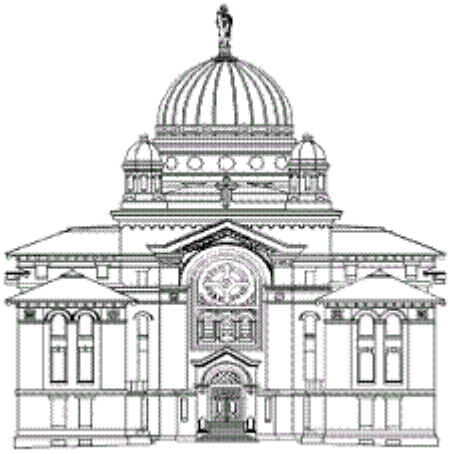
DAWSON
COLLEGE



Biomedical Laboratory Technology Program
140.C0

Diploma of College Studies

Summary Document

Updated November 2022

Biomedical Laboratory Technology 140.C0

Type of Certification: Diploma of College Studies (DEC)
Number of Credits: 91 2/3

Total Duration: 2850 hours of instruction
General Education component: 660 hours of instruction
Program-Specific component: 2190 hours of instruction

Admission to the Program

General Requirements

For admission to all CEGEP programs, every student must have the Québec Secondary School Diploma (DES) or equivalent, normally including Secondary V Language of Instruction, Secondary V Second Language, Secondary IV Physical Science, Secondary IV Mathematics, and Secondary IV History. Students with a DES, missing any of the above subjects may be admitted, space permitting, but will be required to complete remedial courses.

Specific Requirements

In addition to the general Ministry of Education requirements above, admission to the Biomedical Laboratory Technology program requires these secondary-level credits:

- Mathématique : (one of the following)
  - Technico-sciences de la 4e secondaire (TS 4e)
  - Sciences naturelles de la 4e secondaire (SN 4e)
  - Culture, société et technique de la 5e secondaire (CST 5e)
- Physique 5e secondaire
- Chimie 5e secondaire

College Requirements

- An interview is required to assess the candidate's readiness to pursue Biomedical Laboratory Technology studies.
- Candidates must be eligible to take College English 603-101 (Testing may be required)
- Candidates must be eligible to take Basic French 602-100 (Testing may be required)
- Candidates who have completed the pre-requisite courses within the last 5 years will be given preference for the interview phase of the admissions process. If you have not taken any Science or Math courses (secondary or post-secondary level) within the last 5 years, or if your education was completed outside of Canada, we strongly recommend that you take refresher courses through Continuing Education or you may be asked to take pre-admission tests to ensure that you have adequate pre-requisite knowledge.
- Candidates who were not selected for admission and choose to reapply, must demonstrate some improvement in order to be considered for another interview. After three unsuccessful attempts, candidates will be considered for an interview only after all other applications have been considered and space remains available in the Program.

Information about the interview:

- Candidates will be notified by email of the details of the interview process.
- Candidates may be asked to complete a pre-interview written exercise, which will be reviewed at the time of the interview and may contribute to the overall assessment of the candidate. An information sheet will be emailed to candidates who have been selected for an interview.
- Candidates should inform themselves about the profession and be prepared to show that they possess the skills, personal attributes and abilities to succeed in the program and as medical technologists.
- A letter of intent is very beneficial.

Resources for applicants

Applicants are encouraged to consult the Program web page on the Dawson College website (www.dawsoncollege.qc.ca). There are documents and information about the program and profession that can help applicants prepare for admission and entry into the Program. In particular, applicants should read the following:

- "Is this the right profession for me?" document
- Admissions Requirements and Recommendations to Applicants
- FAQ sheet
- Chemistry review packages
- Areas of study
- Career Opportunities

As well, candidates who need to take any pre-requisite or refresher courses in Science or Math or language courses in French or English can do so through the Dawson College Continuing Education.

Entry Requirements into the Profession

Upon completion of a DEC in Biomedical Laboratory Technology, graduates are eligible to become members of l'Ordre professionnel des technologistes médicaux du Québec (OPTMQ) and can work as a medical technologist in Quebec. In addition, graduates are qualified to take the national certification exam with the Canadian Society for Medical Laboratory Science (CSMLS) which will allow them to work anywhere in Canada as a medical technologist. Some graduates also take certification exams in the U.S. and some have obtained certification in other countries, including Europe. Additional information can be found from the websites of the OPTMQ (www.optmq.org) and the CSMLS (www.csmls.org).

Criminal background verification is required by hospitals for employment purposes. This may also be applied to students during the clinical component of the program. Students who do not have a clear criminal background check may not be able to complete the clinical component and will therefore would not be able to graduate.

