-	Nipissing U	M Macrae
Y Yang	MSc - in progress	2019-	Nipissing U	M Wachowiak
A Tafvizi	PhD - in progress	2018-	Laurentian U	C Ramcharan
K Montgomery	Undergrad	2018-19	Nipissing U	
I Rashid	PDF	2017-18	Nipissing U	
R Jones	MESc	2017-20	Nipissing U	D Walters
J White	MESc	2017-20	Nipissing U	M Macrae
E Dusome	Undergrad	2017-18	Nipissing U	
J. Taulu	Undergrad	2015-16	Nipissing U	
L Muldoon	MESc	2014-19	Nipissing U	A Csank
B Germain	MESc	2014-17	Nipissing U	B Branfireun
M. Rahman	PDF	2012-14	Nipissing U	H Yao
C. McConnell	MESc – flextime	2012-17	Nipissing U	H Yao
N. England	MESc – flextime	2012-17	Nipissing U	
J. Girard	MESc – flextime	2012-19	Nipissing U	D Walters
N. Mountain	MESc	2011-14	Nipissing U	
C. Fu	PDF	2011-13	Nipissing U	H Yao
Y. Johnson	PhD	2009-13	NCSU	T Shear
C. Segura	PDF	2008-10	NCSU	
K. Kuntukova	MNR	2008-11	NCSU	
C. Dreps	MSc	2008-11	NCSU	
Y. Johnson	MSc	2007-09	NCSU	T Shear
M. Galoni	Undergrad	2010-11	Nipissing U	D Walters
M. Lachance	Undergrad	2010-11	Nipissing U	D Walters
S. Mayhew-Hammond	Undergrad	2010-11	Nipissing U	J Dech

B. Graduate Student Committees

I have served as a committee member for the following graduate students.

Student Committee	Degree/status	Dates	University	Department
S. Lehman	MSc	2018-20	Laurentian U	Biology
A. Brombach	MESc -in progress	2017-	Nipissing U	Biology
Z. Rawluck	MESc	2013-16	Nipissing U	Geography
A. Birch	MS	2013-15	NCSU	FER
D. Maddelena	PhD	2010-13	NCSU	FER
K. McSwain	MS	2009-12	NCSU	Soil Science
L. Negm	PhD	2007-11	NCSU	Biological and Agri. Engineering
B. Fetzer	MS	2009-11	NCSU	FER
S. Laird	PhD	2006-10	NCSU	FER
E. Inkiläinen	MS	2009-11	NCSU	FER
A. Keysworth	MS	2006-09	NCSU	FER
D. Maddelena	MS	2006-10	NCSU	FER
R. Andrews	MS	2007-09	NCSU	FER
R. Butalia	PhD – n/a	2005-	NCSU	FER
N. Al Manaseer	PhD – n/a	2007 -	NCSU	Civil and Env. Engineering

C. Research Assistantships, Internship or Visiting Student Research

Student	Research Program	Position	Dates	University
Cole Reid	Whitson River: Impacts of Climate Change on GW-SW interactions	USRA	May-Aug 21	Nipissing U
Danielle Ouellette	Whitson River: Impacts of Climate Change on GW-SW interactions	RA	Jul-Dec 20	Nipissing U
B Li	Effects of typhoon rainstorms on water and sediment yields: SWAT modeling	Visiting PhD student	Apr-June 19	Nipissing U
K Montgomery	Muskoka Water Isotope Study	USRA	Apr-Jul 19	Nipissing U
K Montgomery	Wasi River Storm Monitoring	RA	May-Aug 18	Nipissing U
E Dusome	Muskoka Water Isotope Study	RA	May-Aug 18	Nipissing U
M Robidoux	Wasi River Storm Monitoring	RA	May-Aug 16	Nipissing U
J Taulu	Stable Water Isotopes in Rivers	USRA	May-Aug 16	Nipissing U
J Saunders	High Frequency Lake Monitoring	RA	May-Aug 16	Nipissing U
L Muldoon	Stable Water Isotopes in Lake Profiles	RA	May-Aug 16	Nipissing U
J Taulu	Wasi River Storm Monitoring	RA	May-Aug 15	Nipissing U
B Germain	Stable Water Isotopes in Rivers	RA	May-Aug 13	Nipissing U
K Cumming	Wasi River Groundwater Surface Water Interactions	RA	May-Aug 12	Nipissing U
H Stark	Wasi River Groundwater Surface	RA	May-Aug 11	Nipissing U
K Smith	Progress Energy, Environmental Technology Internship for undergraduate research	Internship	May-Aug 09	NCSU
J Hung	Summer Research at NCSU Program	International visiting student	May-Aug 08	NCSU

D. Technical Staff

Employee	Job Title	Dates	Location
R. Snider	Hydrological Technician (full-time)	May/17-present	Nipissing U
M Prescott	Hydrological Technician (full-time)	Oct/15-Mar/17	Nipissing U
D McCorkell	Hydrological Technician (full-time)	Oct/14-Sept/15	Nipissing U
K Chutko	Hydrological Technician (full-time)	Aug/12-Aug/14	Nipissing U
J Wright	Hydrological Technician (full-time)	Jan/11-May/12	Nipissing U
B Germain	Isotope Lab RA (part-time)	Sept/13-Aug/14	Nipissing U
N Mountain	Isotope Lab RA (part-time)	Sept/11-Aug/13	Nipissing U
K Shea	Isotope Lab RA (part-time)	Jan/11-Apr/11	Nipissing U

E. Former students or summer RAs continuing on to graduate school

Student	Graduate or Professional Program	Funding	Date	University
K Montgomery	MSc - Geography	Yes	Fall-20	Nipissing U
E Dusome	Bachelor of Education (concurrent)	n/a	Fall-17	Nipissing U
M Robidoux	MS – Urban Planning	Yes	Fall-16	Queen's U
J Taulu	MSc - Geography	Yes	Fall-16	U. Victoria

B Germain	MESc - Geography	Yes	Fall-14	Nipissing U
K Cumming	TRANSFORM-M Program: MSc – Forestry/ MS - Env. Management	Yes	Fall-12	UNB/ Universitat Freiburg
H Stark	MSc – Env. & Geography Centre for Earth Observation Science	Yes	Fall-12	U of Manitoba
Y Johnson	FER - PhD	Yes	Fall-09	NCSU

COURSES TAUGHT (complete listing)

Course	Code/Level	Term/Year	University	Co-instructors
Undergraduate or Undergraduate/Graduate				
Weather & Climatology	GEOG 2107	Winter 20	Nipissing U.	
Weather & Climatology	GEOG 2107	Winter 18	Nipissing U.	
		Winter 17	Nipissing U.	
		Winter 16	Nipissing U.	
Environmental Hydrology	GEOG 4326	Fall 21	Nipissing U.	
Environmental Hydrology	GEOG 4326	Fall 20	Nipissing U.	
Environmental Hydrology	GEOG 3096	Fall 17	Nipissing U.	
		Fall 16	Nipissing U.	
		Fall 15	Nipissing U.	
		Winter 13	Nipissing U.	
		Winter 12	Nipissing U.	
		Winter 11	Nipissing U.	
Environmental Modeling	GEOG 4247	Winter 12	Nipissing U.	
		Winter 11	Nipissing U.	
Watershed Hydrology	FOR 420/520	Fall 09	NCSU	
		Fall 08	NCSU	
Environmental Hydrology	GEOG 322	Winter 04	McGill	
Environmental Systems	GEOG 203	Fall 04	McGill	G Chmura, T Moore
Field Studies: Physical	GEOG 495	May 03	McGill	B Ramov
Geography		May 02	McGill	L Burge
Graduate - Core courses				
Perspectives on the Env.	ENST 5116	Fall 21	Nipissing U.	
		Fall 20	Nipissing U.	
		Fall 19	Nipissing U.	
		Fall 18	Nipissing U.	K Greer
		Fall 17	Nipissing U.	K Greer
		Fall 15	Nipissing U.	K Greer
Methods of Inquiry in Env.	ENST 5117	Winter 14	Nipissing U.	D Walters
		Winter 13	Nipissing U.	D Walters
Graduate - Topics courses (not included in course load)				
Topics in Env Hydrology	ENST 5326	Fall 20	Nipissing U.	
		Fall 19	Nipissing U.	
		Winter 18	Nipissing U.	
		Fall 12	Nipissing U.	
Special Topics in MESc	ENST 5347	Fall 12	Nipissing U.	

IMAGINE Field Course		May 12	NCSU	M McHale, E Nichols, T Steelman <i>et al.</i>
		May 11	NCSU	
Introduction to Watershed Modelling	FOR 595a	Winter 09	NCSU	
Field Hydrology	FE 538	Winter 08	NCSU	JJ McDonnell, A Mazurkiewicz, N Zegre, W van Verseveld, C Graham.
		Spring 07	OSU	
		Spring 06	OSU	

CURRICULUM VITAE

NAME:

KOVACS, John M., Full Professor, Tenured

DEGREES:

Ph.D. Geography, University of Western Ontario, 2000
M.A. Geography, University of Windsor, 1995
B.Sc. (Hons.) Biology/Physical Geography, Queen's University, 1991

ACADEMIC EMPLOYMENT HISTORY:

2008 Full Professor, Department of Geography, Nipissing University
2004-2008 Associate Professor, Department of Geography, Nipissing University
2000-2004 Assistant Professor, Department of Geography, Nipissing University

HONOURS/RECOGNITION:

2005-2006 The Chancellor's Award for Excellence in Research, Nipissing University
2004-2005 Research Achievement Award, Nipissing University
2012-2016 Editorial Board, *Geography Journal*

EXPERT WITNESS (*International Tort Litigation - Commercial Law*)

2017-2018 "The Government of Indonesia vs The Petroleum Authority of Thailand Exploration and Production (PTTED) Australasia (Ashmore Cartier) Pty Ltd., The PTTED Public Company & The Petroleum Authority of Thailand (PTT) Public Company Limited"
2012-2015 "The Bodo Community and Others vs The Shell Petroleum Development Company of Nigeria Limited" (Case #: HT-13-295 and HT-13-339 to 350)

SCHOLARLY AND PROFESSIONAL ACTIVITIES:

2021-2022 Guest Editor, **International Journal of Applied Earth Observation and Geoinformation**, Special Issue "Remote sensing of plant phenological and physiological responses to climate change"
2021 Reviewer, Quality Assurance Cyclical Program, *Natural Resources Management Graduate Programs (MScF; MFM; PhD)*, Lakehead University
2021 Grant Reviewer, **NSERC**, Discovery Grant, Geosciences
2019-2020 Guest Editor, **Remote Sensing**, Special Issue "Advances of Multi-Temporal Remote Sensing in Vegetation and Agriculture Research"
32 papers peer reviewed & published (Impact Factor 4.5)
https://www.mdpi.com/journal/remotesensing/special_issues/Multi-Temporal_RemoteSensing

2020	<i>Grant Reviewer, Research Grants Council of Hong Kong, Earth Sciences</i>
2020	<i>Grant Reviewer, NSERC, Discovery Grant, Geosciences</i>
2019	<i>Reviewer, Quality Assurance Cyclical Program, Natural Resources Management Undergraduate Program, Lakehead University</i>
2018	<i>Grant Reviewer, Swiss National Science Foundation, Croatian-Swiss Research Program-Engineering Sciences, (1 proposal at Swiss CHF\$ 398,381.⁰⁰)</i>
2017	<i>Grant Reviewer, US Department of Defense, Strategic Environmental Research and Development Program, Statement of Need RCSON-18-C2 “Climate Change Vulnerability Assessment of Major Habitats on and Around DoD lands” (3 proposals at US\$ 4,267,816.⁰⁰)</i>
2017	<i>Grant Reviewer, German Research Foundation (Deutsche Forschungsgemeinschaft) (1 proposal at €\$ 233,850.⁰⁰)</i>
2017	<i>Member, Environmental Panel, Ontario Research Fund-Large Infrastructure Fund Competition, Ontario Ministry of Research Innovation and Science (8 proposals at \$52,789,740.⁰⁰)</i>
2015-2018	<i>Adjunct Professor, TropWATER Centre, James Cook University, Australia</i>
2015-2016	<i>International Expert, for EnGlobe Corporation to conduct an Environmental Baseline Study of Mangroves</i>
2009-2016	<i>External reviewer, Promotion to Full Professor, Memorial University of Newfoundland & Mt. Allison University, Promotion to Senior Lecturer, The University of the South Pacific</i>
2012-2013	<i>Panel Chair (153), Ontario Council of Graduate Studies, Grant Adjudicator (Division: Biological Sciences, Discipline: 401 Environmental Sciences) Doctorate Level</i>
2012	<i>Grant Reviewer, US Department of Defense, Strategic Environmental Research and Development Program, Statement of Need RCSON-13-01 “Department of Defense Pacific Island Installations: Impacts of and Adaptive Responses to Climate Change”, two proposals (2 proposals at US\$ 2,138,428.⁰⁰)</i>
2009-2014	<i>Adjunct Professor of Geography, School of Graduate and Postdoctoral Studies, University of Western Ontario (M.Sc. & Ph.D. supervision)</i>
2008-2011	<i>Member, Natural Sciences & Engineering Research Council of Canada Scholarships and Fellowships Selection Committee for Earth Sciences and Ecology (GSC-186)- MS, Doctorate & Post-Doctorate levels</i>
2011	<i>International Expert, for Environnement Illimité Inc (Dessau) to conduct an Environmental Baseline Study of Mangroves</i>
2010	<i>Reviewer as international authority, for Tier II Canada Research Chair renewal, University of Regina</i>
2001-2010	<i>Visiting Research Professor, Scientific Institute for Oceanography and Limnology-Mazatlan Research Station, Universidad Nacional Autonoma de Mexico, (ola.icmyl.unam.mx; 2001, 2002, 2004, 2007, 2008, 2010)</i>

- 2006 & 2009 *International Grant Reviewer*, Belgian Earth Observation Programme-Belgian Space Agency/Science Policy-Support to the Exploitation and Research of Earth Observation data Program
- 2008-2009 *International Expert*, for Environnement Illimité Inc & SNC-Lavalin Environment Inc. to conduct an Environmental Baseline Study of Mangroves
- 2003-Present Referee-30 International Academic Journals:
Aquatic Conservation; Biogeosciences, Biotropica; Canadian Journal of Forest Research; Canadian Journal of Remote Sensing; Ciencias Marinas; Economic Botany; Environmental Management; Environmental Monitoring and Assessment; Estuaries and Coasts; European Journal of Forest Research; Hydrological Processes; IEEE Journal Selected Topics in Applied Earth Observations & Remote Sensing; International Journal of Remote Sensing; International Journal of Applied Earth Observation & Geoinformation; Indian Journal of Marine Sciences; Interiencia, ISPRS Journal of Photogrammetry and Remote Sensing; Journal of Coastal Research; Journal of Forestry Research; Journal of Mountain Science; Landscape and Urban Planning; Photogrammetric Engineering and Remote Sensing; Remote Sensing; Remote Sensing of Environment; Science of the Total Environment; Society and Ecology; Wetlands; Wetlands Ecology and Management
Declined: Journal of Environmental Management; Landscape Ecology; Marine and Freshwater Research; Sensors; Progress in Physical Geography; Computers and Electronics in Agriculture

SIGNIFICANT UNIVERSITY ADMINISTRATION DUTIES:

- 2020-2023 Chair, Department of Geography
- 2020-2021 Member, B.E.Sc. program development committee
- 2020-2021 Member, CRC selection committee (Environment & Climate Change)
- 2018-2020 Chair, Department of Geography
- 2016-2018 Chair, Department of Geography
- 2011-2014 Chair, Department of Geography
- 2016-2017 Program Representative, Graduate Studies Council
- 2015-2016 Program Representative, Graduate Studies Council
- 2013-2015 Member, Board of Governors
- 2014-2015 Board Representative, Plant and Property Committee
- 2013-2014 Board Representative, University Governance Committee
- 2013-2014 Member, Assistant Registrar (Curriculum/Advising) hiring committee
- 2013 Member, CRC selection committee (Environmental History)
- 2011-2012 Member, Graduate Studies Council (M.E.S. Adviser)
- 2011-2012 Member, Vice President Acad. & Res. Selection committee
- 2012 Member, hiring committee, Physical & Health Education
- 2011 Member, CRC selection committee (Lifespan Health & Physical Activity)
- 2011 Member, Chancellor's Award-Research selection sub-committee
- 2008-2010 Elected Senate Representative, Faculty of Arts & Science
- 2009-2011 Member, M.E.S/ M.E.Sc. development committee
- 2008-2010 Member, University Research Committee
- 2010 Member, Strategic Research Plan Committee
- 2010 Member, CRC Selection Committee (Watershed Hydrology)
- 2010 Member, Chancellor's Award-Research selection sub-committee
- 2009-2010 Member, Senate Executive Committee
- 2008-2009 Member, External on Mathematics Hiring Committee
- 2008-2009 Member, CRC Selection Committee (Life Science & Environment)

2007-2008	Member, Chancellor's Award-Research selection sub-committee
2006-2007	Member, CRC Recruitment Committee (Biogeochemistry)
2006-2007	Member, Chancellor's Award-Research selection sub-committee
2005-2006	Member, Appointments, Promotions and Tenure Sub-Committee for the Faculty of Arts & Science
2005-2006	Member, Academic Planning Committee
2004-2005	Member, Academic Planning Committee
2004-2005	Member, Appointments, Promotions & Tenure Committee –Appeals for Promotion
2004-2005	Member, Appointments, Promotions & Tenure Committee –Appeals for Tenure
2003-2004	Member, Admissions, Promotions and Petitions Committee
2003-2004	Member, Grading Standards & Practices Policy Review Sub-Committee (Faculty of Arts & Science)
2003-2004	Member, CRC Recruitment Committee
2002-2003	Co-Chair, Student Affairs Committee
2001-2002	Member, University Library Committee
2000-2008	Member, University Senate

GRADUATE SUPERVISIONS:

Completed: 5 (4 Masters, 1 PhD, *=NSERC/SSHRC recipient)

- i-Flores de Santiago, Francisco (Ph.D. Thesis co-supervisor), Department of Geography, The University of Western Ontario. (2009-2013)
- ii-*Wilson, Jeff (M.E.Sc. Thesis), Nipissing University (2011-2013)
- iii-Cable, Jeff (M.E.Sc. Thesis), Nipissing University (2011-2013)
- iv-Flores de Santiago, Francisco (M.Sc. Thesis advisor) Facultad de Ciencias Marinas, Universidad Autonoma de Baja California, Mexico. (2005-2007)
- v-*Gambles, Autumn (M.Sc. Thesis co-supervisor), Department of Geography, The University of Western Ontario. (2011-2015)
- vi-* Ysabel Castle (MESC thesis), Nipissing University (2019-2021)

In Progress: 1

- i-*Stephane Rhude (M.E.Sc. thesis), Nipissing University (2015-)

MESC Thesis Examiner-Ms. Elizabeth Elliot-“Oxygen isotope values of charred tree bark as an indicator of forest fire severity”

(Supervisor: Dr. Jeff Dech, Dept Biology & Chemistry, Nipissing U)

MESC Thesis Examiner-Ms. Rebecca Wylie-“Estimating stand age from airborne laser scanning data to improve ecosite-based models of black spruce wood quality in the boreal forest of Ontario”

(Supervisor: Dr. Jeff Dech, Dept Biology & Chemistry, Nipissing U)

PhD Thesis Examiner-Dr. Tekleab Gala-“Characterizing near-surface and surface hydrology in the prairie pothole region of central Canada” -2010

(Supervisor: Dr. Creed-CRC, Depts of Biology/Geography/Earth Sci., UWO)

g)

GRADUATE COURSES:

ENST 5316 Remote Sensing for Environmental Monitoring (2012, 2016, 2019)

ENST 5117 Methods of Inquiry in Environmental Research (2015-2016)

h) 1. EXTERNAL RESEARCH FUNDING (†=PI or Co-PI):

<u>Year</u>	<u>Source</u>	<u>Type*</u>	<u>Total</u>	<u>Purpose**</u>
Natural Sciences and Engineering Research Council (NSERC) of Canada				
†2014-2022	NSERC Discovery Grant <i>"Alternative methods for assessing and monitoring mangrove forests"</i>	C	\$180,000	Research
†2008-2014	NSERC Discovery Grant <i>"Alternative methods for assessing and monitoring mangrove forests"</i>	C	\$75,000	Research
†2006-2008	NSERC Discovery Grant <i>"Alternative methods for assessing and monitoring mangrove forests"</i>	C	\$26,800	Research
†2003	NSERC Tools & Instr. <i>"Alternative methods for assessing and monitoring mangrove forests"</i>	C	\$8,390	Research
†2002-2006	NSERC Discovery Grant <i>"Alternative methods for assessing and monitoring mangrove forests"</i>	C	\$60,000	Research

