
Science and Technology

Faculty of Arts and Science

This section presents the requirements for the following:

- Bachelor of Science(Honours)

Bachelor of Science (Honours)

Graduation Requirements

In addition to the program requirements listed below students must also satisfy the Bachelor of Science (Honours) degree requirements, please refer to that section of the Calendar, including regulations on first year and subject maximum and breadth requirements.

Program Requirements

Notes:

- ❖ **Students completing the Environment Stream must include GEOG 1017 as part of their required nine credits of Science Courses.

Students must complete 120 credits including minimum 90 credits of Science.

Students must complete all of the following CORE courses 39cr.

MATH 1036 Calculus I
MATH 1037 Calculus II
MATH 1046 Introductory Linear Algebra
MATH 1056 Discrete Mathematics I
MATH 2076 Probability and Statistics I
COSC 1557 Introduction to Computer Science
COSC 1567 Programming in C++
COSC 1666 Engineering Graphics
COSC 3997 Senior Practicum OR
STEC 3997 Practicum I
COSC 4997 Honours Practicum OR.
STEC 4997 Practicum II

Nine credits from the following Science Courses:

Physics, Chemistry, Biology, or
**Physical/ Technique Geography

Other Requirements:

Humanities 3 cr.
ACAD 1601 or ENGL 1501 (or equivalent) 3 cr.

Students in the Science and Technology major must complete one of the following streams, in addition to the required courses listed above.

Artificial Intelligence Stream

Students must complete all of the following: 30cr

MATH 2036 Advanced Calculus I
COSC 2116 Artificial Neural Networks
COSC 2206 Mathematical Computation
COSC 2767 Object Oriented Programming
COSC 3006 Numerical Methods
COSC 3007 Artificial Intelligence
COSC 3306 Programming Paradigms
COSC 3606 Database and Data Management
COSC 4106 Human Computer Interaction
COSC 4406 Software Engineering

Other Program Requirements

Social Sciences/Business 6 cr.
Science Electives.(18 credits must be upper year) 21 cr
Electives 18 cr.

Robotics Stream

Students must complete all of the following: 30 cr.

COSC 1757 Digital Systems
MATH 2036 Advanced Calculus I
COSC 2106 Machine Structures I
COSC 2107 Machine Structures II
COSC 2116 Artificial Neural Networks
COSC 2206 Mathematical Computation
COSC 2767 Object Oriented Programming
COSC 3007 Artificial Intelligence
COSC 3017 Robotics
COSC 3407 Systems Control

Other Program Requirements

Social Sciences/Business 6 cr.
Science Electives(18 credits must be upper year) 21 cr.
Electives 18 cr.

Industrial Mathematics Stream

Students must complete all of the following: 30 cr.

MATH 2036 Advanced Calculus I
MATH 3266 Differential Equations I
MATH 3276 Probability & Statistics II
MATH 3286 Mathematics of Finance
MATH 3256 Operations Research
MATH 3296 Mathematical Modelling
COSC 2206 Mathematical Computation
COSC 3006 Numerical Methods I
COSC 3207 Computer Graphics
COSC 3606 Databases & Data Management

Other Requirements

Social Sciences/Business	6 cr.
Science Electives (18 credits must be upper year)	21 cr.
Electives	18 cr.

Service Systems Technology Stream

Students must complete all of the following: 30 cr.

COSC 2006 Data Structures I
 COSC 2767 Object Oriented Programming.
 COSC 3007 Artificial Intelligence
 COSC 3306 Programming Paradigms
 COSC 3407 Service Computing
 COSC 3606 Databases & Data Management
 COSC 4106 Human Computer Interactions
 COSC 4406 Software Engineering
 MKTG 1126 Marketing Concepts
 MKTG 4427 Business-to-Business Marketing

Other Program Requirements

Science Electives (18 credits must be upper year)	27 cr.
Electives	18 cr.

General Stream

Students must complete all of the following: 15 cr.

MATH 2036 Advanced Calculus
 COSC 2206 Mathematical Computation
 MATH 3296 Mathematical Modelling
 COSC 3006 Numerical Methods I
 COSC 3606 Databases & Data Management

Other Program Requirements

Social Sciences/ Business	6 cr.
Science Electives (27crs from upper year)	33 cr.
Electives	21 cr.

Environment Stream **

In addition to the required 39 credits of CORE courses for the program, student must also complete the following:

Core Stream Courses

GEOG 1016 Introduction to Human Geography	3 cr.
GEOG 2017 Introduction to Geomatics	3 cr.

27 credits from the following: 27 cr.

GEOG 2106 Geomorphology
 GEOG 2107 Climatology

GEOG 2126 Physical Hydrology
GEOG 3027 Spatial Statistics
GEOG 3056 Spatial Analysis Using GIS
GEOG 3066 Remote Sensing of the Environment
GEOG 3096 Environmental Hydrology
GEOG 3127 Water Resource Management
GEOG 4057 Topics in GIS Applications
GEOG 4066 Topics in Remote Sensing Applications
GEOG 4106 Terrain Analysis
GEOG 4126 Applied Hydrology for Snow and Ice Environments
GEOG 4127 Lake and Wetland Environments
GEOG 4136 Applied Climatology
GEOG 4247 Watershed Modeling

Other Program Requirements

Social Sciences/ Business	6 cr.
Science Electives (18 credits from upper year)	21 cr.
Electives	15 cr.