

Bioinformatics for Software Professionals

Program Code: 3613

Program Length: 1 year/3 semesters

Credential: Ontario College Graduate Certificate

Start: Fall, Winter,

Campus: Centennial Science and Technology Centre

BiSP@centennialcollege.ca

Program Overview

Bioinformatics is an exciting new field that integrates computers with biology. The recent explosion of available biological data types has created an increasing demand, which far exceeds the supply for skilled bioinformatics specialists with comprehensive training in both biology and software.

Current advances have increased the need for the creation of new and innovative bioinformatics tools. Unique computational tools open a vast potential for new scientific discovery, with the ultimate goal of understanding and modeling living systems. The bioinformatics industry is growing rapidly with increasing career opportunities in Canada. Skills in bioinformatics can be applied in the pharmaceutical, agricultural, and environmental industries and in all areas of biotechnology.

The program offers software students a career specialization in the field of bioinformatics. This intensive hands-on, problem-based program will include course work, an individual research thesis and a co-op component, providing you with the unique skill set and training that are in high demand in the field. Much of the study level of this curriculum is beyond the Bachelor's degree.

This program is the first in Canada to provide a 12-month, post-degree bioinformatics certificate targeted to students with existing software backgrounds. Students will experience unique training that will distinguish them in Ontario, Canada and the world.

CO-OP TERM

This program has a mandatory co-op component. Academically-qualified students enhance their education by working as paid employees in the field. The experience not only allows you to put classroom learning into practice, but also provides valuable contacts for future careers.

BENEFITS

CAREER OUTLOOK

Graduates are prepared to work in academic, government and industrial labs as:

- bioinformatics analysts
- bioinformatics software developers
- bioinformatics research technicians
- application developer
- software developer
- database developer

PROGRAM HIGHLIGHTS

- the program includes one-semester paid co-op experience
- courses are delivered using leading-edge technology geared to industry standards project-based learning
- faculty members are knowledgeable and approachable with diverse business experience and academic credentials
- the certificate that is earned is recognized in Canada and abroad, reflecting high standards of learning

ADMISSION REQUIREMENTS

Applicants to Graduate Certificate programs must submit an official transcript demonstrating proof of successful completion of a four-year degree in Computer Science or Software Engineering or related discipline, from an accredited college or university.

NON-ACADEMIC REQUIREMENTS

- transcript and resumé review may be required
- English and/or math skills assessment may be required.

CO-OP REQUIREMENTS

- minimum GPA 2.5 or above for COOP-222, mandatory Co-op term.

PROGRAM OUTLINE

Semester 1

BIO-411	Bioinformatics Tools, Databases and Models
BIO-412	Biochemistry
BIO-413	Molecular Biology and Genomics
BIO-414	Statistics and Data Analysis for Bioinformatics
BIO-415	Research Methods in Bioinformatics- Thesis Part I
BIO-416	Ethics and Intellectual Property
BIO-417	Current Topics in Bioinformatics
COOP-221	Employment Preplacement

Semester 2

BIO-421	Bioinformatics Algorithms
BIO-422	Computational Intelligence
BIO-423	Advanced Protein Structure and Analysis
BIO-424	Developing Bioinformatics Tools
BIO-425	Parallel and Distributed Computing
BIO-426	Database Design and Biological Data Management
BIO-427	Organizational Behaviour and Facilitation
BIO-428	Research Thesis in Bioinformatics

Semester 3

COOP-222	Mandatory Co-op term
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At A Glance

Organizations that have hired our graduates include:

- Ontario health networks
- Ontario hospitals
- Provincial government