Other Granting Agencies

2019-2021	SSHRC Partnership Development Grant (PI-Kirsten Greer, Nipissing U) <i>"Reassembling Ontario's 'Near North': Reparation through university-museum-Indigenous research partnerships"</i>		\$189,920	Research
2019	Agriculture Agri-Foods Cdn. G (AAFC Project # 3000684493) <i>"Data and information collection in support of the sustainability Biomass Harvest project in Ontario"</i>		\$20,000	Research
2016-2018	Tropical Water Quality Hub National Environmental Science Programme (Australia) (PI-Dr. Duke, James Cook University) <i>"Working with Traditional Owners and local citizens to better manage GBR estuarine wetlands"</i>		\$450,000 (Australian)	Research
2014-2020	Gladstone Ports Corporation Queensland, Australia (PI-Dr. Duke, James Cook University) <i>"Monitoring the survival and recovery of shorelines, specifically tidal wetlands (Mangroves/Saltmarsh/Salt pans)"</i>	G	\$468,020 (Australian)	Research
†2014-2018	Canadian Space Agency Agenzia Spaziale Italiana COSMO-SkyMed/Radarsat-2 Initiative <i>"Combined use of X and C band space-borne SAR for monitoring white mangrove biophysical parameters"</i>	C	\$156,240 (Oct-2014)†	Research
†2013-2018	Japan Aerospace Exploration Agency <i>"Examining the use of PALSAR-2 for mapping and monitoring degraded tropical coastal forested wetlands"</i>	C	\$100,000†	Research
†2014-2017	Japan Aerospace Exploration Agency (PI- Dr. Shang, AAFC) <i>"Integration of multi-frequency and multi-sensor SAR data for agricultural land use"</i>	C	\$100,000†	Research

2011-2013	mapping and crop growth condition monitoring in Canada, USA, and China” AgriFlex (PI-Dr.Shang) G \$155,000 Research (AAFC External Collaborator)
2011	“Soil nutrient and crop stress monitoring using advanced Earth Observation technology” Agriculture Agri-Foods Cdn. G \$12,000 Research (AAFC Project # 3000448138)
†2011-2014	“Field data collection in Ontario in support of crop inventory mapping” NOHFC G \$410,500 Research (Co-PI with D.Walters)
2008-2009	“Integrated geospatial data and visualization technology” East Tennessee State Univ. C \$8,995 Research (PI-Dr. Zhang, ETSU)
†2008	“Monitoring degraded mangrove forests using hyperspectral remote sensing techniques” Env.Illim.-SNC Lavalin O \$100,000 Research “An inventory of the Mabala and Yélitono mangrove forest: A field and remote sensing based approach”
2007-2011	Japan Aerospace Exploration C \$100,000† Research Agency (PI- Dr. Lu, NUS) “Assessing forest change associated sediment modifications for large tropical estuaries using ALOS PALSAR data”
†2006	Canadian Space Agency, C \$54,000† Research Canada Centre for Remote Sensing & MDA “Monitoring mangrove forests using RADARSAT-2 data”
†2004	Canadian Space Agency C \$16,700† Research & MDA “Use of RADARSAT-1 for estimating mangrove forest structure”

*Type: C-Granting councils; G-Government; F-Foundations; O-Other

**Purpose: research, travel, publication, etc.; † = cost of data

Nipissing Grant

2020 Nipissing University COVID-19 \$4,800 Research
“Mapping and assessing potential changes in the spatial distribution of criminal activities in the City of North Bay, Ontario, during the COVID-19 pandemic.”

2. RESEARCH INDICES (as of July 21st-2021):

Research Gate

RG Score: **30.9** Reads: **32,391**

Google Scholar

Citations: **4,498** H-index = **31** i10-index = **42**

3. PUBLICATIONS/REPORTS/PRESENTATIONS

Expert Witness Court Report

Kovacs, J.M. 2014. *State of the Mangrove Environment in Bodo Before and After the 2008 Operational Spills*. Submitted-**The High Court of Justice**-Queens Bench Division-Technology and Construction Court in the Matter of the Bomu-Bonny Oil Pipeline Litigation before the Honourable Mr Justice Akenhead between “The Bodo Community and Others” (Claimants) and “The Shell Petroleum Development Company of Nigeria Ltd” (Defendant), 115 pp.

Chapters in Books:

5. Zhang, C., **Kovacs, J.M.**, and D. Walters. 2018. The use of small unmanned aerial systems (UASs) in precision agriculture. In: *Precision Agriculture for Sustainability*. Stafford, J. (Ed.) Burleigh Dodds Science Publishing Limited, Cambridge, United Kingdom, 22 pgs. (doi:10.19103/AS.2017.0032.04)
4. Flores-Verdugo, F., Amezcua, F., **Kovacs, J.M.**, Serrano, D. and M. Blanco Correa. 2014. Changes in the hydrological regime of coastal lagoons affect mangroves and small scale fisheries: The case of the mangrove-estuarine complex of Marismas Nacionales (Pacific Coast of Mexico). In: *Fisheries Management of Mexican and Central American Estuaries*. Amezcua, F., Bellgraph, B. (Eds.) Springer Science, Deordrecht, Netherlands, pp. 81-92. (doi:10.1007/978-94-017-8917-2_6)
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1. Flores-Verdugo, F., Benitez-Pardo, D., Agraz-Hernandez, C. and **J.M. Kovacs**. 2006. Manejo, conservacion y restauracion de ecosistemas de manglar. In: *Atlas del Manejo y Conservacion de la Biodiversidad y Ecosistemas de Sinaloa*. Cifuentes-Lemus, J.L., Gaxiola Lopez, J. (Eds.), El Colegio de Sinaloa, Sinaloa, Mexico, pp. 11-20.

Papers under review:

Castle, Y.A., and **J.M. Kovacs**. Weather and crime in a small northern city.

Duke, N.C., Mackenzie, J.R., Hutley, L., **Kovacs, J.M.**, Staben, G., Lymburner, L., Bourke, A., and E. Ai. Extreme ENSO-driven oscillations in mean sea level destabilise critical shoreline mangroves – an emerging additional threat with greenhouse warming.

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48. Castle, Y.A., and **J.M. Kovacs**. 2021. Identifying seasonal spatial patterns of crime in a small northern city. Crime Science 10 (25) (doi.org/10.1186/s40163-021-00161-w)
47. Valderrama-Landeros, L., Flores-de-Santiago, F., Rodríguez-Sobreyra, R., Flores-Verdugo, F., and **J.M. Kovacs**. 2020. Extrapolating canopy phenology information using Sentinel-2 data and the Google Earth Engine platform to identify the optimal dates for remotely sensed image acquisition of semiarid mangroves. Journal of Environmental Management 279 (1):111617 (doi.org/10.1016/j.jenvman.2020.111617)
46. Serrano, D., Flores-Verdugo, F., Ramírez-Félix, E., **Kovacs, J.M.** and F. Flores-de-Santiago. 2020. Modelling tidal hydrodynamic changes induced by the opening of an artificial inlet within a subtropical mangrove dominated estuary. Wetlands Ecology and Management 28: 103-118 (doi.org/10.1007/s11273-019-09697-w)
45. Shang, J., Liu, J., Poncos, V., Geng, X., Qian, B., Chen, Q., Dong, T., Macdonald, D., Martin, T., **Kovacs, J.M.**, and D. Walters. 2020. Detection of Crop Seeding and Harvest through Analysis of Time-Series Sentinel-1 Interferometric SAR Data. Remote Sensing 12: 1551-1569 (doi.org/10.3390/rs12101551)
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43. Dong, T. Liu, J., Shang, J., Qian, B., Ma, B., **Kovacs, J.M.**, Walters, D., Jiao, X., Geng, X., and Y. Shi. 2019. Assessment of red-edge vegetation indices for crop leaf area index estimation. Remote Sensing of Environment 222: 133-148. (doi:10.1016/j.rse.2018.12.032)
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39. Herath, A., Ma, B.L., Shang, J., Liu, J., Dong, T., Jiao, X., **Kovacs J.M.**, and D. Walters. 2018. On-farm spatial characterization of soil mineral nitrogen, crop growth, and yield of canola as affected by different rates of nitrogen application. Canadian Journal of Soil Science 98: 1-14. (doi:10.1139/CJSS-2017-0024)
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19. Zhang, C. and **J.M. Kovacs**. 2012. The application of small unmanned aerial systems for precision agriculture - A review. Precision Agriculture 13: 693-712. (doi:10.1007/s11119-012-9274-5)
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9. Duke, N.C., MacKenzie, J., Fennessy, R., Cormier, R. and **Kovacs, J.M.** (2019) *Southern Great Barrier Reef Coastal Habitat Archive and Monitoring Program: Mangrove Management Plan Volume 2*. Report to the National Environmental Science Program. Reef and Rainforest Research Centre Limited, Cairns (160pp.).
8. Atkinson, I., Wyatt, M. and S. van der Valk. (2017) *2016-2017 Annual Report: Port Curtis and Port Alma Coastal Habitat Archive and Monitoring Program (PCPA CHAMP)*. Report produced for the Ecosystem Research and Monitoring Program Advisory Panel as Part of Gladstone Ports Corporation's Ecosystem Research and Monitoring Program. Centre for Tropical Water and Aquatic Ecosystem Research (TropWATER) Publication 17/56, James Cook University, Townsville, 43 pp.
7. Duke, N.C., Mackenzie, J., Fennessy, R., **Kovacs, J.M.**, Lambert, H. (2017) *2017 June Milestone Report: Southern GBR Coastal Habitat Archive and Monitoring Program (SGBR CHAMP)*. Report produced for the National Science Environmental Programme Tropical Water Quality Hub. Centre for Tropical Water And Aquatic Ecosystem Research (TropWATER) Milestone Report, James Cook University, Townsville, 33 pp. plus appendices.
6. Duke N.C., Mackenzie J., **Kovacs, J.M.**, Hill, D., Eilert, F., Atkinson, I., and van der Valk, S. 2016. *2015-2016 Annual Report: Port Curtis and Port Alma Coastal Habitat Archive and Monitoring Program (PCPA CHAMP)*. Report produced for the Ecosystem Research and Monitoring Program Advisory Panel as part of Gladstone Ports Corporation's Ecosystem Research and Monitoring Program. Centre for Tropical Water and Aquatic Ecosystem Research (TropWATER) Publication 16/xx, James Cook University, Townsville, Australia, 59 pp.
5. **Kovacs, J.M.** 2016. *Baseline Report for the Mangroves of Port Morébaya River (Guinea) Site Based on a Remote Sensing Approach*. Report provided to Englobe & Rio Tinto Iron Ore Atlantic Limited -part of Simandou Project port-marine investigations and studies phase 2 activities.

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IQAP Reports

Scott Hamilton, **John. M. Kovacs** and Vic Lieffers. 2019. *External Review Team's Report on the Faculty of Natural Resource Management Undergraduate Programs*. (HBScF & HBEM) Submitted to the Deputy Provost, Lakehead University, 20 pages.

Department of Geography (Lead author). 2019. *Geography Department Cyclical Review: Department's Response to the Reviewers' Report*. Submitted to the VP Academic & Research-Provost, Nipissing University, 6 pages.

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Abstracts and/or Papers Read:

67. Greer, K., Couchie, A., and **J.M. Kovacs**. *Okikendawt Timber: Dismantling the Colonial Aerial Photographic Archive through Indigenous Art-Creation*. *Departmental Colloquium Series*, Feb. 26th, 2020, Department of Geography and Planning, Queen's University, Kingston, Ontario.
66. Kaba, I. and **J.M. Kovacs**. Mapping mangrove forest cover changes along the coast of Guinea, West Africa, from 1986 to 2016 using multi-temporal Landsat

- imagery. Annual Conference, Canadian Association of Geographers-Ontario Division, Oct. 19-20, 2018, University of Toronto, Toronto, Ontario.
65. Doyle, B. and **J.M. Kovacs**. Examining wetland changes and oil spills in the Eastern Region of the Niger Delta using historical satellite imagery. Annual Conference, Canadian Association of Geographers-Ontario Division, Oct. 19-20, 2018, University of Toronto, Toronto, Ontario.
64. Cormier, R. J., **Kovacs, J.M.**, Greer, K., and R. Restoule. Developing historical aerial photo mosaics to map colonial encroachment on the Dokis First Nations following the timber surrender of 1908. Annual Conference, Canadian Association of Geographers-Ontario Division, Oct. 19-20, 2018, University of Toronto, Toronto, Ontario.
63. Greer, K., Restoule, R., **Kovacs, J.M.** and M. Prescott. Okikendawt timber: Using historical surveys and aerial photographs to examine colonial encroachment on Dokis First Nation land. Annual Conference, International Geographical Union, August 6-10, Quebec City, Quebec, Canada.
62. Zhang, C., **Kovacs, J.M.** and D. Walters. Comparison of unmanned aerial system images and satellite imagery in monitoring crop conditions: a case study in Northeastern Ontario, Canada. Annual Conference, Association of American Geographers, 10-14, April, 2018, New Orleans, Louisiana, USA.
61. Zhang, C., **Kovacs, J.M.** and D. Walters. A critical review of applications of unmanned aerial system images in precision agriculture CAG York University Annual Conference, Canadian Association of Geographers, May 29-June 2, 2017, York University, Toronto, Ontario.
60. Hill, D.J.E., **Kovacs, J.M.**, and F. Flores-de-Santiago. Applications of RADARSAT-2 polarimetric data for assessing degraded white mangrove forests. Annual Conference, Canadian Association of Geographers-Ontario Division, Oct. 28-29, 2016, University of Waterloo, Waterloo, Ontario.
59. Morning, H.S., Hill, D.J.E., **Kovacs, J.M.** and N.C. Duke. Mapping a large-scale dieback of mangroves in Australia's Gulf of Carpentaria using a Landsat 8 time series. Annual Conference, Canadian Association of Geographers-Ontario Division, Oct. 28-29, 2016, University of Waterloo, Waterloo, Ontario.
58. Herath, A., B.L. Ma, J. Shang, X. Jiao, **J.M. Kovacs**, and D. Walters. Spatial characterization of soil mineral nitrogen, crop growth, and yield of canola as affected by nitrogen application. Poster presentation at Joint Annual Conference for the Canadian Society of Agronomy and the Canadian Society for Horticultural Science, July 24-26, 2016, Montreal, QC, Canada.
57. Herath, A., B.L. Ma, J. Shang, X. Jiao, **J.M. Kovacs**, and D. Walters. Soil

- mineral nitrogen supply and grain yield estimation of canola in relation to growing-season canopy reflectance measurements. Poster presentation at Joint Annual Conference for the Canadian Society of Agronomy and the Canadian Society for Horticultural Science. July 24-26, 2016, Montreal, QC, Canada.
56. Duke, N.C., **Kovacs, J.M.**, Griffiths, A.D., Preece, L., Hill, D.J.E., van Oosterzee, P., Mackenzie, J., Morning, H.S., and D. Burrows. Globally unprecedented large-scale dieback of mangroves in Australia's Gulf of Carpentaria is co-incident with recent hot dry climatic conditions in the region. International Conference, The Mangrove & Macrobenthos Meeting, 18-22 July, 2016, Flagler College, St. Augustine, Florida, USA.
55. Hill, D.J.E., **Kovacs, J.M.** and F. Flores-de-Santiago. Exploring the capabilities of fully-polarimetric C-band RADARSAT-2 for monitoring a degraded white mangrove (*Laguncularia racemosa*) forest of the Mexican Pacific. International Conference, The Mangrove & Macrobenthos Meeting, 18-22 July, 2016, Flagler College, St. Augustine, Florida, USA.
54. **Kovacs, J.M.**, Duke, N.C. and D.J.E. Hill. Assessing the use of space-borne synthetic aperture radar for monitoring mangrove forest impacts following major oil spill events. International Conference, The Mangrove & Macrobenthos Meeting, 18-22 July, 2016, Flagler College, St. Augustine, Florida, USA.
53. Budong Qian, Jiali Shang, Qi Jing, Gerrit Hoogenboom, Ted Huffman, Jiangui Liu, Bao-Luo Ma, Xiaoyuan Geng, Xianfeng Jiao, **John M. Kovacs**, Dan Walters. Adapting the CSM-CROPGRO-Canola model for spring canola in Eastern Canada. 2016 International Crop Modelling Symposium 15-17 March, 2016, Adlershof, Berlin, Germany.
52. Rhude, S., **Kovacs, J. M.** and J. Wilson. Exploring relationships between hyperspectral data and nitrogen application levels for two field crops located in the West Nipissing agricultural region of northern Ontario. Annual Conference, Canadian Association of Geographers-Ontario Division, 23-25 Oct., 2015, Carleton University, Ottawa, Ontario.
51. Hill, D., **Kovacs, J.M.** and Francisco Flores-de-Santiago. Exploring the use of polarimetric C-band RADARSAT-2 imagery for monitoring degraded mangrove forests: A case study of the Agua Brava Lagoon (Mexico) . Annual Conference, Canadian Association of Geographers-Ontario Division, 23-25 Oct., 2015, Carleton University, Ottawa, Ontario.
50. Sow, A.A., Liu, J., Shang, J., Ma, B., Geng, X., Huffman, T., Qian, B., Jiao, X., Kovacs, J. M., and D. Walters. Delineation of within-field spatial variability using high resolution optical remote sensing data. 36th Canadian Symposium on Remote

Sensing, June 8-11, 2015, St. John's, Newfoundland and Labrador, Canada

49. Kovacs, J.M. Monitoring mangrove forests using satellite based radar sensors. Science Seminar Series, Tropical Water & Aquatic Ecosystem Research Centre, March 31, 2015, James Cook University, Townsville, Queensland, Australia.
48. Kovacs, J.M. GeoVisage: A geospatial data base for communicating time sensitive data amongst farmers and scientists. OGRA/ROMA Combined Conference, 22-25 February, 2015, Fairmont Royal York, Toronto, ON, Canada
47. Zhang, C., Kovacs, J.M., Walters, D., Hill, D., and J. Shang. Measuring crop biological parameters using aerial images from a low altitude remote sensing platform. Annual Conference, Association of American Geographers, 21-25 April, 2015, Chicago, Illinois, USA
46. Shang, J., Liu, J., Ma, B., Zhao T., **Kovacs, J.M.**, Jiao, X., Dong, T., Huffman, T., Geng, X. and D. Walters. Tracking crop leaf area index and chlorophyll content using RapidEye data in Northern Ontario, Canada. Annual Fall Meeting of the American Geophysical Union, 15-19 December, 2014, San Francisco, CA, USA
45. Amezcua Jr., F., Flores-Verdugo, F., **Kovacs, J.M.**, Serrano D. and M. Blanco-Correa. The mangrove-estuarine complex of the Marismas Nacionales (Pacific coast of Mexico) as a habitat for fisheries. 143rd Annual Meeting of the American Fisheries Society, 8-12 September, 2013, Little Rock, AR, USA
44. Shang, J., Jiao, X., McNairn, H., **Kovacs, J.M.**, Walters, D., Ma, B., and X. Geng. Tracking crop phenological development of spring wheat using synthetic aperture radar in northern Ontario, Canada. 2013. 2nd International Agro-Geoinformatics Conference, 12-16 August, 2013, Fairfax, VA, USA
43. Flores-de-Santiago, F., Kovacs, J.M., and J. Wang. Assessing seasonal hyperspectral estimation of leaf pigments for dominant mangrove species of the Pacific coast of Mexico. Annual Conference, Association of American Geographers, 9-13 April, 2013, Los Angeles, CA, USA
42. **Kovacs, J.M.**, Lu, X.X., Jiao, X., Zhang, C. and F. Flores-de-Santiago. Evaluating radar sensors for retrieving mangrove biophysical parameters of both pristine and degraded forests. 9th INTECOL International Wetlands Conference, 3-8 June, 2012, Orlando, Florida, United States.
41. **Kovacs, J.M.** Mapping and monitoring Earth resources using observational Satellites. Education Huntsville, April 3, 2012, University of Waterloo Summit Centre for the Environment, Huntsville, Ontario.
40. Zhang, C., **Kovacs, J.M.**, Flores-Verdugo, F. and F. Flores-de-Santiago. Mapping