University Options

There are several universities across Canada which accept graduates of the Biomedical Laboratory Technology Program into Bachelor's programs and give advanced standing for their DEC. Some of them also offer their courses "on-line" through the internet. A document with further information on degree completion programs throughout Canada is available on the Biomedical Laboratory Technology program website.

Program Facts

Health and Safety

As health care professionals, medical technologists have a professional responsibility to follow the protocol established by the Department of Public Health for health care workers regarding the prevention of infections. The protocol includes recommendations for immunization against transmissible infections and is extended to students interning in a health care establishment. Information is given to students at the time of their admission into the Program. These vaccinations are provided free of charge by the CLSC for students in health care fields. Students must update their immunizations before beginning the clinical component of the Program.

Students with any health related condition that may have an impact on, or possibly prevent future employment in this profession, should discuss their concerns with their doctor before beginning the program.

Any student who becomes pregnant during the course of the program should inform the program coordinator/chairperson. According to Program policy, there may be some lab activities or courses which pregnant students should avoid for health and safety reasons.

Language skills: English and French

The ability to communicate both orally and in writing in both English and French are essential skills for students and future health professionals.

- There is a certain level of proficiency in English language skills (oral, writing and reading) which is needed to be able to succeed in the program and the profession.
- There is an often a mixture of French and English used in the clinical labs in our affiliated hospitals. In the internship in third year, students may have a clinical instructor who is a francophone. As well, in the Procurement internship in second year, students must be able to communicate in French to francophone patients.
- French language skills are essential for all health care professionals. Students who did not complete their secondary studies in Quebec must pass a French language test with the Office de la langue française to become a member of the professional order and to be eligible to work in the province of Quebec as a medical technologist.

There are tutorials available to help students prepare for this French exam through the French Department resource center CLEO. The Academic Skills Center offers a range of services and resources to help student improve their English language skills. Students who have placed below the College level in either French or English must upgrade their language skills in order to be admissible to the Program .

Fees

Tuition is free for Canadian citizens or landed immigrants with permanent residence in Quebec taking at least four courses per semester or 12 contact hours per week. The application fee is $30, which is non-refundable. Student fees for registering students are about $200 per year. Books and supplies cost between $400 and $600 per year. Student memberships with the Canadian Society for Medical Laboratory Science (CSMLS) and l'Ordre professionnel des technologistes médicaux du Québec (OPTMQ) are approximately $200 total for both. The fee to write the national general certification exam of the CSMLS upon completion of the Program is $985 in 2022. Financial aid is available; contact the Financial Aid office for more information. All fees are subject to change without notice.

Program hours and schedules

The number of class and lab hours per week in the Program is generally 30 hours per week (see Program grid). This does not include the hours that are required for personal studying. In the second year of the program, there is a 7 day Procurement internship which is scheduled at the end of May and beginning of June, following the final exam period. The Fall semester of the third year is compressed from 15 weeks to 10 weeks. The clinical component of the program encompasses 26 weeks in the third year, from mid November to the end of May; students are in the hospital setting all day, 5 days/week. One course in the third year is an on-line course.

Description of the Profession

What is a Medical Laboratory Technologist?

Medical Laboratory technologists are professionals who contribute to the prevention, diagnosis and treatment of disease by providing laboratory services to physicians and other clients. Graduates of the *Biomedical Laboratory Technology* program, who attain membership with the professional order, (*l'Ordre Professionnel des Technologistes Médicaux du Québec*) become licensed to work as Medical Technologists within the province. Graduates can also be certified nationally through the Canadian Society for Medical Laboratory Science.

Where and With Whom Do They Work?

Medical technologists work in a variety of laboratory-based environments. They acquire competencies in six medical specialties (biochemistry, hematology, microbiology, histology, transfusion science, and hemostasis). This training enables them to work in any clinical diagnostic laboratory as well as many specialized laboratory areas. Some medical technologists work in the pharmaceutical industry and for biotechnology companies. Government laboratories and universities are also potential employers in the areas of medical research and development. In private industry, medical technologists work in marketing and sales of laboratory products and equipment.

Medical technologists are part of a highly skilled team of physicians, nurses and other health care professionals who work together to determine the presence and extent of disease and to evaluate the effectiveness of treatment. Program training includes the development of interpersonal skills that allow medical technologists to interact as team members and to communicate with patients during the procurement of laboratory specimens.

What Do They Do?

The medical technologist performs a wide variety of laboratory tests from analyzing body tissues and fluids to identifying infectious organisms that cause disease. Skills vary from using a microscope to examine specimens to operating complex electronic equipment, computers and precision instruments.

