

PROGRAM INFORMATION

Academic Year	2024 – 2025
Credential	College Certificate
Program Delivery	Full - Time
Duration	1 Year
Length	2 Semesters
Program Code	H162 (PC) – Timmins Campus

Fall 2024 Intake

Program will be completely online (Semester 1 & 2)

Winter 2025 Intake

Program will be on-site at Timmins Campus (Semester 1 & 2)

DESCRIPTION

Lay the foundation for your career in healthcare.

Pre-health Sciences: Pathway to Advanced Diplomas & Degrees is a one-year certificate program that allows you to investigate which is the first step in your preparation for a variety of future careers in the health sciences – and specifically lays the groundwork for Northern’s nursing and paramedic programs.

There are many benefits which include:

- Pre-Health is the first step on the pathway to a wide range of careers in health, medicine, and dentistry
- Pre-Health prepares you for success in professional health science programs in college and university
- Two distinct annual intakes provides the option to select the delivery mode that works best for you

Graduates, subject to minimum grade requirements, are admissible into the Queen’s Bachelor in Health Sciences (BHSc) program and can receive four first year university transfer credits. Queen’s BHSc program is available entirely online and provides pathways into Dentistry, Medicine, Graduate Studies, Occupational Therapy, Physical Therapy, Pharmacy, and Veterinary Medicine.

The certificate also satisfies the admission requirements for most health care programs at other Ontario community colleges. Thanks to a broad-based curriculum, you’ll gain a solid foothold in chemistry, physics, psychology, and human biology – including genetics, microbiology, and common pathologies.

You’ll also improve your math, communication, critical thinking, and problem-solving skills. Along the way, learn the effective negotiation, mediation, and conflict resolution strategies that are essential to on-the-job success.

CAREER OPPORTUNITIES

Graduates may find employment opportunities in public and private agencies and institutions including family homes, community-based services, residential and custody settings.

VOCATIONAL LEARNING OUTCOMES

1. Examine biological concepts, processes, and systems of the human body, including genetics and epigenetics, as well as the structure, function and properties of the molecules of life, cells, tissues and organ systems in relation to homeostasis, physical development and health.
2. Examine concepts, processes, and systems of chemistry, including atomic and molecular structure; quantities in chemical reactions; solutions and solubility; acids and bases; as well as organic chemistry and biochemistry in relation to health and the human body.
3. Solve numeric problems and interpret data related to health sciences and other science-related fields using mathematical concepts, including algebra and probability, along with descriptive and inferential statistics.
4. Use health sciences and other science-related language and terminology appropriately to communicate clearly, concisely, and correctly in written, spoken, and visual forms.
5. Prepare a personal strategy and plan for academic, career and professional development in the health sciences or other science-related fields.
6. Investigate health sciences and science-related questions, problems and evidence using the scientific method.
7. Examine fundamental physical laws and concepts and their application to health sciences and other science-related fields.

PROGRAM COURSES

The following reflects the planned course sequence for full-time offerings of the program. Programs at Northern College are delivered using a variety of instruction modes. Courses may be offered in the classroom or lab, entirely online, or in a hybrid mode which combines classroom sessions with virtual learning activities.

Semester 1		Hours
CM1323	Professional Communications	42
GN1443	Indigenous Culture and Awareness	42
PH1004	Human Biology I	56
PH1014	Chemistry I	56
PH1133	Mathematics for Health Sciences	42
PS1173	Introduction to Psychology	42
Semester 2		
EC2033	Working with Diversity	42
PH2003	Mathematics for Health Sciences II	42
PH2004	Human Biology II	56
PH2024	Chemistry II	56
PH2034	Physics	56

PROGRAM PROGRESSION

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

Fall 2024 Intake

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Winter 2025 Intake

Program will be on-site at Timmins Campus (Semester 1 & II)

WORK INTEGRATED LEARNING OPPORTUNITIES

N/A

ARTICULATION/TRANSFER AGREEMENTS

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 coordinator for specific details if you are interested in pursuing such an option. Additional information can be found at [Articulation Agreements](#).

ADDITIONAL INFORMATION

N/A

PROGRAM SPECIFIC INFORMATION

N/A

ADMISSION REQUIREMENTS

- Ontario Secondary School Diploma (OSSD)
- Grade 12 English (C, U)
- Grade 11 Math (C, M, U) (Preferably Functions and Relations or equivalent)
- Or equivalent

It is strongly recommended that students entering this program have access to the Internet. In this program, Biology, Chemistry and Mathematics will provide students with a solid background to satisfy the entrance requirements for Northern's Nursing Baccalaureate, RPN, Paramedic, Massage Therapy and Medical Laboratory Technician programs. A 3.0 GPA in this program is a requirement to be admissible to the BScN program.

Additional Requirements for International Students

In addition to the general admission requirements, international students must have proof of English Proficiency and meet the requirements below.

1. Proof of Senior High School Diploma/Certificate with a 50% grade equivalent for Mathematics
2. English Proficiency (we will require one of the following):
 - IELTS Academic (International English Language Testing System – minimum overall band of 6.0 must be achieved with no individual Band score under 6.0)
 - TOEFL (Test of English as a Foreign Language) – Computer based overall minimum score of 79
 - PTE (Pearson Test of English) Academic – Graduate Diploma: 58+

If your country of citizenship has English as its official language, we may accept alternate proof of English Proficiency. All educational documents must be submitted in English and will be dependent on the country of citizenship. For more information, please contact admissions@northern.on.ca.