- a degraded mangrove forest using EO-1 Hyperion imagery. Annual Conference, Association of American Geographers, 24-28 Feb., 2012, New York City, NY, United States.
39. Wilson, J., Cable, J., Jiao, X. and **J.M. Kovacs**. The application of hyperspectral data for precision agriculture in North Eastern Ontario. Annual Conference, Canadian Association of Geographers-Ontario Division, 21-22 Oct., 2011, Lakehead University, Orillia, Ontario.
38. Zhang, C., **Kovacs, J.M.**, Liu, Y., Flores-Verdugo, F. and F. Flores de Santiago. Separating the condition of mangroves within a degraded forest of the Mexican Pacific using laboratory hyperspectral remote sensing techniques. Annual Conference of the American Society of Photogrammetry and Remote Sensing, May 1-5, 2011, Milwaukee, WI, United States.
37. Wilson, J., Gambles, A. and **J.M. Kovacs**. The effects of various treatments on the spectral response of canola fields in North Eastern Ontario. Annual Conference, Canadian Association of Geographers.-Ontario Division, 15-16 Oct., 2010. Ryerson University, Toronto, Ontario.
36. Gambles, A., Wilson, J., Gambles, G. and **J.M. Kovacs**. Agricultural crop identification using SPOT 5 multispectral imagery in Temiskaming District, Ontario. Annual Conference, Canadian Association of Geographers.-Ontario Division, 15-16 Oct., 2010. Ryerson University, Toronto, Ontario.
35. Zhang, C., **Kovacs, J.M.**, Liu, Y., Flores-Verdugo, F. and F. Flores de Santiago. Applying hyperspectral remote sensing techniques to measure pigment concentrations for a degraded mangrove forest of the Mexican Pacific Annual Conference of the American Society of Photogrammetry and Remote Sensing, 26-30 April, 2010. San Diego, California, U.S.A.
34. Snobelen, K., Gambles, A. and **J.M. Kovacs**. A preliminary examination of spectral signatures of various crops found in Northeastern Ontario. Annual Conference, Canadian Association of Geographers.-Ontario Division, 16-17 Oct., 2009. University of Toronto, Toronto, Ontario.
33. Zhang, C., Flores de Santiago, F., Lu, X.X. and **J.M. Kovacs**. Phased array L-band synthetic aperture radar use in tropical coastal wetland monitoring. Annual Conference, Association of American Geographers, 23-27 Mar., 2009. Las Vegas, Nevada, U.S.A.
32. Flores de Santiago, F. and **J.M. Kovacs**. Remote sensing assessment of mangrove entities along the islands of Forecariah prefecture, Western Africa. XI Workshop about the conservation and management of Wetlands. Arizona Wildlife Department and Pronatura, 2009. Mexico

31. **Kovacs, J.M.**, Lu, X.X., LaFrance, P., and C. Zhang. A comparative investigation of ALOS PALSAR data for tropical coastal wetland monitoring. 2nd Joint PI Symposium of ALOS Data Nodes for ALOS Science Program-European Space Agency, Nov 3-7, 2008, Rhodes, Greece.
30. Zhang, C., **Kovacs, J.M.**, Flores de Santiago, F., King, J. and F. Flores-Verdugo. Field hyperspectral measurements of Isla Palma mangrove forest. Instituto de Ciencias del Mar y Limnologia-UNAM, June 2, 2008. Mazatlan, Mexico.
29. King, J.M.L., Flores de Santiago, F., Zhang, C., Flores-Verdugo, F. and **J.M. Kovacs**. Optimizing the classification of the mangrove forest of Isla Palam using optical imagery. Instituto de Ciencias del Mar y Limnologia-UNAM, June 2, 2008. Mazatlan, Mexico.
28. Flores de Santiago, F. and **J.M. Kovacs**. Inventario de las asociaciones de los manglares de las islas Yelitono y Mabala en Guinea, Africa Occidental. Instituto de Ciencias del Mar y Limnologia-UNAM, June 2, 2008. Mazatlan, Mexico.
27. Zhang, C., **Kovacs, J.M.** and X.X. Lu. Comparing space-borne SAR platforms for mapping mangrove forests of the Mexican Pacific. Annual Conference, Association of American Geographers, 15-19 Apr., 2008. Boston, Massachusetts, U.S.A.
26. **Kovacs, J.M.** Approaches for monitoring mangrove forests of the Mexican Pacific. Laurentian University Department of Biology Seminar Series, Feb. 15, 2008. Sudbury, Canada.
25. **Kovacs, J.M.** Alternative methods for monitoring mangroves. Department of Geography Seminar Series-National University of Singapore, 2007. Singapore.
24. King, J.M.L. and **J.M. Kovacs**, Clarifying uncertainty: An object-oriented approach to mapping mangroves of the Teacapan System, Mexican Pacific. Annual Conference, Canadian Association of Geographers.-Ontario Division, 19-20 Oct., 2007. Laurentian University, Sudbury, Ontario.
23. Monroy-Torres, M., Flores-Verdugo, F., Hertz-Cruz-Guillermo, P. and **J. M. Kovacs**, Distribución de tres especies de manglar en relación al hidroperiodo como apoyo a estrategias de reforestación. XVII Mexican Botanical Congress, Oct. 14-18, 2007. Zacatecas, Mexico.
22. Zhang, C. and **J. M. Kovacs**, Examining ENVISAT ASAR imagery for mapping forested wetlands of the Mexican Pacific. Annual Conference, Association of American Geographers, 17-21 Apr., 2007. San Francisco, California, U.S.A.
21. **Kovacs, J. M.**, Flores-Verdugo, F. and J. Wang, Monitoring mangrove forests using Radarsat-2. Radarsat-2 Symposium. 11-15 Sept., 2006. John H. Chapman Space Centre- Headquarters of the Canadian Space Agency, Longueuil, Quebec.

20. Buckland, R., **Kovacs, J. M.** and D. Walters, Opportunities and challenges in managing forest resources on first Nations: A case study of the Dokis First Nation. Annual Conference, Canadian Association of Geographers.-Ontario Division, 28-29 Oct., 2005. University of Ottawa, Ottawa, Ontario.
19. Vandenberg, C.V., **Kovacs, J.M.** and F. Flores, Estimating Seasonal Changes in Leaf Area Index for a Disturbed Mangrove Ecosystem of the Mexican Pacific Using High-resolution Multi-date Imagery and In Situ Observations. Annual Conference, Canadian Association of Geographers, 31 May-June 5, 2005. University of Western Ontario, London, Ontario.
18. **Kovacs, J.M.**, Vandenberg, C.V. and J. Wang,. Extracting biophysical forest parameter data of a degraded mangrove wetland using RADARSAT-1 fine beam data. Annual Conference, Canadian Association of Geographers, 31 May-June 5, 2005. University of Western Ontario, London, Ontario.
17. Tang, K.X. and **J.M. Kovacs**, Incorporating texture analysis into object-based and per pixel image classification of IKONOS data to map mangroves at the species level. Annual Conference, Canadian Association of Geographers, 31 May-June 5, 2005. University of Western Ontario, London, Ontario.
16. Vandenberg, C.V., **Kovacs, J.M.**, and L.P. Aspden, Preliminary investigation of estimating canopy height of a forested wetland using IKONOS imagery. Annual Conference, Canadian Association of Geographers -Ontario Division, 24-26 Oct., 2003. Queen's University, Kingston, Ontario.
15. **Kovacs, J.M.**, Wang, J. and L.P. Aspden, Estimating Leaf Area Index of a tropical coastal wetland using IKONOS imagery. Annual Conference, Canadian Association of Geographers, 27-31 May, 2003. University of Victoria, Victoria, British Columbia.
14. Aspden, L.P., **Kovacs, J.M.** and T.A. Archer, Examination of a degraded mangrove forest using the LAI-2000 Plant Canopy Analyzer and IKONOS satellite imagery. Annual Conference, Canadian Association of Geographers - Ontario Division, 26-27 Oct., 2002. University of Western Ontario, London, Ontario.
13. **Kovacs, J.M.** Examining local knowledge of hurricane impacts in a forested wetland: An AHP approach. Ontario Co-operative Program for Latin American and Caribbean Studies, June 10, 2002. Nipissing University, North Bay, Ontario.
12. **Kovacs, J.M.**, Malczewski, J. and F. Flores-Verdugo, Application of the Analytical Hierarchy Process for local ecological knowledge application. Annual Conference, Canadian Association of Geographers, 28 May-1 June, 2002. University of Toronto, Toronto, Ontario.

11. May, D.S., **Kovacs, J.M.** and M. Muter, Investigating the use of IKONOS imagery for mapping wetlands along the shore of Georgian Bay. Annual Conference, Canadian Association of Geographers, 28 May-1 June, 2002. University of Toronto, Toronto
10. **Kovacs, J.M.** and J. Malczewski. An alternative approach to analysing hurricane impacts in a coastal forest. Annual Conference, Canadian Association of Geographers, 31 May-3 June, 2000. Brock University, St. Catherines, Ontario.
9. **Kovacs, J.M.**, Wang, J. and M. Blanco-Correa. Investigating tropical coastal degradation using multi-date Landsat TM Imagery. Annual Conference, Association of American Geographers, 4-8 Apr., 2000. Pittsburgh, Pennsylvania, U.S.A.
8. **Kovacs, J.M.** Merging science and story: An alternative view of wetland change. Annual Conference, Canadian Association of Geographers -Ontario Division, 22-23 Oct., 1999. McMaster University, Hamilton, Ontario.
7. **Kovacs, J.M.** Evaluating disturbances in a coastal wetland (Nayarit, Mexico). Tenth International Conference- The Society for Human Ecology, 27-30 May, 1999. McGill University, Montreal, Quebec.
6. **Kovacs, J.M.** Coastal wetland as community resource. 5th Annual Environmental Science Graduate Symposium, 9 Apr., 1999. Faculty of Science, University of Western Ontario, London, Ontario.
5. **Kovacs, J.M.** Evaluating a wetland resource: The fishermen's perspective. Annual Conference, Canadian Association of Geographers -Ontario Division, 30-31 Oct., 1998. Wilfrid Laurier University, Waterloo, Ontario.
4. **Kovacs, J.M.**, Malczewski, J. and M. Blanco-Correa. Assessing natural and anthropogenic impacts on a mangrove ecosystem-case study of Nayarit, Mexico. Annual Conference, Canadian Association of Geographers, 2-6 June, 1998. University of Ottawa, Ottawa, Ontario.
3. Malczewski, J., **Kovacs, J.M.** and M. Blanco-Correa. Applications of GIS for coastal management. Conference, International Cooperation for the Sustainable Management of Natural Coastal Resources of the State of Nayarit, 6-10 Dec., 1997. Universidad Autonoma de Nayarit, Tepic, Mexico.
2. **Kovacs, J.M.** Continued threats to New World mangroves. Ontario Co-operative Program for Latin American and Caribbean Studies, 22-23 Mar., 1996. Queen's University, Kingston, Ontario.
1. **Kovacs, J.M.** and V.C. Lakhan. Evaluating degradation of mangal communities along Guyana's coast. Joint Conference, Canadian Association of Geographers –

Ontario Division and Association of American Geographers-East Lakes Division,
1993. University of Windsor, Windsor, Ontario.

Current memberships:

Canadian Remote Sensing Society

Coastal Education and Research Foundation

Society of Wetland Scientists

The Remote Sensing and Photogrammetry Society

DOMINIC ODWA ATARI, Ph.D.

Associate Professor

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CURRICULUM VITAE

My broad research interests cover different aspects of **Human Geography** including **environment and health, population health, pollution and Health**, and the **application of spatial analytical techniques** such as GIS and Geostatistics in **health studies**. More specifically, I am interested in understanding the **relationship between environment and health** and the interactive linkages of the broad human **determinants of health** in local communities. In an effort to do this, my research incorporates **socioecological approaches and perspectives** by adopting a more **contextual and critical approach** by using both **quantitative and qualitative** methodologies.

1. PERSONAL INFORMATION

NAME: Odwa Atari

Department/School/Program: Geography

Present Rank/Title: Associate Professor

Date Tenured: June 2014

Date of Appointment: June 2011

Nationality: Canadian

2. ACADEMIC & PROFESSIONAL QUALIFICATIONS

Degree	University	Year	Thesis Title (if any)
<i>PhD</i>	University of Western Ontario	2009	Community Health Study in Sarnia, “Chemical Valley”, Ontario
<i>Applied GIS Diploma</i>	Applied Geomatics Research Group (AGRG)	2005	Risk of Exposure to Groundwater Nitrates Using Calibrated DRASTIC Model: Kings County Case Study
<i>Advanced GIS Diploma</i>	Centre of Geographic Sciences (COGS)	2004	Exploring the Use of Annualized Agricultural Non-Point Source (AnnAGNPS) Pollution for Thomas Brook Watershed: North of the City of Berwick, Nova Scotia
<i>Master of Environmental Studies</i>	School for Resource and Environmental Studies (SRES), Dalhousie University, Halifax, Nova Scotia	2003	Factors Affecting the Adoption of Nova Scotia Environmental Farm Plan Program
<i>Bachelor (HONS) of Science in Natural Resource and Environmental Studies</i>	College of Natural Resources and Environmental Studies (NRES), University of Juba, Sudan	1998	The Birth and Weaning Performance of Pure Holstein Friesian Calves in the Sub-Saharan Region of the Sudan

3. CHRONOLOGICAL ACCOUNT OF CAREER

Appointment Dates	Position	Employer
Current – Jan 2022	Visiting Scholar	Makerere University
2017 – Present	Associate Professor	Nipissing University
2016 – 2017	Visiting Scholar	University of Juba, South Sudan
2011 – 2017	Assistant Professor	Nipissing University
2010 – 2011	Technical Specialist – Post doctoral Fellow	Statistics Canada
2009 – 2010	Student Researcher	University of Western Ontario, London, Ontario
2008 – 2009	Lecturer	University of Western Ontario, London, Ontario
2005 – 2008	Teaching Assistant	University of Western Ontario, London, Ontario
2008	GIS consultant	Government of Canada, Ottawa, Ontario
2004 – 2005	GIS Research Associate	Applied Geomatics Research Group

4. HONOURS AND AWARDS

Year	Award
2021	Carnegie African Diaspora Fellowship
2020	Best Nipissing Annual Research Award
2019	Nominated for Nipissing Annual Research Award
1998	First Class Honours: Natural Resources and Environmental Studies (specialty: Animal Production); University of Juba, Sudan
1996 – 98	Dean's Honour List: University of Juba, Sudan

5. PUBLICATIONS

5.1. Life-time summary

Papers in Refereed Journals: 20
 Reports: 6
 Books/Chapter: 2
 Abstracts in Refereed Conference Proceedings: 20
 Papers/Abstracts in Non-refereed Conference Proceedings: 21

5.2. Papers in Refereed Journals

* *Student*

Atari, D. O., and Tariquzzaman, S. K., & Nancy, A. (2021). Perception and Knowledge on Menstrual Hygiene Management amongst School Going Adolescent Girls in South Sudan. *Journal of Adolescent Research* <https://journals.sagepub.com/doi/full/10.1177/07435584211043293>

Litalien M. and **Atari, D. O.** and Obasi, I* (2021). The influence of religiosity and spirituality on health in Canada: a systematic literature review. *Journal of Religion and Health* 1-42. <https://doi.org/10.1007/s10943-020-01148-8>

Mkandawire, P., Madut, K*, Rishworth, A., **Atari, D. O.**, MacPherson, K., and Luginaah, I. (2019). Men's perceptions of women's reproductive health in South Sudan. *Health and Place* 58:102157

Atari, D. O., and McKague, K. (2019). Using livelihoods to support primary health care for South Sudanese refugees in Kiryandongo, Uganda. *South Sudan Medical Journal* 2019; 12(2):38-43

Mkandawire, P., **Atari, D. O.**, Kangmennaang, J., Arku, G., Luginaah, I., and Etowa, J. (2018), Pregnancy intention and gestational age at first antenatal care (ANC) visit in Rwanda. *Midwifery*

- Mkandawire, P., Arku, G., **Atari, D. O.**, Madut, K*, Luginaah, I., and Dixon, J. (2015) "My house is the hospital": Housing and Health and Wellbeing among Persons Living with HIV/AIDS in Northern Malawi". *Journal of Health Care for the Poor and Underserved*. 26(4):1246-64.
- Crouse, D.L., Peters, P.A., Villeneuve, P.J., Proux, M., Shin, H.H., Goldberg, M.S., Johnson, M., Wheeler, A.J., Allen, R.W., **Atari, D.O.**, Jerrett, M., Brauer, M., Brook, J.R., Cakmak, S., and Burnett, R.T. (2015). Within-and between-city contrasts in nitrogen dioxide and mortality in 10 Canadian cities; a subset of the Canadian Census Health and Environment Cohort (CanCHEC). *Journal of Exposure Science and Environmental Epidemiology* 25(5): 482 – 9.
- Atari, D. O.**, and McKague, K. (2015). South Sudan: Stakeholders' Views of Technical and Vocational Education and Training and a Framework for Action. *Journal of Vocational Education & Training*. 67(2): 169 – 186.
- Atari, D. O.**, and Mkandawire, P. (2014). Spatial variation of management of childhood diarrhea in Malawi. *Health and Place*. 29: 8494
- Atari, D. O.** (2014). Gender Differences in the Prevalence and Determinants of Tobacco Use Among School-Aged Adolescents (11 – 17 years) in Sudan and South Sudan. *Pan-African Medical Journal* 18:118. doi:10.11604/pamj.2014.18.118.3202
- Atari, D. O.**, Luginaah, I., Kevin, G., Xu, X., and Fung, K. (2013). Associations between self-reported odour annoyance and volatile organic compounds in "Chemical Valley," Sarnia, Ontario. *Environmental Monitoring and Assessment*, 185: 4537 – 4549. DOI: 10.1007/s10661-012-2887-3
- Crouse, D., Peters, P., van Donkelaar, A., Goldberg, M. S., Villeneuve, P. J., Brion, O., Khan, S., **Atari, D. O.**, Jerrett, M., Pope III, C. A., Brauer, M., Brook, J., Martin, R., Stieb, A., and Burnett, R. (2012). Risk of Mortality Associated with Long-term Exposure to Low Concentrations of Fine Particulate Matter: A Canadian National-level Population-based Cohort Study. *Environmental Health Perspective*. 120(5): 708 – 714.
- Miller, L., Xu, X., Wheeler, A., **Atari, D. O.**, Grgicak-Mannion, A., and Luginaah, I. (2011). Spatial Variability and Application of Ratios between BTEX in Two Canadian Cities. *The Scientific World Journal*, 11: 2536-2549
- Oiamo, T. H., Luginaah, I. N., **Atari, D. O.**, and Gorey, K. M. (2011) Air pollution and general practitioner access and utilization: a population based study in Sarnia, 'Chemical Valley,' Ontario. *Environmental Health* 10: 71
- Atari, D. O.**, Luginaah, I., and Baxter, J. (2011) "This is the mess that we are living in": Residents everyday life experiences of living in a stigmatized community. *GeoJournal* 76(5): 483-500
- Yiridoe, E. K., **Atari, D. O.**, Gordon, R., and Smale, S. (2010). Factors influencing participation in the Nova Scotia Environmental Farm Plan Program. *Land Use Policy*. 27: 1097-1106
- Atari, D. O.**, Luginaah, I. and Fung, K. (2009). The Relationship between Odour Annoyance Scores and Modelled Ambient Air Pollution in Sarnia, "Chemical Valley", Ontario. *International Journal of Environmental Research & Public Health*, 6: 2655-2675.
- Atari, D. O.**, and Luginaah, I. (2009). Assessing the distribution of volatile organic compounds using land use regression in Sarnia, "Chemical Valley", Ontario, Canada *Environmental Health*, 8:16
- Atari, D. O.**, Yiridoe, E. K., Smale, S., and Duinker, P. N. (2009). What Motivates Farmers to Participate in the Nova Scotia Environmental Farm Plan Program? Evidence and Environmental Policy Implications. *Journal of Environmental Management*. 90(2): 1269-1279.

Atari, D. O., Luginaah, I., Xu, X, and Fung, K. (2008). Spatial Variability of Ambient NO₂ and SO₂ in Sarnia, “Chemical Valley”, Ontario. *Journal of Toxicology and Environmental Health, Part A*. 71(24): 1572 – 1581.

5.3. Books & Book Chapter

Atari, D. O., Abdelnour, S., McKague, K. and Wager, R. 2010. *Technical, Vocational and Entrepreneurial Capacities in Southern Sudan: Assessment and Opportunities*. Centre for Refugee Studies, York University: Toronto, Ontario Canada. ISBN 978-1-55014-534-2

Atari, D. O., and Luginaah, I. (2011). Land Use Regression in Sarnia, “Chemical Valley”, Ontario. In: *environmental Chemistry: New Techniques and Data*. Edited by Trimm, H. H. Apple Academic Press. Pages 181–196. Print ISBN: 978-1-926692-77-7

5.4. Reports

Atari, D O. 2018. *Evaluation of BRAC's Project on Improving the Reproductive, Maternal, Newborn and Child Health of Vulnerable Women, Adolescent Girls and Children in South Sudan*. Technical Report submitted to BRAC UK.

Peters, P. A., **Atari, D. O.** Khan, S., Sarafin, C., Provost, M., and Bernier, J. 2010. *Ambient air pollution exposure and mortality in Canada: Detailed project description and methodology*. Health Analysis Division. Statistics Canada

Luginaah, I., Buzzelli, M., **Atari, D. O.,** Brook, J. 2008. *Establishing the Locations for Spatial Air Pollution Monitors in London, Ontario*. Technical Report submitted to Health Canada.

