Laboratory Technology - Analytical Chemistry

Description

Laboratory Technology – Analytical Chemistry is a three-year program that trains students to work in industrial chemical laboratories. This program is the only one of its kind among anglophone colleges in Quebec.

The Laboratory Technology – Analytical Chemistry program has been designed through consultation with representatives from industrial laboratories, teachers at the CEGEP level and the Ministère de l’Éducation. It places emphasis on micro and nano quantity chemical analysis using the most up-to-date instrumentation in use by modern industrial laboratories. The first half of the program provides a solid foundation for the more applied courses given in the second half of the program.

Courses in Mathematics and Physics are tailored to the needs of the program in that many of the learning activities they contain are integrated with other courses. Students are trained to collect samples and carry out analyses using conventional and modern instrumental methods, as well as microbiological testing that respect compliance and validation protocols practiced in the industry.

Students learn to use instruments such as gas and liquid chromatographs (GC-MS, LC-MS, etc.), auto-analyzer, ultraviolet and infrared spectrometers, spectrofluorometer, capillary electrophoresis systems, atomic absorption and emission spectrometers. They receive training in the use of generic and specialized computer software. In their final year, students participate in a training internship so that they may apply their skills in the field. Upon graduation, students may become members of the Chemical Institute of Canada.

Students may choose the work-study option, (alternance travail études), which allows students to alternate between study terms and work terms in an integrated manner. The work-study option takes place in the summer following Term 2 and Term 4.

Career Opportunities

Graduates have developed the following skills during their course of study so that they can qualify for entry-level positions in industrial chemistry laboratories:

- Performing basic lab operations such as weighing, measuring precise volumes, heating, among other operations
- Testing for harmful micro-organisms found in industrial samples
- Using conventional and modern procedures for the quantitative analysis and synthesis of organic and inorganic compounds
- Proficiency in standard techniques used in industry
- Using qualitative and quantitative methods to analyse samples in the biotechnology area
- Expertise in compiling and processing laboratory data, writing scientific reports and submitting results using the latest platforms and systems
- Making products found in the marketplace
- Maintaining laboratory instruments
- Following GLP (Good Laboratory Practice), SOP (Standard Operating Procedures), and CGMP (Current Good Manufacturing Practices) compliance as well as respecting WHMIS (Workplace Hazardous Materials Information Systems) regulations

Students also develop skills in effective written and oral communications, and develop attitudes and skills required to maintain professional competence beyond graduation.
Course List

**YEAR 1 – TERM 1**
- Applied Mathematics
- Introduction to Statistical Methods
- General Chemistry
- Introduction to Laboratory Technology
- Basic Laboratory Techniques

**English**

**Physical Education**

**Complementary**

**YEAR 1 – TERM 2**
- Calculus I
- Chemistry of Solutions
- Introduction to Analysis Techniques
- Applied Optics

**English**

**Physical Education**

**Humanities**

**YEAR 2 – TERM 1**
- Microbiology I
- Instrumental Separations
- Organic Chemistry
- Internship

**YEAR 2 – TERM 4**
- Advanced Analytical Techniques
- Electrochemistry
- Organic Analysis
- Physicochemical Measurements

**YEAR 3 – TERM 5**
- Advanced Analytical Techniques II
- Biomolecules
- Chemical Processes
- Laboratory Technology Project

**YEAR 3 – TERM 6**
- Advanced Analytical Techniques II
- Biomolecules
- Chemical Processes
- Laboratory Technology Project

In addition to their program requirements, every student must take four English courses, two French courses, three Humanities courses, three Physical Education courses and two Complementary courses to receive a CEGEP Diploma.

Admission Requirements

**What you need to apply:**
- A Diploma of Secondary Studies (DES) or academic background judged equivalent to the DES.

**Specific ministerial admission requirements:**
- Sec V Mathematics - Technical & Scientific option or Science option 564-506 or 565-506 or Mathematics 526
- Sec V Chemistry 551-504 or Chemistry 534 and Physics 534

**Application Deadline:** March 1 – This Program accepts applications only for the Fall semester.