

BIOTECHNOLOGY - HEALTH

Program: BIOT

Credential: Ontario College Diploma

Delivery: Full-time

Length: 4 Semesters

Duration: 2 Year

Effective: Fall 2023, Summer 2024

Location: Barrie

Description

Upon graduating from the Biotechnology - Health program, you are prepared for a career in biotechnology, a high-tech trade that spans many employment sectors. You develop technical and knowledge-based skills through comprehensive experiential learning, as you are exposed to a variety of experimental techniques using cutting-edge scientific equipment across disciplines including microbiology, molecular biology, tissue culture, biochemistry, analytical chemistry, and pharmaceutical biotechnology. Throughout the program, you explore current topics in the field and research potential biotechnology applications to address them. In accordance with accepted industry standards, you learn to collect, document, analyze, and present your lab and experimental data. Completion of a micro-credential in Changemaking and Social Entrepreneurism helps you to recognize opportunities in biotechnology and become serial problem solvers. Throughout the program, you are supported in the development of a living resumé as you expand your skillsets and create professional networks.

Career Opportunities

Graduates contribute to setting up and running laboratory-based tests and analyses and to support the smooth day-to-day operation of a lab. Potential employment opportunities exist for graduates as bench scientists, lab assistants, quality control/assurance technicians, and performance of technical roles specific to employers. Potential employers are varied and may include public, and private sector industries such as pharmaceutical, cannabis production, as well as academic and clinical institutions.

Program Learning Outcomes

The graduate has reliably demonstrated the ability to:

1. complete all tasks in compliance with pertinent legislation and regulations, as well as biotechnology standards and guidelines;
2. apply quality control and quality assurance procedures to meet organizational standards and requirements;
3. apply best practices for sustainability;
4. complete biotechnological applications using principles of chemistry, biology and biostatistics as well as basic principles of physics;
5. use appropriate laboratory procedures to carry out quantitative and qualitative tests and analyses;
6. carry out standard cell culture procedures under aseptic conditions;
7. carry out molecular biology procedures;
8. assist with the management of biological data to support biological scientists and researchers in capturing, organizing/summarizing and storing their data;
9. prepare, maintain and communicate scientific data effectively;

10. develop and present a strategic plan for ongoing personal and professional development to enhance work performance;
11. identify problems related to health and medicine and research possible solutions provided by biotechnology;
12. apply basic entrepreneurial strategies to identify and respond to new opportunities in biotechnology.

Program Progression

The following reflects the planned progression for full-time offerings of the program.

Fall Intake

- **Sem 1:** Fall 2023
- **Sem 2:** Winter 2024
- **Sem 3:** Fall 2024
- **Sem 4:** Winter 2025

Summer Intake

- **Sem 1:** Summer 2024
- **Sem 2:** Fall 2024
- **Sem 3:** Summer 2025
- **Sem 4:** Fall 2025

Articulation

A number of articulation agreements have been negotiated with universities and other institutions across Canada, North America and internationally. These agreements are assessed, revised and updated on a regular basis. Please contact the program co-ordinator for specific details if you are interested in pursuing such an option. Additional information can be found on our website at <http://www.georgiancollege.ca/admissions/credit-transfer/>

Admission Requirements

- Ontario Secondary School Diploma (OSSD) or equivalent, or mature student status
- Grade 12 English (C or U)
- Grade 12 Mathematics (C or U)
- Grade 11 or 12 Biology (C or U)
- Grade 12 Chemistry (C or U)

Mature students, non-secondary school applicants (19 years or older), and home school applicants may also be considered for admission. Eligibility may be met by applicants who have taken equivalent courses, upgrading, completed their GED, and equivalency testing. For complete details refer to: www.georgiancollege.ca/admissions/academic-regulations/ (<https://www.georgiancollege.ca/admissions/academic-regulations/>)

Applicants who have taken courses from a recognized and accredited post-secondary institution and/or have relevant life/learning experience may also be considered for admission; refer to the Credit for Prior Learning website for details: www.georgiancollege.ca/admissions/credit-transfer/ (<https://www.georgiancollege.ca/admissions/credit-transfer/>)

Graduation Requirements

- 21 Program Courses
- 2 Communications Courses
- 3 General Education Courses

Graduation Eligibility

To graduate from this program, the passing weighted average for promotion through each semester, from year to year, and to graduate is 60%. Additionally, a student must attain a minimum of 50% or a letter grade of P (Pass) or S (Satisfactory) in each course in each semester unless otherwise stated on the course outline.

Program Tracking

The following reflects the planned course sequence for full-time offerings of the Fall intake of the program. Where more than one intake is offered contact the program co-ordinator for the program tracking.

Semester 1	Hours
Program Courses	
BIOL 1031 Human Physiology 1	56
BIOL 1042 Cell Biology 1	42
BIOL 1043 Introduction to Biotechnology	28
CHEM 1013 Introduction to Measurement	56
CHEM 1014 Chemistry for Biotechnology 1	70
MATH 1044 Mathematics for Biotechnology	42
Communications Course	
Select 1 course from the communications list during registration.	42
Hours	336
Semester 2	
Program Courses	
STAT 1001 Statistics	28
BIOL 1032 Human Physiology 2	56
BIOL 1039 Introduction to Molecular and Biochemical Techniques	56
BIOL 2012 Microbiology	56
CHEM 1012 Chemistry for Biotechnology 2	56
Communications Course	
Select 1 course from the communications list during registration.	42
General Education Course	
Select 1 course from the general education list during registration.	42
Hours	336
Semester 3	
Program Courses	
BIOL 2021 Advanced Microbiology and Immunology	56
BIOL 2022 Biochemistry 1	42
BIOL 2013 Molecular Techniques	56
CHEM 2004 Organic Chemistry	56
CHEM 2005 Analytical Chemistry	56
General Education Course	
Select 1 course from the general education list during registration.	42
Hours	308
Semester 4	
Program Courses	
BIOL 2014 Pharmaceutical Biotechnology	56
BIOL 2023 Tissue Culture and Histology	70
BIOL 2024 Mendelian and Molecular Genetics	56
BIOL 2025 Protein Science	70
BIOL 2026 Current Topics in Biotechnology	28
General Education Courses	

Select 1 course from the general education list during registration.	42
Hours	322
Total Hours	1302

Graduation Window

Students unable to adhere to the program duration of two years (as stated above) may take a maximum of four years to complete their credential. After this time, students must be re-admitted into the program, and follow the curriculum in place at the time of re-admission.

Disclaimer: *The information in this document is correct at the time of publication. Academic content of programs and courses is revised on an ongoing basis to ensure relevance to changing educational objectives and employment market needs.*

Program outlines may be subject to change in response to emerging situations, in order to facilitate student achievement of the learning outcomes required for graduation. Components such as courses, progression, coop work terms, placements, internships and other requirements may be delivered differently than published.