Atari, D. O. 2005. *Risk of Exposure to Groundwater Nitrates Using Calibrated DRASTIC model: Kings County Case Study*. Report. Applied Geomatics Research Group (AGRG). Middleton, Nova Scotia

Atari, D. O. 2004. *Exploring the Use of Annualized Agricultural Non-Point Source (Ann.AGNPS) Pollution for Thomas Brook Watershed: North of the City of Berwick, Nova Scotia*. Centre of Geographic Sciences. Lawrencetown, Nova Scotia, Canada

Atari, D. O., Aziz, N., Kroeker, Z., Shirley, J., Smith, C., and Whitnack, S. 2001. *Visitor Use of Long Lake Provincial Park. Report*. School for Resource and Environmental Studies, Dalhousie University, Halifax, Nova Scotia

5.5. Papers submitted to/under development for Refereed Journals

Atari. D. O., Lukou, Y. S., Sube., K. L., Lako, J. D., Ochi, E. B., & Elrayah, I. E. **Under Review.** The risk and associated control problems of Human African Trypanosomosis in the endemic foci of Greater Equatoria Region, South Sudan. *African Geographic Reviews*

Atari, D. O., Mkandawire, P., & Lukou, Y. **Under Review** Determinants of co-morbidities among under-5 children in South Sudan. *African Geographic Reviews*

Atari, D. O., Mkandawire, P., Madut, K. **Under Development.** Health Perception among South Sudanese Refugees in Ottawa.

Mkandawire, P., **Atari, D. O.,** Madut, K. **Under Development.** Psychosocial health and coping among South Sudanese Refugees in Ottawa

Mkandawire, P., and **Atari, D. O.** *Under Development*. Determinants of Diarrhea Management in Malawi.

Atari, D. O., and Peters, P. A. *Under Development*. Assessing the Intra-and Inter-Provincial Mobility of Canadians: evidence from using 1991-2006 cohort. *Health Reports*

Atari, D. O., Peters, P. A., Burnett, R. *Under Development*. A cohort study of ambient air pollution and mortality in Sarnia, Ontario, Canada. *Environmental Health Perspectives*

6. CONFERENCE PAPERS

6.1. Abstracts in Refereed Conference Proceedings

Atari, D. O., McKague, K., and Cochrane, L. 2020. Implementation research in Humanitarian – Development Nexus context – South Sudan and Uganda case studies. March 2020, Ottawa

Atari, D. O., McKague, K., Chen, L., Achiro, E., Kisebo, S., and Nasinyama, G. 2020. Improving livelihoods and wellbeing among refugees and their host communities in Kiryandongo, Uganda. The International Conference on Geographical Science for Resilient Communities, Ecosystems and Livelihoods under Global Environmental Change (GORILLA) Conference, Kampala, Uganda, Deferred to December 2020 or later due to the pandemic

Atari, D. O., McKague, K., Chen, L., Achiro, E., Kisebo, S., and Nasinyama, G. 2020. Health and Wellbeing among refugees and their host communities in Kiryandongo, Uganda. American Association of Geographers Annual Conference, Denver, Colorado, April 6th – 10th, 2020. Cancelled due to the pandemic

Musoke, J. McKague, K. Julla, A. and **Atari, D. O.** 2017. Incentives and Social Enterprise Income Generating Models for Community Health Workers. NEAPACOH 13 – 14th December 2017, Kampala, Uganda

Litalien M. and **Atari, D. O.** 2017. The Influence of Spirituality on Health in Canada: Overview of the Literature from a Gender Perspective. 17th Biennial Conference Association for Canadian Studies in China (ACSC) Conference, Kunming, China. September 28-30, 2017

Musoke, J. McKague, K. Julla, A. and **Atari, D. O.** 2017. Social Enterprise Income Generation Models as Incentives for Community Health Workers. Innovating for Maternal and Child Health in Africa – IMCHA: Midterm Workshop 24 – 27 April 2017, Dakar, Senegal

Litalien M. and **Atari, D. O.** 2017. The Influence of Spirituality on Health in Canada: Overview of the Literature”, with Dr. Odwa Atari, Mahidol University, Thailand.

Atari, D. O. and Obeyuk, D. 2016. Exploring Environmental Changes in the Sudd Region, South Sudan. *Accepted* for the 11th Annual Conference of the African Association of Remote sensing of the Environment (AARSE). Kampala, Uganda. 24 – 28 October, 2016 –

Crouse, D., Peters, P., Villeneuve, P. J., Proux, M., Shin, H., Goldberg, M. S., Johnson, M., Wheeler, A., Allen, E. W., **Atari, D. O.** Jerrett, M., Brauer, M., Brook, J. R., and Burnett, R. T. 2014. Within- and Between-City Contrasts in Nitrogen Dioxide and Mortality In 10 Canadian Cities. **9th International Conference on Air Quality - Science and Application**. 24-28 March 2014, Garmisch-Partenkirchen, Germany

Atari, D. O. 2013. Ambient air pollution and odour annoyance in Sarnia, Ontario. North Health Research Conference. June 7 – 8th, 2013. North Bay, Ontario.

Peters, P., and **Atari, D. O.** 2012. Spatial methods for calculating ecological variables in environmental health research.

Health Data Users September 23, 2012, Conference Ottawa Convention Centre, Ottawa, ON

Atari, D. O. 2011. A cohort study of ambient air pollution and mortality in Sarnia, Ontario, Canada. Canadian Public Health Association (CPHA) conference. June 19 – 22nd 2011. Montreal, Quebec

Luginaah, I., **Atari, D. O.**, Fung, K., Xu, X., and Gorey, K. 2009. A comparison of odour annoyance scores to estimated ambient air pollution in Chemical Valley, Sarnia, Ontario. XIIIth International Medical Geography Symposium (IMGS). Hamilton, Ontario, CANADA, July 12th – 17th, 2009

Miller, L., Xu, X., **Atari, D. O.**, and Luginaah, I., 2008. Outdoor Exposure Assessments of Multi-pollutant in Sarnia, Ontario, Canada, Joint International Society for Environmental Epidemiology (ISEE) and International Society of Exposure Analysis (ISEA) Conference. October 12th -16th 2008. Pasadena, California USA

Atari, D. O., and Luginaah, I. 2008. Residents' everyday lives and coping strategies in Sarnia, 'Chemical Valley', Ontario. Canadian Public Health Association (CPHA) conference. June 1 – 4th 2008. Halifax, Nova Scotia

Atari, D. O., Luginaah, I., Miller, L., and Xu, X. 2007. Examining the relationship between monitored ambient air pollution and health effects in "Chemical Valley", Sarnia, Ontario. 17th Annual International Society of Exposure Analysis (ISEA) Conference, October 14 – 18, 2007. Durham, North Carolina, USA

Atari, D. O., and Luginaah, I. 2007. A land use regression model for predicting intra-urban variability of ambient nitrogen dioxide in Sarnia, "Chemical Valley" Canadian Public Health Association (CPHA) conference. September 16th – 19th 2007. Ottawa, Ontario

Luginaah, I., **Atari, D. O.**, Xu, X., and Fung, K. 2007. Environment and Health in "Chemical Valley", Sarnia, Ontario. XIIth International Medical Geography Symposium (IMGS). July 9 – 13th. Bonn, Germany

Atari, D. O., Luginaah, I., Maticka-Tyndale, E., Xu, X., Fung, K., Gorey, K., Reinhartz, A., and Keith, M. 2005. Community Health Study in "Chemical Valley", Sarnia, Ontario. The 4th International Conference on Urban Health. October 26 – 28th 2005, Toronto, Ontario, Canada

Yiridoe, E. K., and **Atari, D. O.** 2003. Factors Influencing Participation in the Nova Scotia Environmental Farm Plan Program. Selected paper presented at the Canadian Agricultural Economics Society Annual Conference. July 27th – 30th, 2003. Montreal, Quebec, Canada

Atari, D. O., and Yiridoe, E. K. 2005. Economic Consequences of Environmental Farm Planning: Experience from Atlantic Canada. Alberta Agricultural Economics Association Conference. May 5 – 6th, 2005, Red Deer, Alberta, Canada

6.2. Papers/Abstracts in Non-refereed Conference Proceedings

Atari, D. O. 2021. South Sudanese in Diaspora helping their colleagues back home. Otuho-Speaking Community (NACO) Annual meeting. June 2021. Online

Atari, D. O. 2020. The future of South Sudanese Organizations in Diaspora. Otuho-Speaking Community (NACO) Annual meeting. June 2020. Online

Atari, D. O. 2013. Investing in Sustainable Development and Livelihoods in Sudan and South Sudan. Invited Facilitator. Sudan/South Sudan Symposium. July 3rd – 5th, 2013. York University, Toronto, Ontario

Atari, D. O. 2011. Exposure to ambient air pollution and mortality in Sarnia, Ontario: A cohort Study. Research Talk.

October 4th 2011. Nipissing University, North Bay, Ontario

Atari, D. O. 2011. Sudan: The Dialectic between Darfur and the South. Invited Commentator. Annual conference of the Canadian Association of African Studies. May 4 – 7th, York University, Toronto, Ontario

Atari, D. O. 2011. A cohort study of ambient air pollution and mortality in Sarnia, Ontario, Canada. HAD Seminar. March 15th 2011. Ottawa, Ontario

Oiamo, T., **Atari, D. O.**, and Luginaah, I. 2010. Abstract Title: *Examining health care needs and utilization in Chemical Valley, Ontario*. American Association of Geographers Annual Conference, Washington, DC April 14th – 18th, 2010

Atari, D. O. 2010. Technical, Vocational and Entrepreneurial Capacities in Southern Sudan: Assessment and Opportunities. Canadian International Development Agency (CIDA). April 13th, 2010

Atari, D. O., and Luginaah, I. 2009. *Determinants of health in Sarnia, "Chemical Valley", Ontario*. American Association of Geographers Annual Conference, Los Vegas March 22 – 27, 2009

Atari, D. O., and Hoogenboom, D. 2008. A way forward: the experience of the Canadian-Sudanese Volunteers for Development. The Building Capacity and Partnerships for the Future of Sudan Conference. September 17th – 19th 2008. University of Calgary, Calgary, Alberta

Atari, D. O., Luginaah, I., Xu, X., and K. Fung. 2008. Association between estimated ambient air pollution and health effects in Sarnia, “Chemical Valley”, Ontario. American Association of Geographers Annual Conference, Boston, MA, USA. April 15 – 19, 2008.

Atari, D. O., and Luginaah, I. 2007. Investigating environment and health linkages in “Chemical Valley”, Sarnia, Ontario. Canadian Association of Geographers Annual Conference. May 29 – June 2, 2007. Saskatoon, Saskatchewan

Atari, D. O., Luginaah, I., Maticka-Tyndale, E., Xu, X., Fung, K., Gorey, K., Reinhartz, A., and Keith, M. 2007. Spatial Variability of Ambient NO₂ in Sarnia, “Chemical Valley”, Ontario. American Association of Geographers Annual Conference. April 17 – 21, 2007. San Francisco, California

Atari, D. O., and Luginaah, I. 2006. Environment and Health: Living in Canada Designated “Area of Concern”. Canadian Association of Geographers. May 29 – June 2, 2006, Thunder Bay, Ontario

Atari, D. O., Awai, A., and Ituari, T. 2006. The African Roman Catholic Community of London, Ontario: Past, Present and Future. Invited paper presented at London Deanery Conference. March 24th 2006, London, Ontario

Atari, D. O., Luginaah, I., Maticka-Tyndale, E., Xu, X., Fung, K., Gorey, K., Reinhartz, A., and Keith, M. 2006. Environment and Health in Sarnia’s “Chemical Valley”. American Association of Geographers. March 7th – 11th 2006, Chicago, Illinois, Canada

VanLeeuwen, J., Wentzell, J., **Atari, D. O.**, Gordon, R., Jamieson, Maher, B., Guernsey, J. 2005. Proposed Study of Watershed Water Quality in Prince Edward Island Twined to the Thomas Brook Watershed in Nova Scotia. The Rural Centre Submit. August 29th - 30th 2005. Halifax, Nova Scotia

Atari, D. O. 2005. Risk of Exposure to Groundwater Nitrate Using Calibrated Drastic Model: Kings County Case Study. Geomatics Show Case. May 24 – 25th 2005. Center of Geographic Sciences (COGS), Lawrencetown, Nova Scotia

Atari, D. O., and Beasy, C. 2004. Immigrants' Distribution and Assess of Essential Services in the Halifax Regional Municipality. The Metropolitan Immigration Settlement Association (MISA) Business Committee Meeting. May 20th 2004. Halifax, Nova Scotia

7. RESEARCH GRANTS RECEIVED

7.1. FELLOWSHIP & SCHOLARSHIPS

2020 – 2025	Best Research Award – Nipissing University	\$5,000
2010 – 2011	Statistics Canada – Health Analysis	\$75,000/year
2006 – 2007	Ontario Graduate Scholarship (OGS)	\$15,000/year
2005 – 2009	Western Graduate Student Scholarship	\$8,000/year
2005	Pilot Project Fund II, The Rural Centre	\$10,000
2005	Pilot Project Fund I, The Rural Centre	\$10,000
2004 – 2005	Graduate Scholarship, Nova Scotia Community College	\$15,000/year
2001 – 2003	James Robinson Graduate Student Scholarship	\$17,000/year

7.2. RESEARCH FUNDING RECEIVED

Start	End	PI/Co-PI	Collaborator	Agency	Title	Amount
2021	2022	X		Nipissing University	Understanding Indigenous Leadership among the Monyemiji of South Sudan	\$5,000
2018	2024		X	SSHRC	Assessment of the individual, collective and territorial impacts of projects led by Canadian foundations in response to current and future socio-economic issues and environmental challenges	\$4,000,000
2018	2019	X		Grand Challenges Canada	Livelihood and Health among South Sudanese Refugees in Northern Uganda	\$100,000
2016	2018	X		Nipissing University	The influence of spirituality on health perception and outcomes among three immigrant communities in Ontario	\$5,000
2015	2020		X	IDRC	Randomized controlled study on best approaches and practices for mobilizing community health workers	\$1,000,000
2014	2016	X		Nipissing University	Perception of health among South Sudanese immigrant community in Ottawa	\$5,000
2014	2015	X		Grand Challenges Canada	Micro-franchised community health workers extending maternal and child health care in south Sudan	\$112,000
2011	2013	X		Nipissing University	Start-up Grant	\$5,000
2008	2009	X		University of Western Ontario	Sarnia Community Health Study	\$8,000

8. PROFESSIONAL ASSOCIATIONS

Year	Association
2007 – Present	The International Society of Risk Management (ISEA)
2007 – Present	Canadian Public Health Association (CPHA)
2005 – Present	Canadian Association of Geographers (CAG)
2005 – Present	Association of American Geographers (AAG)

9. PROFESSIONAL COMMITTEES/SERVICE TO THE PROFESSION

Year	
2021	Visiting Lecturer: York University – Social Enterprise and Development
2019	Reviewed for the Environmental management Reviewed for the Health Reports
2018	Reviewed for the Environmental management Reviewed for the African Geographical Review
2017	Reviewed for the Environmental management: 2 Articles Reviewed for the Canadian Journal for Public Health: 1 Article Reviewed for the Environmental Science and Pollution Research: 2 articles
2016	Reviewed for the Environmental Science and Pollution Research: 2 articles Reviewed for the Environmental management: 1 Article
2015	Reviewed for the Environmental Science and Pollution Research: 1 article Reviewed for the Singaporean Ministry of Health: One research proposal Reviewed for the African Geographical Review: 2 article
2014	Reviewed for the African Geographical Review: 2 articles Reviewed for the Environmental Science and Pollution Research: 1 article Reviewed for BMC International Health and Human Rights: 1 article Reviewed for Environmental Technology: 1 article
2013	Reviewed for the Environmental Science and Pollution Research: 1 article Reviewed for the international journal of chemosphere: 1 article Invited reviewer for the Canadian Journal of Public Health
2012	Reviewed for the Environmental Science and Pollution Research: 1 article Reviewed for the African Geographical Review: 2 articles
2010	Reviewed for the International Journal of Urban Sustainable Development: 1 article.
2009	Reviewed chapters 1 – 4 for Luginaah, I. N. and Yanful, E. K. (2009). <i>Environment and Health in Sub-Saharan Africa: Managing an Emerging Crisis</i> . Book published by Springer: London
2009	Organized a session for the annual meeting of the Association of American Geographers, Las Vegas, March 22 nd – 27 th 2009
2009	Reviewed chapters 1 – 3 for Benjamin Ofori-Amoah. Geography of Africa. Book will be published by <i>John Wiley & Sons</i>
2008	Conference Assistant: Annual Meeting of the Association of American Geographers, Boston, MA. April 11 th – 21 st 2008

10. UNIVERSITY SERVICE / ADMINISTRATIVE RESPONSIBILITIES

Year	Association
2021	Faculty Hiring Committee Member: Tenure-Track Tier 2 Canada Research Chair Position in Climate & Environmental Change Member of the Honorary Degree Senate subcommittee, Nipissing University
2019 - Current	Senator, Nipissing University
2016 - 2017	Member of the Honorary Degree Senate subcommittee, Nipissing University Member of the Undergraduate Services & Awards Senate subcommittee, Nipissing University
2015 – 2016	Member of the Honorary Degree Senate subcommittee, Nipissing University
2014 – 2015	Member of the Undergraduate Services & Awards Senate subcommittee, Nipissing University
2013	Member of the Undergraduate Services & Awards Senate subcommittee, Nipissing University Judge: Nipissing University Undergraduate Conference Helper: March Open House
2012	Hiring Committee Member: Participated in hiring new faculty members at Nipissing University – Physical Geography Helper: November Skilled City event: open house for Aboriginal youth from secondary schools in Moose Factory, Long Point, Wikwemikong, Parry Sound, Nipissing First Nation, Sturgeon Falls and North Bay's Chippewa, West Ferris, Widdifield and St. Joseph Scollard Hall Screening Committee Member: Participated in screening of 2 students for international students program – WUSC
2011	Screening Committee Member: Participated in screening 2 students for international students program – WUSC Hiring Committee Member: Participated in hiring new faculty members at Nipissing University – Human Geography
2007 – 09	Teaching assistants' manager: Department of Geography, University of Western Ontario
2007	Administrator/manager: Map Sale, Department of Geography, University of Western Ontario
2005 – 09	Student Assistant: Managed and assisted students to add/drop courses, Department of Geography, University of Western Ontario

11. COURSES TAUGHT DURING LAST SEVEN YEARS AND PARTICIPATION IN CURRICULUM DEVELOPMENT

11.1. Undergraduate Courses

Year	Number	Course Name	Number of Students
Nipissing University			
Fall 2021	GEOG 3236	Geography of Environment and Health	16
	GEOG 3136	Geography of Health and Health Care	28
Winter 2020	GEOG 3236	Geography of Environment and Health	18
	GEOG 4237	Urban Health	15
	GEOG 3136	Geography of Health and Health Care	26
Fall 2020	GEOG 3236	Geography of Environment and Health	20
	GEOG 4057	Topics in GIS Application	10
	GEOG 3136	Geography of Health and Health Care	30
Winter 2019	GEOG 3236	Geography of Environment and Health	8
	GEOG 4057	Topics in GIS Application	11
	GEOG 3136	Geography of Health and Health Care	15
	GEOG 4986	Directed Studies	3
Fall 2018	GEOG 4237	Urban Health	13
	GEOG 3136	Geography of Health and Health Care	15
Winter 2018	GEOG 3236	Geography of Environment and Health	15
	GEOG 4057	Topics in GIS Application	10
Fall 2017	GEOG 4237	Urban Health	5
	GEOG 3136	Geography of Health and Health Care	12
Winter 2016	GEOG 3236	Geography of Environment and Health	23
	GEOG 4057	Topics in GIS Application	9
Fall 2015	GEOG 4237	Urban Health	22
	GEOG 3136	Geography of Health and Health Care	12
Fall 2014 ¹	GEOG 3236	Geography of Environment and Health	22
Spring 2014	GEOG 3076	Regional Geography of Africa	13
Winter 2014	GEOG 3236	Geography of Environment and Health	50
	GEOG 4057	Topics in GIS Application	22
Fall 2013	GEOG 4237	Urban Health	15
Winter 2013	GEOG 3236	Geography of Environment and Health	50
	GEOG 4057	Topics in GIS Application	20
Fall 2012	GEOG 4237	Urban Health	13
Winter 2012	GEOG 4057	Topics in GIS Application	20
	GEOG 4237	Urban Health	20
Fall 2011	GEOG 3236	Geography of Environment and Health	80
	GEOG 3076	Regional Geography of Africa	80
University of Western Ontario			
Fall 2009	Seminar	Land Use Regression	05
	GEOG 2030A	Africa South of the Sahara	80
Intersession 2009	GEOG 2030A	Africa South of the Sahara	30
Winter 2009	GEOG 2030B	Africa South of the Sahara	60
Intersession 2008	GEOG 2030A	Africa South of the Sahara	30