Medical technologists work quickly and carefully. They are professional, self-sufficient, precise and thorough. They are trouble-shooters and problem solvers who not only report accurate results, but also know when the results are incorrect and need to be reviewed. They like challenge and responsibility and communicate effectively. They are accurate, reliable and work well under pressure. Professional development and updating are on-going career requirements in order to adapt to new technologies and advancements in an ever-changing and growing field.

Aims and Goals of the Program

The aim of the Biomedical Laboratory Technology program is to train technologists who will be proficient in the procurement and analyses of biological specimens and who are capable of interpreting the results obtained by such analyses. It is anticipated that program graduates will be able to apply their knowledge and acquired skills in a wide variety of laboratory settings in order to make an effective contribution to the prevention, diagnosis, monitoring and treatment of disease.

The goals of the Biomedical Laboratory Technology program are to enable the student:

- to acquire competence in the practice of the profession, i.e., in carrying out the tasks and activities and fulfilling the roles and functions related to the profession at the level required for entry into the job market;
- to develop practices to ensure quality assurance;
- to develop skills related to interacting and communicating with clients;
- to work in collaboration with other health professionals;
- to adapt to technological change;
- to manage their personal and professional development.

As well as having acquired a high level of technical skill in the program, graduates are also expected to have developed attitudes, such as:

- a sense of professional and personal responsibility;
- a sense of professional and personal ethics;
- a willingness to manage stress in both professional and personal situations;
- a willingness to work both autonomously and as part of a team;
- an openness to technological change and a commitment to life-long learning.

The Biomedical Laboratory Technology program also incorporates the educational intentions of the common general education component, the adapted general education component and the complementary general education component.

Exit Profile

Graduates of the Biomedical Laboratory Technology Program emerge as thoughtful and responsible citizens and will have acquired the professional skills, attitudes, knowledge and judgment necessary for entry into the workplace.

Upon successful completion of the Biomedical Laboratory Technology Program, graduates will be able to:

- apply health and safety practices to protect the self, patients, co-workers, and the environment;
- maintain principles of responsible practice and ethical behaviors;
- procure specimens from a variety of sources and perform delegated acts according to the regulations governing the profession;
- perform routine and specialized biochemical analyses required in the areas of hemostasis, hematology, biochemistry, microbiology, transfusion medicine and molecular biology, correlate laboratory results with clinical conditions, and initiate follow-up testing;
- use knowledge, problem-solving and critical thinking skills to ensure reliable results that are both accurate and precise according to established quality control protocols and standards, troubleshoot anomalies in laboratory results, and initiate corrective actions;
- adapt to evolving technologies and techniques in biomedical analysis;
- transfer acquired skills and knowledge across biomedical laboratories;
- recognize the contribution of laboratory services in promoting individual and public health;
- work effectively as part of a team including both laboratory staff and other health care professionals;
- analyze works in the humanities emanating from different historical periods and movements on the topics of knowledge, world views and ethics;
- understand literature as an exploration of human experience and effectively articulate ideas, concepts and techniques in English;
- effectively communicate in French orally and in writing in a professional context;
- take responsibility for sustaining personal health and well-being.

Program Specific Objectives

Code	Statement
06CY	Analyze the profession and training.
06CZ	Carry out quality control activities in a clinical setting.
06D0	Describe the anatomical and physiological characteristics of biological samples.
06D1	Perform pre-analytical procedures to prepare samples of body fluids for biomedical analyses.
06D2	Establish professional relationships in biomedical analyses.
06D3	Procure biological samples from a client.
06D4	Perform basic quantitative analyses of biomolecules in a clinical setting.
06D5	Perform specialized quantitative analyses of biomolecules in a clinical setting.
06D6	Carry out professional activities associated with pharmacology.
06D7	Identify microorganisms.
06D8	Produce histological sections for pathological examinations.
06D9	Conduct a biological validation of the results of biomedical analyses.
06DA	Perform biomedical analyses in hemostasis.
06DB	Perform biomedical analyses in hematology.
06DC	Perform biomedical analyses in biochemistry.
06DD	Perform biomedical analyses in microbiology.
06DE	Perform biomedical analyses in molecular biology.
06DF	Perform analyses in transfusion medicine.
06DG	Prepare blood products for transfusion.
06DH	Resolve transfusion problems.