Winter 2008	GEOG 187B	Africa South of the Sahara	40

11.2. Graduate Courses/Faculty Training

Year	Number	Course Name	Number of Students
Winter 2020	ENST 5126	Geomatics for MES/MESc Graduate Students	04
Winter 2019	ENST 5126	Geomatics for MES/MESc Graduate Students	02
Winter 2018	ENST 5126	Geomatics for MES/MESc Graduate Students	03
Winter 2017	ENST 5126	Geomatics for MES/MESc Graduate Students	07
Winter 2013	ENST 5126	Geomatics for MES/MESc Graduate Students	03
Winter 2012	ENST 5126	Geomatics for MES/MESc Graduate Students	13
Summer 2011	Seminar	Introduction to GIS: Faculty Training	08
Fall 2009	Seminar	Land Use Regression Modelling	05
Fall 2008	Seminar	Introduction to NVivo	05

12. SUPERVISION (PAST SEVEN YEARS)

LIFETIME SUMMARY		
Number of Students	Degree Type	Supervision Type
3	Master program	Supervisor
1	Undergraduate	Co-supervisor
1	Master program	Second Reader

12.1. Supervisory Committee Membership

Student	Degree/Status	Supervision Type	Title
Nebyu Woldeyohanes	Master program/Continuing	Supervisor	Investigating the Impact of Nutrients on the Ecosystem of Lake Tana, Ethiopia via Water Sampling and GIS
Chris Donaldson	Master program / completed 2021	Supervisor	Attitudes versus Action: Environmental Citizenship in Tertiary Education
Ike Obasi	Master program/ completed 2019	Supervisor	Perception of pollution in the Niger Delta, Nigeria
Brandon Brown	Master program/ Completed 2014	Second Reader	Risk of Drinking Water in First Nation Communities in Ontario
So Nicholas	Undergraduate /Completed 2010	Co-supervisor	Land Use Regression modelling using Wedges

APPENDIX K

NIPISSING UNIVERSITY CV FORMAT

Curriculum Vitae James Abbott

Program:	Geography	Month and Year	November 2020

Professional Address

Nipissing University
100 College Drive, Box 5002
North Bay, ON, Canada P1B 8L7
Telephone: 705-474-3450, ext. 4143
Email: jabbott@nipissingu.ca

Education

2005	PhD, Duke University
1997	MSc, University of Newcastle on Tyne
1994	BSc (hons) Dalhousie University

Professional Experience

Date	Activity

Assistant Professor (2008 to present; tenured in 2014)
Department of Geography, Nipissing University

Lecturer (2005 to 2008)
Department of Geography & Urban Studies, Temple University

Lecturer and Research Assistant (2004)
Nicholas School of the Environment and Earth Sciences, Duke University

Lecturer (2003)
Department of Geography, University of Western Ontario

Liaison Officer/Policy Analyst (1998-2000)
Ministry of Fisheries & Marine Resources, Government of Namibia

Consultant on Indigenous use of Boundary Waters (1998)
International Joint Commission, Government of Canada

External Research Funding

Date	Funding body	Type	Amount
2017	The Nature Conservancy	O	USD 3000
2012-2014	European Union and Kingdom of Norway	O	EU 5000

Internal Research Funding

Date	Type	Institution	Amount
2008-2009	IRG	Nipissing University	\$10,000

*Type: IRG – Internal Research Grant; RCA-Research Achievement Award; O-Other

Publication Summary (Lifetime total)

	Count
Articles in Refereed Journals & Refereed Book chapters	8
Other Reports	7
Keynotes, Invited Papers, & Public lectures	1

Publications

Articles in Refereed Journals & Refereed Book Chapters

- Bronmann, J., Smith, M., **Abbott, J.**, Hay, C., Næsje, T. 2020. Integration of a local fish market in Namibia with the global seafood trade: Implications for fish traders and sustainability. *World Development*. 135 (11). <http://dx.doi.org/10.1016/j.worlddev.2020.105048>
- Wachowiak, M., Smolikova-Wachowiak, R., Dobbs, B., **Abbott, J.G.** and Walters, D. 2015. Interactive Web-Based Visualization for Lake Monitoring in Community-Based Participatory Research: A Pilot Study Using a Commercial Vessel to Monitor Lake Nipissing. *Environment and Pollution* 4(2) DOI: 10.5539/ep.v4n2p42.
- Abbott, J.G.**, Hay, C., Næsje, T., Tweddle, D. and van der Waal, B. 2015. Rain and Copper: The Evolution of a Marketing Channel in a changing region of Southern Africa. *Journal of Southern African Studies*. 41(1).
- Abbott, J.G.** & L. M. Campbell. 2009. Environmental Histories and Emerging Fisheries Management of the Upper Zambezi River Floodplains. *Conservation & Society*. 7(2), 83-99.
- Abbott, J.G.**, L. M. Campbell, C. Hay, T. Næsje & J. Purvis. 2007. Market-Resource Links & Fish Vendor Livelihoods in the Upper Zambezi River Floodplains. *Human Ecology*. 35(5), 559-574.
- Abbott, J.G.**, L.M. Campbell, C. Hay, A. Ndumba, T. Næsje & J. Purvis. 2007. Rivers as Resources, Rivers as Borders: Community vs. Transboundary Management of Fisheries in the Upper Zambezi River Floodplains. *The Canadian Geographer*. 51(3), 280-302.
- Campbell, L. M., N. Gray, Z. Meletis, **J.G. Abbott**, & J. Silver. 2006. Gatekeepers and keymasters: dynamic relationships of access in geographical field work. *The Geographical Review* 96 (1): 97-121.

Murphy, C. & **Abbott, J.G.** 2006. A description and preliminary assessment of participatory development policies and application in Namibia. *Tanzania Journal of Development Studies*. 6(1): 47-56.

Other Reports

Abbott, J.G. and Tabachnick 2019. Space Savers, Free Grazers and Ocean Raiders: Private Incursion into Public Spaces. Canadian Association of Political Science Annual Convention 2019

Abbott, J.G. 2018. Fisheries of the Lac Oueme. Baseline Survey and Options for Management. Report prepared for the Nature Conservancy (Gabon).

Abbott, J.G., Hay, C., Kalonga, M., Næsje, T. & Purvis, J. 2003. Joint frame survey of the Upper Zambezi River (Namibia/Zambia). Directorate of Environmental Affairs Research Discussion Paper #54. <http://www.dea.met.gov.na/met/publications/research/RDP58.zip>

Næsje, T.F., Hay, C., Purvis, J., Hamukuaya, H., Kapirika, S. & **Abbott, J.G.** 2002. Shared Resource Management on the Zambezi/Chobe Systems in Northeast Namibia: Report of First River Survey and Collection of Information from Fish-markets, Including Survey Manuals and Forms. <http://www.nina.no/archive/nina/Publikasjoner/project%20report/pr18.pdf>

Abbott, J.G. 2001. WWF researches into sustainable fishing. *The Zambezi* 5(1) p.11. <http://www.sardc.net/imercsa/zambezi/Zambezi/v5n1/wwfresearches.htm>

Abbott, J.G. 2001. Traditional Fisheries Management in the Eastern Caprivi region of Namibia. Annex to a presentation at the FAO Expert Consultation on the Management of Small-scale Fisheries in Sub-Saharan Africa, Accra, Ghana, 12-14 December 2001. pp. 109-152. www.cofad.de/download/backtobasics-web.pdf

Abbott, J.G. 1999. Fisheries in Namibia after Independence. Originally published in Norwegian, in the review *Afrikagruppers Arskronika* 1999. pp. 180-183.

Latif, R., & **J.G. Abbott.** 1999. The Establishment of a South East Atlantic Fisheries Organisation. A New Step in High Seas Fisheries Management. *SADC Marine Fisheries and Resources Newsletter*. 1(2), pp. 11-12.

Workshops and Seminars Presented

Date	Title
Feb 2017	Introduction to PASGEAR, a platform for recording and analyzing fish data (hosted by me in French to Gabonese and Senegalese fisheries scientists in Libreville, Gabon)

Graduate and Post-Doctoral Supervisions

Date	Student and the title of their research
2020-present	Brundia, D. (MES) Invasive species discourse and policy in Ontario.

2017-2018	Ruszin, N. (MES) Evaluating Comanagement of Fisheries in Lake Nipissing
2016-2018	Morris, R. (MES) Applying the Advocacy Coalition Framework to Timber Harvesting Policy in Ontario Parks
2013-2014	Grainger, D. (MES) Larder Lake: A Community Amongst Gold

Undergraduate Teaching

GEOG 1016 Introduction to Human Geography	Nipissing University
GEOG 2226 <i>Environment & Society</i>	Nipissing University
GEOG 3067 <i>Regional Geography of Africa</i>	Nipissing University
GEOG 4426 <i>Geography of Hazards</i>	Nipissing University
GEOG 4112 <i>Political Ecology</i>	Nipissing University
GEOG 2137 <i>Social Geography</i>	Nipissing University
GEOG 2136 <i>Cultural Geography</i>	Nipissing University
GEOG 3236 <i>Environmental Geography & Health</i>	Nipissing University
GUS C063 <i>African Development</i>	Temple University
GUS/ES C257 <i>Hazards Geography</i>	Temple University
GUS/ES 256 <i>Political Ecology</i>	Temple University
GUS/ES H090/C050, <i>Environment and Society</i>	Temple University
GUS 5000, <i>Special Topics Seminar</i>	Temple University
ENV 273 <i>Fisheries Policy</i>	Duke University
Geography 360 <i>Conservation and Development</i>	University of Western Ontario

University Level Service

Date	Type	Participation
2020-present	Member	MES/MSc. Env. Sciences/Studies Steering Committee
2018-2020	Coordinator	Graduate Program Env. Sciences/Studies
2018-2019	Member	IQAP Committee MES/MSc Env. Sciences/Studies
2017-2018	Union Observer	Tenure & Promotion Committee
2014-2015	Member	Undergraduate Studies Committee
2013	Organizer	Graduate Program Speakers Series
2010-2011	Senator	University Senate (1 year replacement)
2010	Member	Undergraduate Research Conference Committee
2009-2014	Member	University Research Ethics Committee
2007	Co-ordinator,	Temple University Summer Academy
2004	Organizer	Duke Marine Laboratory Guest Lecture & Visit

Community Service

Date	Type	Participation	Committee
2016-present	Non-governmental	Volunteer,	Fatal Light Awareness Program (FLAP)
2012-present	Non-governmental	Board Member,	Canada Parks and Wildlife Society

Professional Memberships

Canadian Association of Geographers	Ordinary Member

CURRICULUM VITAE

DANIEL F. WALTERS

Professor
Nipissing University
100 College Drive, Box 5002
North Bay, ON, Canada P1B 8L7
705.474.3450 ext. 4155
danw@nipissingu.ca

EDUCATION

- 2006 Doctor of Philosophy, Geography, Western Ontario, Canada
Thesis title: *Assessing the Institutional Value of Ontario's Nutrient Calculator: An Empirical Approach* (Supervisor: Dan Shrubsole)
- 1999 Masters of Arts, Geography, Western Ontario, Canada
Thesis title: *Evaluating Ontario's Drainage Act and Wetland Management Practices: In The Case of Zorra Township* (Supervisor: Dan Shrubsole)
- 1997 Environmental Management Post-Diploma, Niagara College, Ontario, Canada
- 1995 Bachelors of Arts, Natural Resource Management, Geography, Western Ontario, Canada

PROFESSIONAL EXPERIENCE

Academic work experience

2018-	Full Professor	Geography	Nipissing University
2010-2018	Associate Professor (Tenured)	Geography	Nipissing University
2007-2010	Assistant Professor (Tenure-Track)	Geography	Nipissing University
2006-2007	Assistant Professor (3 yr limited term)	Geography	Nipissing University
2005-2006	Assistant Professor (9 month contract)	Geography	Nipissing University
2004-2005	Assistant Professor (9 month contract)	Geography	Nipissing University

Administrative work experience

2012-2014 & 2015-16	Graduate Program Coordinator	MES/MESc	Nipissing University
2007-2010	Board of Governors	Audit and Finance	Nipissing University
2007-2009	Research Ethics Board, Chair		Nipissing University

AWARDS AND HONOURS

2016 Research Achievement Award, Nipissing University

EXTERNAL FUNDING

2017-2020 SSHRC Insight Grant (\$94, 420)
Title: Assessing cyanobacteria bloom impacts and management in Ontario
Co-applicant: Lewis Molot

2014-2020 NSERC CREATE Grant (\$1.6 million)
Co-applicant Title: *Freshwater Harmful Algal Blooms: Algal Bloom Assessment through Science, Technology and Education (ABATE)*
Co-applicants: Irena Creed (PI), Charlie Trick, Peter Dillon, Lewis Molot, Frances Pick, John Smol, Dan Walters and Gordon McBean

2014-16 SSHRC Insight Development Grant (\$70,219)
Collaborator Title: *Contested Waters: Exploring the Lived Experience of Water Quality Risks in an Anishinaabe Community in Northern Ontario*
Co-applicants: Carly Dokis and Ben Kelly Collaborator: Dan Walters (10% writing)

2014-15 Ministry of the Environment and Climate Change – Great Lakes Division (\$50,000)
Co-applicant Title: *Lake Nipissing embayment monitoring project*
Co-applicants: April James, Dan Walters and Krys Chutko (60% writing)

2012-13 Health Canada Drinking Water Quality Program (\$50,000)
Co-applicant Title: *Dokis Source Water Protection Plan*
Co-applicants: Randy Restoule, Dan Walters and April James (60% writing)

2010-14 Northern Ontario Heritage Fund Corporation (NOHFC) Emerging Technology Program
Co-applicant (\$410,500 + \$410.500 matching funds = \$821,000)
Title: *Integrated Geospatial Data and Visualization Technology for Farm Applications*
Co-applicants: Dan Walters (PI), John M. Kovacs, Mark Wackowiak and April James
(75% networking; 80% writing)

2009-12 SSHRC Strategic Grant (\$236,650)
Co-applicant Title: *The social determinants of safe water and well-being: a community level analysis*
Applicants: Jerry White (PI), Dan Walters and Nick Spence (50% writing)

2006-09 SSHRC Standard Grant (\$36,000)
Applicant Title: *Enhancing the capacity of First Nations to manage drinking water*

INTERNAL FUNDING

2015 Nipissing University / Northern Ontario Heritage Fund Corporation Youth Internship
Co-applicant Program (\$24,000 - State of the Basin Coordinator)
Co-applicants: Dan Walters and April James Recipient: Melodie Tessier

2013 Applicant	Nipissing University, SSHRC 4A Recipient Award (\$3,000) Title: Integrating local knowledge in the renewal of water governance
2013-14 Co-applicant	Nipissing University Northern Ontario Heritage Fund Corporation Youth Internship Program (\$24,000 - State of the Basin Coordinator) Co-applicants: Dan Walters and April James Recipient: Hailey Turner
2008 Applicant	Internal Research Grant (\$7,000) Title: <i>Linking underlying determinants of social and environmental health risks among First Nations communities</i>
2006 Applicant	Internal Research Grant (\$5,000) Title: <i>Determinants of Aboriginal health and drinking water: social and cultural considerations</i>
2005 Applicant	Internal Research Grant (\$5,000) <i>Assessing the value of a mandated DSS for nutrient management in Ontario</i>

ASSESSMENTS AND REVIEWS

2020	U.S. Environmental Protection Agency STAR Grant A1Session 2: Approaches to Reduce Nutrient Loadings for Harmful Algal Blooms Management (Panel Reviewer – completed)
2018	SSHRC Insight Development Grant Competition (Panel Reviewer – completed)
2017	NSERC Collaborative Research and Development Grant Application. Invited to review a proposal related to agricultural nutrient management. (External Reviewer - completed)
2016	York University, Faculty of Environmental Studies, Institutional Quality Assurance Process (IQAP) Review. Review of York University's Faculty of Environmental Studies Undergraduate, Masters and Ph.D. Programs, November 21-22, 2016. (External Reviewer - completed)
2015	Canadian Research Chairs Program. Invited to serve as a member of the College of Reviewers to evaluate a Tier II CRC application in Water Governance. (External Reviewer - completed)
2015	SSHRC Insight Grant Application. Invited to evaluate a proposal related to Indigenous water stewardship and Canadian water laws. (External Reviewer - completed)
2010	SSHRC Standard Grant Application. I was invited (completed) to review a proposal related to Aboriginal water knowledge. (External Reviewer - completed)
2008	SSHRC Standard Grant Application. Invited to evaluate a proposal related to participatory watershed management. (External Reviewer – completed)

PUBLICATION SUMMARY

Refereed contributions

- [1] Shang, J., Lui, J., Poncos, V., Geng, X., Qian, B., Chen, Q., Dong, T., MacDonald, D., Martin, T., Kovacs, J., and Walters, D. (2020) Detection of crop seeding and harvest through analysis of time-series Sentinel-1 interferometric SAR data. *Remote Sensing*, 12(10): 1551, doi.org/10.3390/rs12101551
- [2] Lukawiecki, J., R. Gagnon, C. Dokis, D. Walters, and L. Molot (accepted) Meaningful engagement with Indigenous peoples: a case study of Ontario's Great Lakes Protection Act. *International Journal of Water Resources Development*.
- [3] Molot, L., S. Schiff, J. Venkiteswaran, H. Baulch, S. Higgins, A. Zastepa, M. Verschoor and D. Walters (accepted) Low sediment redox promotes cyanobacteria blooms across a trophic range: implications for management. *Lake and Reservoir Management*.
- [4] Dong, T., J. Shang, J. Liu, B. Qian, Q. Jing, B. Ma, T. Huffman, X. Geng, A. Sow, Y. Shi, F. Canisius, X. Jiao, J.M. Kovacs, D. Walters, J. Cable and J. Wilson (2019) Using RapidEye imagery to identify within-field variability of crop growth and yield in Ontario, Canada. *Precision Agriculture*. <https://doi.org/10.1007/s11119-019-09646-w>
- [5] Dong, J. Liu, B. Shang, J. Qian, B. Qian, J.M. Kovacs, D. Walters, X. Jiao, X. Geng and Y. Shi (2019) Assessment of the red-edge based vegetation indices for the estimation of crop leaf area index. *Remote Sensing of Environment*, 222: 133-143.
- [6] Herath, A., B. L. Ma, J. Shang, J. Liu, T. Dong, X. Jiao, J.M. Kovacs and D. Walters (2018) On-farm spatial characterization of soil mineral nitrogen, crop growth, and yield of canola as affected by different rates of nitrogen application. *Canadian Journal of Plant Science*, 98(1): 1-14.
- [7] Zhang C., J. Kovacs and D. Walters (2018) The use of unmanned aerial vehicles (Chapter 4). In J. Stafford (Ed.) *Precision Agriculture for Sustainability* (22 pp.) Cambridge, U.K.: Burleigh Dodds Science Publishing
- [8] Shrubsole D., D. Walters, B. Veale and B. Mitchell (Eds.) (2018) *Integrated Water Management in Canada: The Experiences of Watershed Agencies*. Routledge, ISBN 9781138586918
- [9] Wachowiak M.P., James A.L., Wachowiak-Smolikova R., Walters D., Chutko K.J. and Rusak J. (2018) Visual analytics of high-resolution lake monitoring data: A case study of gaining insight into stressors in a large inland lake. *International journal of Data Science and Analytics*, 5(2-3): 99-110.
- [10] Wachowiak M.P., D. Walters, J.M. Kovacs, R Wachowiak-Smolikova and A. James (2017) Visual Analytics and Remote Sensing Imagery to Support Community-Based Research for Precision Agriculture in Emerging Areas. *Computers and Electronics in Agriculture*, 143: 149-164 .
- [11] Canisius, F., J. Shang, J. Liu, X. Huang, B. Ma, X., Jiao, X. Geng, J.M. Kovacs and D. Walters (2017) Tracking crop phenological development using multi-temporal polarimetric Radarsat-2 data. *Remote Sensing of Environment*. <https://doi.org/10.1016/j.rse.2017.07.031>
- [12] Jarvis D.H., Wachowiak M.P., Walters D.F. and Kovacs M.J. (2017) Adoption of web-based spatial tools by agricultural producers: Conversations with seven northern Ontario farmers using the GeoVisage decision support system. *Agriculture* 7(8): 69. doi:10.3390/agriculture7080069
- [13] Shrubsole, D., D. Walters, D. Veale and B. Mitchell (2017) Integrated water management in Canada: The experience of watershed agencies. *International Journal of Water Resources Development*. 33(3): 349-359. DOI:10.1080/07900627.2016.1244048
- [14] Scott, P., B. Tayler and D. Walters (2017) Lessons from implementing integrated water resource management: A case study of the North Bay-Mattawa Conservation Authority, Ontario.

International Journal of Water Resources Development 33(3): 393-407.

DOI:10.1080/07900627.2016.1216830

- [15] Jing Q., B. Qian, J. Shang, T. Huffman, J. Liu, E. Pattey, T. Dong, N. Tremblay, C.F. Dury, B.L. Ma, G. Jégo, X. Jiao, J. Kovacs, D. Walters and J. Wang (2017) Assessing the options to improve regional wheat yield in eastern Canada using the CSM-CERES-Wheat model. *Agronomy Journal* 109(2): 510-523. DOI:10.2134/agronj2016.06.0364
- [16] Jing Q., Shang, J., Qian, B., Hoogenboom, G., Huffman, T., Liu, J., Ma, B.L., Geng, X., Jiao X., Kovacs, J. & Walters, D. (2016). Evaluation of the CSM-CROPGRO-Canola model for simulating canola growth and yield at West Nipissing in Eastern Canada. *Agronomy Journal*, 108(2): 575-584. DOI:10.2134/agronj2015.0401
- [17] Brown, B., Smolíková-Wachowiak, R., Spence, N., Wachowiak, M.P. & Walters D. (2016). Why Do Some First Nations Communities Have Safe Water and Others Not? Socioeconomic Determinants of Drinking Water Risk. *Global Journal of Health Science*, 8(9): 99-106.
- [18] Shang, J., J. Lui, B. Ma, T. Zhao, X. Jiao, X. Geng, T. Huffman, J.M. Kovacs and D. Walters (2015) Mapping spatial variability of crop growth conditions using RapidEye data in Northern Ontario, Canada. *Remote Sensing of Environment* 168: 113-125
- [19] Wachowiak M.P., R. Wachowiak-Smolíková, B. Dobbs, J. Abbott and D. Walters (2015) Interactive Web-Based Visualization for Lake Monitoring in Community-Based Participatory Research: A Pilot Study Using a Commercial Vessel to Monitor Lake Nipissing. *Environment and Pollution* 4(2): 42-54
- [20] Zhang C., D. Walters, J. Kovacs (2014) Applications of low altitude remote sensing in agriculture upon farmers' requests – a case study in Northeastern Ontario, Canada. *PLoS ONE* 9(11):e112894
- [21] Mitchell, B., C. Priddle, D. Shrubsole, B. Veale and D. Walters (2014) Lessons about Integrated Water Resource Management based on Experience of the Ontario Conservation Authorities in Canada. *International Journal of Water Resources Development* 30(3): 460-474
- [22] Jiao X., J.M. Kovacs, J. Shang, H. McNairn, D. Walters, B. Ma and X. Geng (2014) Object-oriented crop mapping and monitoring using multi-temporal polarimetric RADARSAT-2 data. *ISPRS Journal of Photogrammetry and Remote Sensing* 96: 38-46.
- [23] Walters, D. and D. Shrubsole (2014) Assessing the implementation of Ontario's Nutrient Management decision support system. *The Canadian Geographer* 58(2): 203-216
- [24] Walters, D., R. Smolíkova-Wachowiak, M. Wachowiak, D. Shrubsole and J. Malczewski (2013) Ontario's nutrient calculator: Overview and Sensitivity Analysis. *Journal of Agricultural Science* 5(11): 189-200.
- [25] Walters, D., Spence, N., Kuikman, K. and B. Singh (2012) Multi-barrier protection of drinking water systems: A comparison of First Nations and non-First Nations communities in Ontario. *International Indigenous Policy Journal* 3(8): 1-25.
- [26] Spence, N. and D. Walters (2012) Is my water safe? Risk perception among a vulnerable population. *International Indigenous Policy Journal* 3(9): 1-23.
- [27] Schulte-Hostedde B., D. Walters, C. Powell and D. Shrubsole (2007) Wetland management: An analysis of past and recent policy changes in Ontario. *Journal of Environmental Management* 82: 83-94.
- [28] Walters D. and D. Shrubsole (2005) Assessing efforts to mitigate the impacts of drainage on wetlands in Ontario, Canada. *The Canadian Geographer* 49(2): 155-171.
- [29] Walters D. and D. Shrubsole (2003) Agricultural drainage and wetland management in Ontario. *Journal of Environmental Management* 69: 369-379.
- [30] Malczewski J., T. Chapman, C. Flegel, D. Walters, D. Shrubsole and M. Healy (2003) GIS-multicriteria evaluation with Ordered Weighted Averaging (OWA): Case study of developing watershed management strategies. *Environment and Planning A* 35: 1769-1784.

Other refereed contributions

- [31] Dong, T., J. Lui, J. Shang, B. Qian, T. Huffman, B.L. Ma, Q. Jing, Y. Shi, X. Jiao, J.M. Kovacs and D. Walters (2017) Crop yield mapping from RapidEye Images using machine learning approaches. *International Geoscience and Remote Sensing Symposium*. Fort Worth, Texas. July 23-28, 2017.
- [32] Buckle, S. & Walters, D. (2016). Restore Your Shore: A community-based social marketing approach. *LakeLine Magazine*, 36(2): 25-30.
- [33] Shang J., X. Jiao, H. McNairn, J.M. Kovacs, D. Walters, B.L. Ma and X. Geng (2013) Tracking Crop Phenological Development of Spring Wheat Using Synthetic Aperture Radar (SAR) in Northern Ontario, Canada. *2nd International Agro-Geoinformatics Conference*. Fairfax VA, USA.
- [34] Walters, D., A. James & M. Malette (2012) *Dokis First Nation Source Water Protection Plan*. Dokis First Nation Chief and Council,

Non-refereed contributions

- [35] Walters, D. (2019) Does science matter? Negotiating responses to cyanobacteria blooms. NSERC CREATE Field Course, Queen's University, August 11-14. (Talk)
- [36] Walters, D. (2019) Eagle Lake Cyanobacteria Research Update. Eagle Lake Conservation Association Annual Meeting, Highlander Brewery, South River, July 20. (Talk)
- [37] Jones, R., A.L. James, D. Walters and A. Paterson (2019) Weather-related drivers of thermal mixing and the dissolved oxygen regime of a polymictic bay. International Association of Great Lakes Research (IAGLR) 62nd Annual Conference: Large Lakes Research: Connecting People and Ideas. Brockport, NY, June 10-14. (Talk)
- [38] Walters, D. (2019) How does Ontario manage Cyanobacteria Blooms? Cyanobacteria Workshop, Eagle Lake Conservation Association, South River, June 8 (Invited Talk)
- [39] Molot, L., S. Schiff, J. Venkiteswaran, H. Baulch, S. Higgins, A. Zastepa, M. Verschoor and D. Walters (2019) Guiding principles for preventing cyanobacteria blooms in a changing climate: Integrating nutrient limitation and sediment redox science into watershed management. 54th Central Canadian Symposium on Water Quality Research, York University, Toronto ON, February 27 (Talk)
- [40] Walters, D. (2018) Preventing and mitigating cyanobacteria blooms: protecting the value of lakes. Profiting from the Environment Economic Development Conference, Sundridge ON, September 28, 2018 (Invited Talk)
- [41] Jones, R., D. Walters and A. James (2018) Annual variation in weather induced hypoxic events in Callander Bay, Lake Nipissing Canada. International Association of Great Lakes Research Annual Conference, Scarborough ON, June 19, 2018 (Poster)
- [42] Walters, D. (2018) The science-policy interface in the context of source water protection: lessons from Callander, ON. International Association of Great Lakes Research Annual Conference, Scarborough ON, June 20, 2018 (Invited Talk)
- [43] Harrison, J., D. Walters, A. James and S. Miller (2018) Drivers of spatiotemporal patterns in cyanobacteria fluorescence in Callander ON. International Association of Great Lakes Research Annual Conference, Scarborough ON, June 21, 2018 (Talk)
- [44] Zhang, C., J.M. Kovacs and D. Walters (2017) A critical review of applications of unmanned aerial system images in precision agriculture. Canadian Association of Geographers Conference. York University, Toronto, ON, Canada. (Poster)
- [45] Shrubsole, D., Walters, D. Mitchell, B. and Veale, B. (2017) Integrated Water Management in Canada: The Experience of Watershed Agencies. American Association of Geographers Annual Meeting, Boston MA, April 5-9, 2017. (Talk)

- [46] Herath, A., B.L. Ma, J. Shang, X. Jiao, J. Kovacs, and D. Walters (2016) Spatial characterization of soil mineral nitrogen, crop growth, and yield of canola as affected by nitrogen application. Poster presentation at joint annual conference for the Canadian Society of Agronomy and the Canadian Society for Horticultural Science. Montreal, QC, Canada. July 24-26. (Poster)
- [47] Herath, A., B.L. Ma, J. Shang, X. Jiao, J.M. Kovacs, and D. Walters (2016) Soil mineral nitrogen supply and grain yield estimation of canola in relation to growing-season canopy reflectance measurements. Poster presentation at joint annual conference for the Canadian Society of Agronomy and the Canadian Society for Horticultural Science. Montreal, QC, Canada. Jul. 24-26. (Poster)
- [48] Oster, B., K.J. Chutko and D. Walters (2016) Sediment P fractions in shallow, eutrophic water bodies in the Lake Nipissing watershed. A Symposium on Sustainable Agricultural Systems in the Great Lakes Basin. University of Western Ontario, April 14, 2016. (Poster)
- [49] Prescott, M., K.J. Chutko, D. Walters, A.L. James, A.M. Paterson, J.A. Rusak, C.J. McConnell, and H. Yao (2016) A multi-year study of mixing and stratification using buoy observations, Lake Nipissing, Ontario. International Association of Great Lakes Research. Guelph Ontario, June 8, 2016 (Talk)
- [50] Qian, B., J. Shang, Q. Jing, G. Hoogenboom, T. Huffman, J. Liu, B.L. Ma, X. Geng, J.M. Kovacs and D. Walters (2016) Adapting the CSM-CROPGRO-CANOLA Model for Spring Canola in Eastern Canada. iCROP2016, Berlin Germany, March 14-17, 2016 (Poster)
- [51] Buckle S., S. Miller, M. Tessier, N. Trueman and D. Walters (2015) A case study of Callander's Restore Your Shore Program: Successes, Challenges and Lessons Learned. North American Lake Managers Society Conference, Saratoga Springs, N.Y., November 19, 2015.
- [52] Prescott M., K.J. Chutko, D. Walters, A.L. James, M. Wachowiak, C.J. McConnell, H. Yao A.M. Paterson and J.A. Rusak (2015) Mixing and Stratification of Embayments in Lake Nipissing, Ontario: An Analysis using High Frequency Buoy Data. North American Lake Managers Society Conference, Saratoga Springs, N.Y., November 18, 2015. (Poster)
- [53] Trueman, N. and D. Walters (2015). An analysis of Ontario's Source Water Protection Plans. *Canadian Association of Geographers Ontario Division Annual Conference*. Carlton University, Ottawa, Ontario, Canada. October 23-24, 2015 (Talk)
- [54] Gagnon R., D. Walters and C. Dokis (2015) First Nation's Perspectives on the Crown's Obligation of the Duty to Consult Process in Ontario on Natural Resources. GDO AKIIMINAAN GANAWENDANDAAN (Taking Care of Our Land) Symposium. Algoma University, Sault Ste. Marie, Ontario, Canada, May 4-6 (Talk)
- [55] Zhang C., J.M. Kovacs, D. Walters, D. Hill, and J. Shang (2015) Measuring crop biological parameters using aerial images from a low altitude remote sensing platform. *American Association of Geographers Annual Meeting*, Chicago, Illinois, USA. April 21-25 (Poster)
- [56] Chutko, K.J., D. Walters, A.L. James, M. Wachowiak, C. McConnell, H. Yao, A.M. Paterson and J.A. Rusak (2015) High frequency monitoring of lake and weather conditions in Lake Nipissing, Ontario: Exploring the 2014 hydrographical dataset. *AGU-GAC-MAC-CGU Joint Assembly*, Montreal, QC, May 3-7, 2015 (Poster)
- [57] Shang J., J. Liu, B. Ma, T. Zhao, J. Kovacs, X. Jiao, T. Dong, T. Huffman, X. Geng and D. Walters (2014) Tracking Crop Leaf Area Index and Chlorophyll Content Using RapidEye Data in Northern Ontario, Canada. Fall Meeting, American Geophysical Union, San Francisco, USA, December 15-19. (Poster)
- [58] Walters D. (2014) Lessons from 42-years of integrated watershed management: a northern perspective. *Canadian Water Resources Association Annual Conference*. Hamilton Ontario, June, 2014. (Talk)

- [59] Walters D. (2012) Dokis source water protection plan: a community-based approach. Kikendawt E'naagdowen Mowaad Nibii – Dokis Bay Keepers of the water. May 22, 2012
Invited Talk
- [60] Walters D. (2011) Ontario's source water protection program and implications for First Nations. Northern Ontario First Nations Environment Conference, October 5, 2011. Invited Talk
- [61] Walters D. (2011) Exploring underlying determinants of safe water in First Nations communities. Geography Department Speaker Series. November, 2011
- [62] Walters D. and D. Shrubsole (2009) Updating Integrated Watershed Management Plans: A comprehensive and integrative approach. Integrated Watershed Management Symposium, Mississauga Ontario Canada, May 2009 Invited Talk
- [63] Walters D. (2009) Municipal and First Nations Drinking Water: A two tier system of governance in Ontario, Canada. American Association of Geographers Annual General Meeting, Las Vegas Nevada, March 2009
- [64] Walters D., J. White and N. Spence (2009) Exploring the links between determinants of community well-being and safe water among First Nations. Aboriginal Policy Research Conference. Ottawa, Canada,
- [65] Walters, D. (2008) A comparison of Ontario's First Nations and municipal drinking water service standards. Canadian Association of Geographers Annual General Meeting, Quebec City, Quebec, May 2008
- [66] Walters, D. (2008) *Surface Water Systems – A primer*. North Bay – Mattawa Conservation Authority Source Water Protection Committee, North Bay Ontario, April 2008 Invited Talk
- [67] Walters, D. (2007) The capacity to manage drinking water in First Nation communities'. Aboriginal Policy Research Consortium (International) Conference. London Ontario, November 2007
- [68] Singh B. and D. Walters (2007) An examination of First Nations' drinking water systems in Ontario. Canadian Association of Geographers Ontario Division Annual Meeting, Sudbury Ontario, October 2007
- [69] Walters, D. (2007) Spatial Analysis of First Nation Communities Drinking Water Systems at Risk in Ontario. Canadian Association of Geographers Annual General Meeting, Saskatoon, Saskatchewan, May 2007
- [70] Walters, D. (2006) Assessing the value of Ontario's nutrient management calculator. University of Lethbridge. Lethbridge, Alberta, March 2006 (Invited Talk)
- [71] Buckland, R., J. Kovacs and D. Walters (2005) Opportunities and Challenges in managing forest resources on First Nations: A case study of the Dokis First Nation. Canadian Association of Geographers Ontario Chapter. Ottawa, Ontario, October 2005
- [72] Walters, D. (2005) The use of a decision support system for the approval of livestock facilities in Ontario: Are we building the capacity local planners? Canadian Association of Geographers Annual General Meeting. London, Ontario, March 2005
- [73] Walters, D. (2004) Water Resource Management: Building Sustainable Communities. Nipissing University Lecture Series. North Bay, Ontario, November 2004 (Invited Talk)
- [74] Walters, D. (2004) Assessing the implementation of a field-scale nutrient calculator at the catchment level in Kintore Creek, Ontario, Canada. American Association of Geographers Annual Meeting, Philadelphia, USA, March, 2004

UNDERGRADUATE AND GRADUATE SUPERVISION

Table 1: Supervision Summary Table

	Currently		Completed		
	Supervised	Co-supervised	Supervised	Co-supervised	Total
Undergraduate	1		5	4	10
Master's		2	5	4	11
Doctoral					
Postdoctoral					
Others			11	12	23
Total	1	2	21	20	44

Current Graduate Supervision

- 2019- Rebecca Gasman (Thesis – York U) Cyanobacteria Policy Analysis. (SSHRC and NSERC CREATE Funded - co-supervised with Lewis Molot (York University))
- 2018- Kyle Wittmaier (Thesis – York U) *Integrated watershed management initiatives in Ontario* (SSHRC and NSERC CREATE Funded – co-supervised with Lewis Molot York University)

Completed Thesis & Independent Study Supervision

- 2019-20 Kayden Sim, BA (Thesis) Assessing the Ferrous-Cyanobacteria Model in Callander Bay (NSERC funded)
- 2019-20 Jessica Murdoch, BA (Directed Studies) Exploring associations between cyanobacteria blooms and environmental factors (SSHRC funded)
- 2017-20 Robyn Jones, MEd (Thesis) Estimating Internal Phosphorus Loading in Callander Bay, Lake Nipissing (NSERC CREATE Funded – co-supervision with April James)
- 2014-19 Viganti Ramlogan-Murphy MES (MRP) *The Portrayal of First Nations Water Risks in Canadian media stories 2015-2018* (Supervisor)
- 2016-19 Miao Chen, MES (MES Thesis) *Assessing the implementation of Ontario 12-point plan to manage cyanobacteria* (Supervisor) (NSERC CREATE Funded)
- 2013-19 Jamie Lavigne MEd (MES Thesis) *Characterization of thermal stratification and hypolimnetic hypoxia in a polymictic Precambrian shield embayment* (Co-supervision with April James)
- 2014-17 Adam Curran MES (MES Thesis) *Assessing the implementation of Ontario Endangered Species Act's Overall Benefit Permit Program* (Supervisor)
- 2016-17 Kyle Whittmaier BA (BSc Thesis) *Monitoring for Internal Phosphorus Loading in Callander Bay and Wasi Lake* (Co-supervision with April James) (NSERC Funded)
- 2015-16 Brad Oster BA (BSc Thesis) *Spatial Patterns of Sediment Phosphorus Fractionation: Callander Bay and Wasi Lake* (Co-supervision with Krys Chutko) (NSERC Funded)
- 2015-17 Jessica Lukawiecki, (MES MRP – York U) *Consultation with First Nations in Ontario's Great Lakes Initiatives* (Co-supervisor with Lewis Molot at York University) (NSERC Funded)
- 2013-16 Rhonda Gagnon (MES-Thesis) *The Anishinabek Nation in the Great Lakes Basin and Government Perspectives on "Why" Consultation is Important: an ethnographic approach*

	(Co-supervision with Carly Dokis)
2014-15	Megan Prescott, (MESC MRP) <i>Characterizing mixing and stratification in Lake Nipissing Embayments through an analysis of meteorological controls</i> (Supervision) (NSERC Funded)
2012-13	Brandon Brown, (MES-MRP) <i>Assessing recent Federal responses to First Nations Drinking Water Risks: A case study of Ontario</i> (Supervisor)
2010-11	Jennifer Arthur (MA-MRP) <i>Reflections on the Application of Integrated Water Management in First Nations Drinking Water Improvement Projects, Ontario, Canada</i> , University of Queensland, Masters of Integrated Watershed Management (Co-supervised with Peter Wegener)
2010-11	Chris Dobson, (BSc - Thesis) <i>Benthic assessment of stressed streams in North Bay</i> (Supervisor – in collaboration with Trout Unlimited)
2010-11	Michelle Galoni, (BSc - Thesis) <i>Groundwater vulnerability assessment in Temiskaming Shores</i> (Co-supervised with April James)
2010-11	Martine Lachance, (BSc - Thesis) <i>Assessing groundwater vulnerability in West Nipissing</i> . p. 25 (Co-supervised with April James)
2009-10	Buckland, Rhonda (BA-Ind. Study) <i>Evidence of integrating TEK into water governance in Ontario</i> . (Supervisor)
2009-10	Gambles, Autumn (BA - Ind. Study) <i>Agricultural transition in northern Ontario</i> (Supervisor)
2009-10	Singh, Budhendra (BA- Ind. Study) <i>Spatial and Temporal Analysis of First Nations water risks</i> (Supervisor) (SSHRC Funded)
2008-09	Van Hoof, Athena (BA - Ind. Study) <i>Wastewater management in First Nations: A status report</i> (Supervisor)

Additional HQP (Research Assistants) Co-supervised with *John Kovacs ** Mark Wachowiak