Program Grid

Course Number	Course Title	Ponderation			Units	Contact hours	
		theory	lab	work		/week	/term
Term 1							
101-915-DW	Human Anatomy and Physiology	3	2	2	2 1/3	5	75
140-113-DW	Quality Assurance for Clinical Laboratories	2	2	1	1 2/3	4	60
140-114-DW	Laboratory Principles and Introduction to Hematology	3	2	2	2 1/3	5	75
140-115-DW	Basic Techniques and Instrumentation	3	2	2	2 1/3	5	75
345-101-MQ	Humanities - Knowledge	3	1	3	2 1/3	4	60
602-10x-MQ	French - Block A	2	1	3	2	3	45
603-101-MQ	English-Introduction to College English	2	2	4	2 2/3	4	60
Total for Term 1		**18**	**12**	**17**	**15 2/3**	**30**	**450**
Term 2							
140-211-DW	Microorganisms and Disease 1	2	3	2	2 1/3	5	75
140-222-DW	Applied Immunology	2	2	2	2	4	60
140-241-DW	Clinical Chemistry 1	2	2	2	2	4	60
140-232-DW	Descriptive Histology	2	2	2	2	4	60
109-101-MQ	Phys. Ed. – Physical Activity and Health	1	1	1	1	2	30
345-102-MQ	Humanities - World Views	3	0	3	2	3	45
603-102-MQ	English - Literary Genres	2	2	3	2 1/3	4	60
COMBXX	Complementary	3	0	3	2	3	45
Total for Term 2		**17**	**12**	**18**	**15 2/3**	**29**	**435**
Term 3							
210-916-DW	Specialized Biochemical Techniques	2	2	2	2	4	60
140-311-DW	Microorganisms and Disease 2	1	3	2	2	4	60
140-321-DW	Hemostasis	1	2	2	1 2/3	3	45
140-341-DW	Clinical Chemistry 2	2	2	2	2	4	60
101-917-DW	Applied Molecular Biology	2	1	2	1 2/3	3	45
602-BXx-MQ	French - Block B	2	1	3	2	3	45
603-103-MQ	English - Literary Themes	2	2	3	2 1/3	4	60
COM-BXX	Complementary	3	0	3	2	3	45
109-102-MQ	Phys. Ed.-Physical Activity and Effectiveness	0	2	1	1	2	30
Total for Term 3		**15**	**15**	**20**	**16 2/3**	**30**	**450**
Term 4							
140-451-DW	Clinical Hematology	2	3	2	2 1/3	5	75
140-411-DW	Diagnostic Microbiology 1	2	3	2	2 1/3	5	75
140-421-DW	Basic Histotechniques	1	2	2	1 2/3	3	45
140-431-DW	Transfusion Practices 1	2	2	2	2	4	60
140-441-DW	Clinical Chemistry 3	2	2	2	2	4	60
140-461-DW	Procurement Internship (intensive)	1	2	1	1 1/3	3	45
109-103-MQ	Physical Education: Physical Activity and Autonomy	1	1	1	1	2	30
345-BXH-MQ	Humanities - Block B	3	0	3	2	3	45
603-BXE-MQ	English - Block B	2	2	2	2	4	60
Total for Term 4		**16**	**17**	**17**	**16 2/3**	**33**	**495**
Term 5 (intensive 10 weeks)							
140-521-DW	Special Histotechniques	2	2	2	2	4	60
140-531-DW	Transfusion Practices 2	0	3	2	1 2/3	3	45
140-541-DW	Professional Practice in Healthcare	3	0	1	1 1/3	3	45
140-551-DW	Introduction to Core Lab	3	3	2	2 2/3	6	90
140-511-DW	Diagnostic Microbiology 2	0	3	1	1 1/3	3	45
Total for Term 5		**8**	**11**	**8**	**9**	**19**	**285**
Term 6 (26 week stage)							
140-664-DW	Transfusion Science Internship	1	7	1	3	8	120
140-662-DW	Histology/Molecular Biology Internship	1	8	1	3 1/3	9	135
140-663-DW	Core Lab Internship	1	17	1	6 1/3	18	270
140-661-DW	Clinical Microbiology Internship	1	10	1	4	11	165
140-665-DW	Pharmacology for Biomedical Technologists	3	0	1	1 1/3.	3	45
Total for Term 6		**7**	**42**	**5**	**18**	**49**	**735**
Total: Program Specific		**52**	**94**	**49**	**65**	**146**	**2190**
Total: General Education		**29**	**15**	**36**	**26 2/3**	**44**	**660**
Total: Program		**81**	**109**	**85**	**91 2/3**	**190**	**2850**

NOTES:

Term 4: Procurement Internship is an intensive internship of 7 days, scheduled after the final exam period, at the end of May.

Term 5: Courses are compressed into a 10 week intensive period.

Term 6: Internship courses are spread over 26 weeks, from mid-November to the end of May.

Term 6: Pharmacology is an on-line course.