<u>Year</u>	<u>Student</u>	<u>Project</u>	<u>Funding</u>
2020	Nicole Kordez, BA	Eagle Lake Resident Survey	SSHRC
2020	Brianna Leigh, BA	Eagle Lake Water Quality	SSHRC
2019	Kayden Sim, BA	Testing Cyano-Fe ²⁺ model	NSERC
2018	Kayden Sim BA	Internal P Loading Callander Bay	NSERC
2017	**Matthew Marquis-Wedderburn	Cyanobacteria bloom app	NSERC
2016-17	Kyle Whittmaier BA (NSERC USRA)	Internal P Loading in Callander	NSERC
2015	Melodie Tessier MSc	State of the Basin Coordinator	NOHFC
2013-14	Hailey Turner BA	State of the Basin Coordinator	NOHF
2011-14	*Jeff Cable, BSc	Canola and wheat crop N trials	NOHFC
2011-13	*Jeff Wilson, BA, Bed	Canola and wheat crop N trials	NOHFC
2013	*Ali Steer BA	Canola and wheat crop N trials	NOHFC
2013	*Brittney Glass BA	Canola and wheat crop N trials	NOHFC
2013	*Duncan McLeod BA	Canola and wheat crop N trials	NOHFC
2013	*Laurel Muldoon BA	Canola and wheat crop N trials	NOHFC
2013	*Megan Prescott BA	Canola and wheat crop N trials	NOHFC
2013	*Jessica Lowey BA	Canola and wheat crop N trials	NOHFC
2013	Necole Trueman BA	Ontario's Source Water Protection	NSERC
2012	*Ben Brian BA	Canola and wheat crop N trials	NOHFC
2012	*Graham Burrows BSc (Waterloo)	Canola and wheat crop N trials	NOHFC
2012	*Riley Cormier	Canola and wheat crop N trials	NOHFC
2010-11	David Johnstone (Northern College)	Dokis Source Water Protection Plan	HC

2010-11	Kayla Kuikman BA	First Nations Water Risks	SSHRC
2009-10	Peter Trapper BA	First Nations Water Risks	SSHRC
2009	James Harper BA, BEd	First Nations Water Risks	Nip U
2008	Tina Strong BA	First Nations Water Risks	SSHRC
2007-08	Kaden (Tyler) Dokis BA, BEd	First Nations Water Risks	SSHRC

UNDERGRADUATE AND GRADUATE TEACHING (at Nipissing University)

<u>Course Code</u>	<u>Title</u>	<u>Level</u>	<u>~Enrollment</u>
GEOG 1016	People, Place and Environment	1 st yr	80
GEOG 1017	Introduction to Physical Geography	1 st yr	80
GEOG 2016	Field and Laboratory Techniques	2 nd yr	40
GEOG 2026	Introduction to Statistics	2 nd yr	80
GEOG 2027	Advance Statistics	2 nd yr	15
GEOG 2126	Physical Hydrology	2 nd yr	35
GEOG 2226	Environment and Society	2 nd yr	45
GEOG 2227	Introduction to Resource Management	2 nd yr	50
GEOG 3106	Environmental Impact Assessment	3 rd yr	20
GEOG 3126	Geographies of Agriculture	3 rd yr	20
GEOG 3127	Water Resource Management	3 rd yr	25
GEOG 4107	Impact Assessment for Resource Management	4 th yr	30
GEOG 4777	Water Governance	4 th yr	25
ENST 5016	Perspectives on the Environment	Masters	19
ENST 5017	Methods of Environmental Inquiry	Masters	8
ENST 5126	Seminar in Environmental Studies	Masters	6
ENST 5346	Integrated Watershed Management	Masters	3

NIPISSING UNIVERSITY CV

Curriculum Vitae
MARK P. WACHOWIAK

Program: Computer Science and Mathematics

Month and Year: 6/2021

Rank

Professor

Professional Address

Nipissing University
100 College Drive, Box 5002
North Bay, ON, Canada P1B 8L7
Telephone: 705-474 3450 x4115
Email: markw@nipissingu.ca

Education

Date	Degree and University
December	Doctor of Philosophy
2002	Department of Computer Engineering and Computer Science University of Louisville
December	Master of Science
1997	Department of Engineering Mathematics and Computer Science University of Louisville
May 1994	Bachelor of Science
	Department of Mathematics University of Louisville

Professional Experience

Date	Activity
2004 – 2006	Research Associate Imaging Laboratories, Robarts Research Institute
	Research associate, student mentoring
2006 – 2006	Adjunct Professor Medical Biophysics, University of Western Ontario
	Part-time, Adjunct, Lecturer
	Co-instructor for courses in the Department of Medical Biophysics
2002 – 2004	Postdoctoral Fellow Imaging Laboratories, Robarts Research Institute
	Research, high-performance computing, student mentoring
1995 – 1998	Software developer, research assistant Gait and Biomechanics Laboratory, Frazier Rehabilitation Center
	Wrote software for assisting with the clinical and research applications of the Gait and Biomechanics Laboratory at Frazier Rehabilitation Center (Louisville, KY).
	Performed data analysis and assisted with data collection.

Awards and Honours

May 2020	Research Award (Nipissing University)
June 2018	Chancellor's Award for Excellence in Research (Nipissing University)

External Research Funding

Date	Funding body	Type	Amount
May 2021 – February 2022	eCampusOntario	Project lead to develop an online certificate program in the Digital Humanities (Collaboration with other A&S faculty)	\$149,729
February 2020 – March 2022	Ontario Ministry of the Environment, Conservation and Parks	Ontario Transfer Payment (Agreement between MECP and NU – Dr. A. James, Project Lead) Collaborator role on grant	\$178,875
June 2020 – September 2020	SHARCNET (Shared Hierarchical Academic and Research Computing Network Consortium)	Renewal of dedicated research programming support (three (3) HPC consultants)	-
May 2019 – April 2020	Northern Ontario Heritage Fund Corporation	Internship Grant Co-applicant with three (2) others	\$34,580 over one year, renewable for an additional year
July 2019 – October 2019	SHARCNET (Shared Hierarchical Academic and Research Computing Network Consortium)	Dedicated research programming support (two (2) HPC consultants)	-
July 2017 – March 2018	SHARCNET (Shared Hierarchical Academic and Research Computing Network Consortium)	Dedicated research programming support (one HPC consultant)	-
April 2011 – September 2016	Military Communications and Electronics Museum	Student stipends	\$7,000 for student stipends over the duration of the project
May 2011 – April 2016	NSERC	Discovery Grant	\$14,000 for each of five (5) years
June 2012 – May 2014	SSHRC	Insight Development Grant Co-applicant with three (3) others	\$51,000 over two (2) years
November, 2011; November 2012	Northern Ontario Heritage Fund Corporation	Internship Grant Co-applicant with three (3) others	\$21,000 for each of two years
July 2011 – June 2013	Ministry of Innovation (and Nipissing University)	Postdoctoral Fellowship Co-applicant with three (3) others	\$110,000 for two (2) years
July 2011 –	Northern Ontario Heritage	In collaboration with the	\$410,500 over three

June 2014	Fund Corporation	Department of Geography, Nipissing University. Co-applicant, with four (4) others	(3) years (with additional internal and external sources)
2010 – 2011	SHARCNET (Shared Hierarchical Academic and Research Computing Network Consortium)	Site Leader	\$16,000 total (\$8,000 from SHARCNET, and \$8,000 matched by Nipissing University over two years)

Internal Research Funding

Date	Type	Institution	Amount
January 2021 – June 2022	Teaching Chair in Virtual Labs and Studios (O)	Nipissing University	\$5,000 over 18 months.
May 2020 – April 2021	Research Achievement Award (RCA)	Nipissing University	\$5,000 over one (1) year
May 2017 – April 2019 (extended to March, 2020)	Internal Research Grant (IRG)	Nipissing University	\$5,000 over two (2) years
2010	Research Initiative Grant (O)	Nipissing University Primary applicant with three (3) co-applicants	\$1,000
2009	Start-Up Research Grant (O)	Nipissing University	\$5,000
September – April, 2011; September – April, 2012	International Work Study Program (O)	Nipissing University	\$1,500 (3/4 funding, with remainder from start-up grant)

*Type: IRG – Internal Research Grant; RCA-Research Achievement Award; O-Other

Publication Summary (Lifetime total)

	<u>Count</u>
Books Authored	0
Books Edited	0
Articles in Refereed Journals & Refereed Book chapters	36 (1 in revision)
Book Chapters	1
Refereed articles in on-line Publications	NA
Other on-line Publications	NA
Magazine Articles	1
Legal Briefs	NA
Technical Reports	NA
Other Reports	1
Curriculum Reports and other Professional Contributions (Education)	NA
Non-refereed articles	NA
Book Introductions	NA
Dictionary and Reference Articles	NA
Book Reviews	NA
Conference Papers	54
Keynotes, Invited Papers, & Public lectures	1
Electronic Documents and Multi-media Productions	NA
Shared Computer Software and Documentation	4
Literary Works and Musical Compositions	NA
Musical Recordings	NA
Audio-Visual Productions and Films and Videos	NA
Artistic Works and Exhibitions	NA
Public Performances in Orchestras, Concerts, Dramatic Productions (as performer, writer, composer, editor and/or director)	NA
TV, Radio, and Documentary Interviews	NA
Works in Progress	7

Publications

NOTE: * indicates students that were supervised by M. P. Wachowiak

Magazine Articles

Date	Title and publication information
2016/04/19	Farmers get ahead of Mother Nature (GeoVisage Visualization and Decision Support System), Research Matters http://yourontarioresearch.ca/2016/04/getting-ahead-mothernature/

Other Reports

Date	Title and publication information
May 28, 2019	Discussion of <i>GeoVisage</i> and Nipissing agricultural remote sensing and decision support initiatives during the Council of Ontario Universities policy discussion series at Queens Park.

Articles in Refereed Journals & Refereed Book Chapters

Date	Title and publication information
2020	D. R. Murphy, J. Nadeau, J. C. Machado, L. V. de Carvalho, M. P. Wachowiak, and T. Ulrich, "Visual Effects of Brand Logos on the Attentional Filter and Perception", Submitted to <i>Journal of Product and Brand Management</i> , (in revision) June 2020.
2018	M. P. Wachowiak, R. Wachowiak-Smolíková, M. J. Johnson, D. C. Hay, K. Power, and F. Michael Williams-Bell, "Quantitative Feature Analysis of Continuous Analytic Wavelet Transforms of ECG and EMG," Invited paper, <i>Philosophical Transactions of the Royal Society</i> vol. 376:2126 (2018), 15pp.
2017	G. Albert, M. Pearson, S. Arnocky, M. P. Wachowiak, J. Nicol, and D. R. Murphy, "Effects of Masculinized and Feminized Male Voices on Men and Women's Distractibility and Implicit Memory," <i>Journal of Individual Differences</i> vol. 39:3 (2017), pp. 151-165.
2017	M. P. Wachowiak, D. F. Walters, J. M. Kovacs, R. Smolikova-Wachowiak, and A. L. James, "Visual Analytics and Remote Sensing Imagery to Support Community-Based Research for Precision Agriculture in Emerging Areas," <i>Computers and Electronics in Agriculture</i> vol. 143 (2017), pp. 149-164.
2017	M. P. Wachowiak, A. L. James, R. Wachowiak-Smolikova, D. F. Walters, K. J. Chutko, and J. A. Rusak, "Visual Analytics of High-Frequency Lake Monitoring Data: A Case Study of Multiple Stressors on a Large Inland Lake System," <i>International Journal of Data Science and Analytics</i> vol. 5(2-3) (2017), pp. 151-165.
2017	M. P. Wachowiak, M. C. Timson*, and D. J. DuVal *, "Adaptive Particle Swarm Optimization with Heterogeneous Multicore Parallelism and GPU Acceleration," <i>IEEE Transactions on Parallel and Distributed Systems</i> , vol. 28:10 (2017), pp. 2784-2793.
2017	D. H. Jarvis, M. P. Wachowiak, D. Walters, and J. M. Kovacs, "Adoption of Web-Based Spatial Tools by Agricultural Producers: Conversations With Seven Northern Ontario Farmers Using the Geovisage Decision Support System," <i>Agriculture</i> , vol. 7:8 (2017), 22 pp.
2017	D. C. Hay and M. P. Wachowiak, "Analysis of free moment and center of pressure frequency components during quiet standing using magnitude squared coherence", <i>Human Movement Science</i> , 54(August) (2017), pp. 101-109.

- 2016 D. C. Hay, M. P. Wachowiak, and R. B. Graham, "Evaluating the Relationship Between Muscle Activation and Spine Kinematics Through Wavelet Coherence," *Journal of Applied Biomechanics*, vol. 32:5 (2016), pp. 526-531.
- 2016 J. Suchacek, P. Seda, V. Friedrich, R. Wachowiak-Smolikova, and M. P. Wachowiak, "From Regional to National Clouds: TV Coverage in the Czech Republic," *PLoS ONE*, vol. 11(11): e0165527 (2016), 20 pp.
- 2016 M. P. Wachowiak, D. C. Hay, and M. J. Johnson, "Assessing Heart Rate Variability Through Wavelet-Based Statistical Measures," *Computers in Biology and Medicine*, vol. 77:10 (2016), pp. 222-230.
- 2015 R. B. Graham, M. P. Wachowiak, and B. J. Gurd, "The Assessment of Muscular Effort, Fatigue, and Physiological Adaptation Using EMG and Wavelet Analysis," *PLoS ONE*, vol. 10(2):e0135069 (2015), 13 pp.
- 2015 M. P. Wachowiak, R. Wachowiak-Smolikova, B. T. Dobbs*, J. Abbott, and D. Walters, "Interactive Web-Based Visualization for Lake Monitoring in Community-Based Participatory Research," *Environment and Pollution*, vol. 4:2 (2015), pp. 42-54.
- 2015 G. Brophey, A. Baragheh, S. Ben Dhaou, D. Hemsworth, M. Wachowiak, and D. Hay, "The 'Everything's Different, Every Time' Innovation Management Problem: A Promising Model Development," *International Journal of Innovation Management*, vol. 19:5 (2015), 24 pp.
- 2014 M. P. Wachowiak, B. B. Sarlo*, and A. Lambe Foster*, "High-Dimensional Particle Swarm Optimization on Heterogeneous Systems," *Journal of Physics (Conference Series)*, vol. 540 (2014), 9 pp.
- 2013 D. F. Walters, R. Smolikova-Wachowiak, M. Wachowiak, D. Shrubsole, and J. Malczewski, "Ontario's Nutrient Calculator: Overview and Focus on Sensitivity Analysis," *Journal of Agricultural Science*, vol. 5:11 (2013), pp. 189-200.
- 2013 J. R. Nicol, S. Perrotta, S. Caliciuri, and M. P. Wachowiak, "Emotion-Specific Modulation of Early Visual Perception," *Cognition and Emotion*, vol. 27:8 (2013), pp. 1478-1485.
- 2013 C. Zhang, J. M. Kovacs, M. P. Wachowiak, and F. Flores-Verdugo, "Relationship Between Hyperspectral Measurements and Mangrove Leaf Nitrogen Concentrations," *Remote Sensing*, vol. 5:2 (2013), pp. 891 – 908.
- 2012 M. P. Wachowiak and A. Lambe Foster*, "GPU-Based Asynchronous Global Optimization with Particle Swarm," *Journal of Physics (Conference Series)*, vol. 385 (2012), 8 pp.
- 2012 C. Fu, A. L. James, and M. P. Wachowiak, "Analyzing the Combined Influence of Solar Activity and El Niño on Streamflow Across Southern Canada," *Water Resources Research*, vol. 48:5 (2012), 19pp.
- 2010 M. P. Wachowiak, R. Wachowiak- Smolikova, and D. Smolik, "Parameter Estimation of Nonlinear Econometric Models Using Particle Swarm Optimization", *Central European Review of Economics Issues*, vol. 13:4 (2010), pp. 193 – 199.
- 2010 J. Forgette*, R. Wachowiak-Smolikova, and M. P. Wachowiak, "Influence Maps for Facilitating Tactical Engagement Decisions in Real-Time Strategy Games", *International Journal of Intelligent Games and Simulation*, vol. 6:1 (2010), pp. 46 – 53.
- 2010 M. P. Wachowiak, R. Wachowiak-Smolikova, and G. Fryia*, "Practical Considerations in Human-Computer Interaction for e-Learning Systems for People with Cognitive and Learning Disabilities," *International Journal of Information Studies*, vol. 2:1 (2010), pp. 60-70.
- 2006 M. P. Wachowiak and T. M. Peters, "High Performance Medical Image Registration Using New Optimization Techniques", *IEEE Transactions on Information Technology in Biomedicine*, vol. 10:2 (2006), pp. 344-353.
- 2005 M. P. Wachowiak, R. Smolikova, G.D. Tourassi, and A.S. Elmaghraby, "Estimation of Generalized Entropies with Sample Spacings", *Pattern Analysis and Applications*, vol. 8:1-2 (2005), pp. 95-101.

- 2005 R. Wachowiak-Smolikova, M. P. Wachowiak, A. Fenster, and M. Drangova, "Registration of 2D Cardiac Images to Pre-Procedural 3D Images for Interventional Applications", *Journal of Magnetic Resonance Imaging*, vol. 22:2 (2005), pp. 219-228.
- 2005 H. Zhong, M. P. Wachowiak, and T. M. Peters, "A Real Time Finite Element Based Tissue Simulation Method Incorporating Nonlinear Elastic Behavior", *Computer Methods in Biomechanics and Biomedical Engineering*, vol. 8:3 (2005), pp. 177-189.
- 2005 Y. Zheng, M. P. Wachowiak, and A. S. Elmaghraby, "Resolution Improvement and Detail Enhancement for CT Scout Images", *Journal of Electronic Imaging*, vol. 14:1 (2005), 14pp.
- 2004 M. P. Wachowiak, R. Smolikova, Y. Zheng, J. M. Zurada, and A. S. Elmaghraby, "An Approach to Multimodal Biomedical Image Registration Utilizing Particle Swarm Optimization," *IEEE Transactions on Evolutionary Computation*, vol. 8:3, (2004), pp. 289–301.
- 2004 R. Smolikova, M. P. Wachowiak, and J. M. Zurada, "An Information-Theoretic Approach to Estimating Ultrasound Backscatter Characteristics," *Computers in Biology and Medicine*, vol. 34:4 (2004), pp. 355–370.
- 2002 M. P. Wachowiak, R. Smolikova, J. M. Zurada, and A. S. Elmaghraby, "Estimation of K Distribution Parameters Using Neural Networks," *IEEE Transactions on Biomedical Engineering*, vol. 49:6 (2002), pp. 617–620.
- 2002 R. Smolikova and M. P. Wachowiak, "Aggregation Operators for Selection Problems," *Fuzzy Sets and Systems*, vol. 131:1 (2002), pp. 23–34.
- 2000 M. P. Wachowiak, G. S. Rash, P. M. Quesada, and A. H. Desoky, "Wavelet-Based Noise Removal for Biomechanical Signals: A Comparative Study," *IEEE Transactions on Biomedical Engineering*, vol. 47:3 (2000), pp. 360–368.
- 2000 N. N. Somia, G. S. Rash, E. E. Epstein, M. P. Wachowiak, M. J. Sundine, R.W. Stremel, J.H. Barker, and D. Gossman, "A Computer Analysis of Reflex Eyelid Motion in Normal Subjects and in Facial Neuropathy," *Clinical Biomechanics*, vol. 15:10 (2000), pp. 766–771.
- 2000 G. S. Rash, P. P. Belliappa, M. P. Wachowiak, N. N. Somia, and A. Gupta, "A Demonstration of the Validity of a 3-D Video Motion Analysis Method for Measuring Finger Flexion and Extension," *Journal Of Biomechanics*, vol. 32:12 (2000), pp. 1337–1341.
- 1999 C. S. Roberts, G. S. Rash, J. T. Honaker, M. P. Wachowiak, and J. C. Shaw, "A Deficient Anterior Cruciate Ligament Does Not Lead to Quadriceps Avoidance Gait," *Gait and Posture*, vol. 10:3 (1999), pp. 189–199.
- 1998 N. Somia, G.S. Rash, M. P. Wachowiak, and A. Gupta, "The Initiation and Sequence of Digital Joint Motion – A Three-Dimensional Motion Analysis," *Journal of Hand Surgery-British and European Volume*, vol. 23B:6 (1998), pp. 792–795.
- 1998 A. Gupta, G. S. Rash, N. N. Somia, M. P. Wachowiak, J. Jones, and Desoky, A. H., "The Motion Path of the Digits," *Journal of Hand Surgery-American Volume*, vol. 23A:6 (1998), pp. 1038–1042.

Book Chapters

Date	Title and publication information
2006	A. S. Elmaghraby, M. Kantardzic, and M. P. Wachowiak, "Data Mining from Multimedia Patient Records," <i>Data Mining and Knowledge Discovery Approaches Based on Rule Induction Techniques</i> , Chapter 16; E. Triantaphyllou and G. Felici, Editors, Kluwer Academic Publishers, 2006, pp. 551–595.

Conference Papers

Date	Title and information
2019	M. Wachowiak, A. L. James, R. Wachowiak-Smolikova, D. Walters, K. Chutko, and J. Rusak, "Analysis of High-Frequency Lake Monitoring Data Using an Enhanced Visual Analytics Interface," Global Lake Ecological Observatory Network (GLEON) Annual Meeting, Huntsville, ON, November 2019 (Poster Presentation).
2019	M. Wachowiak, A. L. James, D. Walters, J. Rusak, and K. Chutko, "Relationships and Correlations in Environmental Time Series for a Large Inland Lake System," Global Lake Ecological Observatory Network (GLEON) Annual Meeting, Huntsville, ON, November 2019 (Poster Presentation).
2019	M. P. Wachowiak, J. J. Moggridge*, R. Wachowiak-Smolíková (2019). "Deep Embedded Clustering for Data-Driven ECG Exploration Using Continuous Wavelet Transforms," <i>International Conference on Information and Digital Technologies</i> , Zilina, Slovakia, June 2019, pp. 551-556.
2019	M. P. Wachowiak, J. J. Moggridge*, R. Wachowiak-Smolíková, "Clustering Continuous Wavelet Transform Characteristics of Heart Rate Variability through Unsupervised Learning," <i>Proceedings of the IEEE Engineering in Medicine and Biology Conference</i> , Berlin, July 2019, pp. 4584-4587.
2017	R. Wachowiak-Smolikova, M. P. Wachowiak, and M. J. Johnson, "Exploratory ECG Analysis of Driving Events Using Wavelet Band Metrics," <i>Proceedings of the International Conference on Information and Digital Technologies</i> , IEEE International Conference on Information and Digital Technologies (2017), Zilina, Slovakia, July 2017.
2017	B. A. Fraser*, M. P. Wachowiak, and R. Wachowiak-Smolikova, "Time-Delay Lifts for Physiological Signal Exploration," <i>Proceedings of the IEEE Canadian Conference on Electrical and Computer Engineering</i> , Windsor, Canada, May 2017, pp. 134-137.
2017	B. A. Fraser*, M. P. Wachowiak, and R. Wachowiak-Smolikova, "Persistent Homology for Analyzing Environmental Lake Monitoring Data," in <i>Mathematical and Computational Approaches in Advancing Modern Science and Engineering</i> , Edited by J. Bélair, I. A. Frigaard, H. Kunze, R. Makarov, R. Melnik, and R. J. Spiteri, Springer Verlag, pp. 233-243.
2016	M. P. Wachowiak, D. C. Hay, R. Wachowiak-Smolikova, D. J. DuVal*, and M. J. Johnson, "Analyzing Multiresolution Wavelet Entropy of ECG With Visual Analytics Techniques," <i>Proceedings of the IEEE Canadian Conference on Electrical and Computer Engineering</i> , Vancouver, Canada, May 2016, 5 pp.
2015	M. P. Wachowiak, R. Wachowiak-Smolikova, and D. M. Rotondo*, "Dynamic Particle Swarm Optimization With Heterogeneous Multicore Parallelism and GPU Acceleration," <i>Proceedings of the IEEE Canadian Conference on Electrical and Computer Engineering</i> , May 2015, pp. 343-348.
2014	R. Wachowiak-Smolikova, M. P. Wachowiak, and J. Zimmerling*, "Approximations to Intractable Spatial Econometric Models and their Solutions through Global Optimization," in <i>Interdisciplinary Topics in Applied Mathematics, Modeling and Computational Science</i> , Edited by M. G. Cojocar, I. S. Kotsireas, R. N. Makarov, R. V. N. Melnik, and H. Shodiev H., Springer Verlag, pp. 481-487.
2014	D. M. Rotondo* and M. P. Wachowiak, "Uncovering Similarities in Biomedical Signals," <i>Proceedings of the IEEE Canadian Conference on Electrical and Computer Engineering</i> , Toronto, Ontario, Canada, May 2014, 6pp.
2013	M. P. Wachowiak and B. B. Sarlo*, "Interactive Visualization of Dynamic and High-Dimensional Particle Swarm Behavior," <i>Proc. IEEE Systems, Man, and Cybernetics 2013</i> , Manchester, UK, October 13 – 16, 2013, pp. 770-775.
2012	B. B. Sarlo*, A. E. Lambe Foster*, and M. P. Wachowiak, "A Visualization Framework for Simulating Fuel Consumption Through Serious Games," <i>Proc. CGAMES 2012</i> , Louisville, KY, July 30 – Aug 2, 2012, pp. 103 – 107.

- 2012 M. P. Wachowiak, R. Wachowiak-Smolikova, and J. Zimmerling*, "The Viability of Global Optimization for Parameter Estimation in Spatial Econometrics Models," *Proc. of the European Regional Science Association Congress (ERSA)*, Bratislava, Slovakia, 2012, 12pp.
- 2011 J. Forgette*, R. Wachowiak-Smolikova, and M. P. Wachowiak, "Implementing Independent Component Analysis in General-Purpose GPU Architectures," *Proc. Digital Information Processing and Communications*, Springer-Verlag, V. Snasel, J. Platos, and E. El-Qawasmeh (Eds.): *ICDIPC 2011*, 2011, Part II, pp. 233 – 243.
- 2011 J. Forgette*, R. Wachowiak-Smolikova, and M. P. Wachowiak, "Scalable Parallel Implementation of Independent Components Analysis on the Graphics Processing Unit," *Proc. 24th Annual IEEE Canadian Conference on Electrical and Computer Engineering*, Niagara Falls, ON, 2011, pp. 912-916.
- 2010 J. Forgette*, R. Wachowiak-Smolikova, and M. P. Wachowiak, "Tactical Decisions in Real-Time Strategy Games Using Influence Maps", *Proceedings of CGAMES 2010*, Louisville, KY, USA, 2010, pp. 31–35.
- 2009 G. Fryia*, R. Wachowiak-Smolikova, and M. P. Wachowiak, "Human-Computer Interface Design in an e-Learning System for Individuals with Cognitive and Learning Disabilities," *Proceedings of the Fourth International Conference on Digital Information Management (IEEE ICDIM 2009)*, Ann Arbor, MI, USA, 2009, 6pp.
- 2009 S. Giroux*, R. Wachowiak-Smolikova, and M. P. Wachowiak, "Keystroke-Based Authentication by Key Press Intervals as a Complementary Behavioral Biometric", *Proceedings of Systems, Man, and Cybernetics 2009 (SMC 2009)*, San Antonio, TX, USA, 2009, pp. 86-91.
- 2009 S. Giroux*, R. Wachowiak-Smolikova, and M. P. Wachowiak, "Keypress Interval Timing Ratios as Behavioral Biometrics for Authentication in Computer Security", *Proceedings of IEEE Networked Digital Technologies (NDT 2009)*, Ostrava, Czech Republic, 2009, pp. 208-213.
- 2009 G. Fryia, R. Wachowiak-Smolikova, and M. P. Wachowiak, "Web Accessibility in the Development of an e-Learning System for Individuals with Cognitive and Learning Disabilities", *Proceedings of IEEE Networked Digital Technologies (NDT 2009)*, Ostrava, Czech Republic, 2009, pp. 153-158.
- 2007 T. J. Peters*, R. Smolikova, and M. P. Wachowiak, "Microarray Image Compression Using a Variation of Singular Value Decomposition," *Proceedings of the 29th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC 2007)*, Lyon, France, 2007, pp. 1176-1179.
- 2006 F. Dru*, M. P. Wachowiak, and T. M. Peters, "An ITK Framework for Deterministic Global Optimization for Medical Image Registration", *Proceedings of SPIE Medical Imaging (Image Processing)*, *SPIE'06*, vol. 6144, 2006, 12pp.
- 2005 M. P. Wachowiak and T. M. Peters, "High Performance Derivative-free Optimization Applied to Biomedical Image Registration", *Proceedings of IEEE High Performance Computing Systems*, 2005, pp. 50-56.
- 2005 M. P. Wachowiak and T. M. Peters, "Combining Global and Local Parallel Optimization for Medical Image Registration", *Proceedings of SPIE Medical Imaging*, vol. 5747, *Image Processing*, 2005, pp. 1189-1200.
- 2005 H. Zhong, M. P. Wachowiak, and T. M. Peters, "An Adaptive Algorithm for Real-Time Finite Element Computation", *Proceedings of SPIE Medical Imaging*, vol. 5744, *Visualization, Image-Guided Procedures, and Display*, 2005, pp. 604-611.
- 2005 H. Zhong, M. P. Wachowiak, and T. M. Peters, "Enhanced Pre-Computed Finite Element Models for Surgical Simulation", *Proceedings of Medicine Meets Virtual Reality – MMVR'04*, vol. 111, 2005, pp. 622-628.
- 2004 M.P. Wachowiak and T.M. Peters, "Parallel Optimization Approaches for Medical Image Registration," *Lecture Notes in Computer Science 3216 (Medical Image Computing and Computer-Assisted Intervention: MICCAI 2004)*, Springer Verlag, Rennes, France, 2004, pp. 781–788.
- 2004 M.P. Wachowiak, X. Wang, A. Fenster, and T.M. Peters, "Compact Support Radial Basis Functions for Soft Tissue Deformation," *IEEE International Symposium on Biomedical Imaging*, Arlington, VA, USA, 2004, pp. 1259–1262.

- 2004 R. Smolikova, M.P. Wachowiak, and M. Drangova, "Registration of Fast Cine Cardiac MR Slices to 3D Preprocedural Images: Toward Real Time Registration for MRI-guided Procedures," *Proc. of SPIE Medical Imaging, Image Processing* 5370, 2004, pp. 1195–1205.
- 2004 R. Smolikova, M.P. Wachowiak, and J.M. Zurada, "Parameter Estimation of Generalized Backscatter Models Using Entropy Maximization," *Proc. of SPIE Medical Imaging, Ultrasonic Imaging and Signal Processing*, San Diego, CA, USA, 2004, pp. 480–490.
- 2003 M.P. Wachowiak, R. Smolikova, and T.M. Peters, "Multiresolution Biomedical Image Registration Using Generalized Information Measures," LNCS 2879 (Proc. of MICCAI 2003), Eds. R. Ellis, T. Peters, 2003, pp. 846–853.
- 2003 M.P. Wachowiak, R. Smolikova, G.D. Tourassi, and A.S. Elmaghraby, "Similarity Metrics Based on Non-additive Entropies for 2D-3D Multimodal Biomedical Image Registration," *Proc. of SPIE Medical Imaging 2003, Image Processing*, San Diego, CA, USA, 2003, pp. 1090–1100.
- 2003 Y. Zheng, X. Cui, M.P. Wachowiak, and A.S. Elmaghraby, "CT scout Z-resolution improvement with image restoration methods," *Proc. of SPIE Medical Imaging 2003, Image Processing*, San Diego, CA, USA, 2003, pp. 1851-1857.
- 2002 M.P. Wachowiak, R. Smolikova, G.D. Tourassi, and A.S. Elmaghraby, "Generalized Mutual Information as a Similarity Metric for Multimodal Biomedical Image Registration," *2nd Annual IEEE EMBS/BMES Joint Conference*, 2002, pp. 1005-1006. (Finalist in IEEE EMBS/BMES Student Paper competition.)
- 2002 R. Smolikova, M.P. Wachowiak, G.D. Tourassi, A.S. Elmaghraby, and J.M. Zurada, "Characterization of Ultrasonic Backscatter Based on Generalized Entropy," *2nd Annual IEEE EMBS/BMES Joint Conference*, 2002, pp. 953–954.
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- 2001 R. Smolikova, M.P. Wachowiak, J.M. Zurada, and A.S. Elmaghraby, "A Neural Network Approach for Estimating Large K Distribution Parameters," *Proceedings of the INNS-IEEE Joint Conference on Neural Networks (IJCNN)*, 2001, pp. 2139–2143.
- 2001 M.G. Milanova, M.P. Wachowiak, S. Rubin, and A.S. Elmaghraby, "A Perceptual Learning Model Based on Topological Representation," *Proceedings of the INNS-IEEE Joint Conference on Neural Networks (IJCNN)*, 2001, pp. 406–411.
- 2001 M.G. Milanova, M.P. Wachowiak, and A.S. Elmaghraby, "Application of Information Theory for Encoding Objects in the Retina and in the Primary Visual Cortex Using Sequences of Natural Images," *Proceedings of the International Conference on Mathematics and Engineering Techniques in Medicine and Biological Sciences (METMBS)*, Las Vegas, NV, USA, 2001, pp. 311–317.
- 2001 M.G. Milanova, A.S. Elmaghraby, and M.P. Wachowiak, "Biologically Motivated Model for Encoding Multiple Object Motions in Primate Visual Cortex Using Sequences of Natural Images," *IEEE International Conference on Information Technology: Coding and Computing*, Las Vegas, NV, USA, 2001, pp. 483–487.
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- 2000 M.G. Milanova, A.S. Elmaghraby, M.P. Wachowiak, and A. Campilho, "A Computational Model of the Visual Cortex Receptive Fields Using Spatio-Temporal Filters," *Proceedings of the IEEE EMBS International Conference on Information Technology Applications*, Arlington, VA, USA, 2000, pp. 129–134.

Keynotes, Invited Papers, & public lectures

Date	Title and publication information
2016	Guest lecture, Technical University of Ostrava (VSB), Ostrava, Czech Republic Title: Visual Analytics: Geospatial and Media Analytics Date: June 12, 2018

Shared Computer Software and documentation

Date	Title and information
2014 – Present	<i>Geovisage</i> Visualization, analytics, and imagery web-based application for agricultural decision support for northerneastern Ontario agricultural producers geovisage.nipissingu.ca Collaboration with the Department of Geography (Nipissing University) and governmental and community stakeholders visual.nipissingu.ca/geovisage/master/site
2014 – Present	Environmental monitoring Visualization, analytics, and imagery web-based application for environmental monitoring of Lake Nipissing, with data acquired from buoys placed in the lake Collaboration with the Department of Geography (Nipissing University) and governmental and community stakeholders iwrk.nipissingu.ca visual.nipissingu.ca/buoys/master/site
2012 – 2015	Environmental monitoring Visualization, analytics, and imagery web-based application for environmental monitoring of Lake Nipissing, with data acquired from sensors attached to the Chief Commanda II cruise vessel Collaboration with the Department of Geography (Nipissing University) visual.nipissingu.ca/Commanda2
2015 – Present	Software to support visual analytics for geospatial analysis of news media gatekeeping Collaboration with faculty at VSB Technical University Ostrava

Works in Progress

Date	Title and information
2020	D. R. Murphy, M. Pearson, J. Tanner, M. P. Wachowiak, and J. Nicol (2020). "Assessing the "Fingerprint of Inhibition" in Younger and Older Adults Using a Binocular Suppression Paradigm", to be submitted to <i>Consciousness and Cognition</i> .
2020	K. Nagar, G Raymer, E. Lee, M. P. Wachowiak, and D. C. Hay (2020). "The Effect of Treadmill Perturbation Training in the Anteroposterior and Mediolateral Plane on Balance and Neuromuscular Activity in Simulated Slip and Trip Conditions", to be submitted to <i>Gait and Posture</i> .
2020	M. P. Wachowiak, A. L. James, D. Walters, and J. Rusak (2020). "Relationships and Correlations in Environmental Time Series for a Large Inland Lake System", to be submitted to <i>Journal of Hydrology or Water Research</i> .
2020	I. Kaba*, M. P. Wachowiak, and J. M. Kovacs (2020). "Mapping Mangrove Forest Trends from Multi-Temporal Landsat Imagery for Guinea, Africa", to be submitted to one of the following journals: <i>Remote Sensing</i> ; <i>International Journal of Applied Earth Observation and Geoinformation</i> ; <i>IEEE Transactions on Geoscience and Remote Sensing</i> .
2020	M. P. Wachowiak, D. C. Hay, and S. Yoshioka (2020). "An Investigation into Time-Frequency Joint Correlation during Sprinting", to be submitted to one of the following journals: <i>Journal of Applied Biomechanics</i> ; <i>Human Movement Science</i> ; <i>International Journal of Sports Physiology and Performance</i> ; <i>Journal of Applied Physiology</i> .
2020	M. P. Wachowiak, M. J. Johnson, and M. Tremblay (2020). "Analysis of Electrocardiography and Heart Rate Variability of EMS Paramedical Personnel During Simulated Driving Conditions", to be submitted to one of the following journals: <i>Journal of Biomechanics</i> ; <i>IEEE Transactions on Biomedical Engineering</i> ; <i>Biomedical Engineering</i> ; <i>Annual Review of Biomedical Engineering</i> .
2020	M. P. Wachowiak, J. Moggridge*, and B. Ge (2020) "Parameter Estimation for Long Time Series through Global Optimization using Radial Basis Functions and Particle Swarm Optimization" (tentative title), to be submitted to <i>Optimization Letters</i> .

Graduate and Post-Doctoral Supervisions

Date	Student and the title of their research
2020-2021 (co-supervisor with Dr. A. James)	Yang, Yinan Using High Frequency Meteorological Data and Hydrological Data to Infer Chloride Flowpaths (M.Sc. Thesis)
2016 – 2017	Fraser, Benjamin TDA Parameters in Time Series Analysis (M.Sc. Thesis)
2012 – 2013	Macedo, Andrea Signal Analysis and Coherence Using the Continuous Wavelet Transform (Major Research Paper)
2009 – 2011	Zimmerling, Jonathan Estimation of Spatial Econometric Parameters Using Particle Swarm Optimization (Major Research Paper)

Graduate Teaching

Date	Course	Institution
FA 2014 FA 2017	Advanced Numerical Methods (delivered as an individualized study)	Nipissing University
SS 2018	Topics in Computational Mathematics (delivered as an individualized study)	

Undergraduate Teaching

Year	Credits	Course	Level	Institution
FA 2013 FA 2014 FA 2015 FA 2016	3	Engineering Graphics	1000	Nipissing University
FA 2013 FA 2014 FA 2017 FA 2019 FA 2020	3	Introduction to Game Design and Development	2000	
WI 2014 WI 2016 WI 2018 WI 2020	3	Advanced Game Design and Development	3000	
WI 2014 WI 2016 WI 2018 WI 2020	3	Computer Graphics	3000	
WI 2015 WI 2017 WI 2019	3	3D Computer Graphics	3000	
FA 2014	3	Real-time Systems	4000	
FA 2015	3	Software Engineering	4000	
FA 2015	3	Introduction to	1000	

WI 2016	3	Computer Science	3000
WI 2018		Databases and	
FA 2018		Database	
WI 2020		Management	
WI 2021		Systems	
FA 2016	3	Data Structures I	2000
FA 2017			
FA 2018			
FA 2019			
FA 2020			
WI 2017	3	Data Structures II	2000
FA 2018	3	Distributed	3000
WI 2021		Systems	
WI 2019	3	Programming	3000
WI 2021		Paradigms	

Service

Date	Type	Participation	Committee
2017 – Present		Reviewer	<i>Simulation: Transactions of the Society for Modeling and Simulation International</i>
2016		Member	External M.Sc. examination committee at Laurentian University

University Level

Date	Type	Participation	Committee
2021 – Present	Teaching Chair	Teaching Chair in Virtual Labs and Studios	NU Teaching Chairs Program
2021 – Present		Member	Proposed Undergraduate Program in Environmental Science
2020 – Present		Member	Steering Committee, Environmental Science/Environmental Studies
2014 – Present		Site leader	SHARCNET (Shared Hierarchical Academic Research Computing Network), part of Compute Canada
2018 – Present		Member	Member, Awards and Funding Committee (Graduate School)
2018 – 2019		Member	Member, Pension and Benefits Committee
2015		Member	Alternate Member, Tenure and Promotion Committee

Department Level

Date	Type	Participation	Committee
2014 – 2017		Graduate Coordinator	M.Sc. Mathematics
2015 – 2019		Member	Data Science Committee (Mathematics)
2018		Member	IQAP Self-Study Committee (Graduate program in Mathematics)
2018		Member	Member, IQAP Self-Study Committee (Graduate program in Environmental Studies and Environmental Science)
2015		Member	Alternate Member, Tenure and Promotion Committee

Provincial, National, and International Service

Date	Type	Participation	Committee
2017		Member	Compute Ontario Advisory Committee on Highly Qualified Personnel

Community Service

Date	Type	Participation	Committee
2014 – Present	Community engagement – <i>GeoVisage</i> : Web-based agricultural decision support system	Collaboration with the Department of Geography, Ontario Soil and Crop Association, Agriculture and Agri-foods Canada, and other community stakeholders	
2014 – Present	Community engagement – <i>Integrative Watershed Research Centre</i> : Web-based environmental monitoring system for Lake Nipissing	Collaboration with the Department of Geography, Ontario Ministry of Environment and Climate Change, and other community and government stakeholders	

Professional Memberships

IEEE (Institute of Electronic and Electrical Engineers)
IEEE EMBS (Engineering in Medicine and Biology Society)
Global Lake Ecological Observatory Network (GLEON)