GRADUATION REQUIREMENTS

9 Program Courses

- 1 Communications Course
- 1 General Education Course

GRADUATION ELIGIBILITY

To graduate from this program, a student must attain a minimum of 60% or a letter grade of CR (Credit) in each course in each semester unless otherwise stated on the course outline. Students should consult departmental policies and manuals for additional detail and exceptions.

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.

CONTACT INFORMATION

For questions about being admitted into the program, please contact Northern College Admissions at admissions@northern.on.ca or by phone at 705-235-3211 ext. 7222. For questions about the content of the program, contact the Program Coordinator:

Clint Sheehan, Program Coordinator
Email: sheehanc@northern.on.ca

COURSE DESCRIPTIONS

Semester 1

CM1323 Professional Communications

In this course, students will learn essential skills for success in college and the workplace. This course focuses on developing and strengthening oral and written communication skills, and critical thinking ability. During this course, students will engage in a variety of forms of communication with a focus on upholding the principles of academic integrity. Students will develop the skills necessary to create discipline-specific documents, practice business etiquette and professionalism, and apply critical thinking strategies to practical scenarios. Upon successful completion of this course, students will be able to plan and draft concise, coherent and well-organized writing assignments that are tailored to specific audiences and purposes.

GN1443 Indigenous Culture and Awareness

This general education course will provide students with an introduction to Canadian Indigenous Nations' history, sovereignty, land titles, cultural history and current critical issues. Topics addressed include the content of Indigenous rights, economic and social development, community and political processes, and business law and policies, justice & social services. Canadian Indigenous History and Relations is a general education course that has been incorporated into all programs at Northern College.

PH1004 Human Biology I

This course will enable the student to develop a foundation in the fundamental concepts of Biological Sciences within the context of the human body. The student will study and explore Cell Biology, Genetics, Evolution and Microbiology with an emphasis on understanding the underlying concepts and principles and applying them to the human body. The student will also investigate future careers in health sciences and other high affinity fields and identify appropriate post-secondary programs to prepare for chosen career.

PH1014 Chemistry I

This course will enable students to deepen their understanding of chemistry through the study of atomic and molecular structure, chemical systems and equilibrium, electrochemistry, energy changes and rates of reactions, states of matter, solutions, and gases. These topics will have a strong health science emphasis and will provide students with a chemistry perspective of health and the human body.

PH1133 Mathematics for Health Sciences

By the end of this course, students will have demonstrated the ability to evaluate a variety of arithmetic and algebraic expressions and apply these principles to typical situations that arise in the health care fields. Concepts studied include numeracy fundamentals; systems of measurement and dimensional analysis; algebra, with an emphasis on analytical techniques; and evaluating systems of linear equations. Students will develop essential critical thinking and problem-solving skills through exposure to application problems, including dosage calculations, solution dilutions, concentrations, and pH.

PS1173 Introduction to Psychology

This course provides an introduction to selected concepts and theories of psychology including the history of and major trends in psychology. This course provides a grounding in the concepts related to biology and behaviour, including brain function, stress, sensation, perception, consciousness, and memory. This course

also provides an introduction to the topics of conditioning and learning, cognition and creativity, intelligence, motivation and emotion, gender and sexuality, personality, social behaviour, and human relations. Abnormal psychology related to psychological disorders and therapies is introduced.

Semester 2

EC2033 Working with Diversity

Students will explore and examine the many layers of diversity that surround individuals and identifiable groups in society, and they will see how these many layers contribute to a rich, diverse Canadian cultural landscape. As part of this examination, students will have the opportunity to reflect on their personal attitudes, assumptions, and views toward diverse population groups. As a brief introduction, students will begin developing their understanding of diversity by identifying, discussing, and defining core terminology like privilege, cultural competence, and cultural safety. Students will enhance their knowledge and understanding of diversity by looking at origins of differences among various population groups in Canada and by looking at society's attitudes associated with Canadian Regionalism, demographic trends, First Nations peoples, immigration, and various other established minority groups. Also, learners will become aware of government policies and influence on certain segments of Canadian society and its role in dealing with social inequalities. Finally, students will look at and reflect on the media's role in perpetuating stereotypes and swaying personal views of diversity in Canada.

PH2003 Mathematics for Health Sciences II

By the end of this course, students will have demonstrated the ability to understand and apply the core principles of probability and statistics. Concepts studied include populations and samples; sampling techniques; frequency distributions; skewness, location, and measures of central tendency; variance and standard deviations; probability calculations and distributions; the Empirical Rule; z-scores and the Central Limit Theorem. Students will use numerical methods along with graphs, charts, and tables to effectively describe data, calculate the empirical and theoretical probability of simple events using key rules of probability, and apply descriptive and inferential statistics to applications from the health care fields.

PH2004 Human Biology II

This course will enable the learner to build upon the foundation of the fundamental concepts of Biological Sciences covered in Human Biology I. The learner will apply those concepts from their study of Cell Biology, Genetics, Evolution, and Microbiology to the study of the anatomy and physiology of the human body. In the context of the study of the various organ systems, the learner will be introduced to common pathologies with examples taken from current scientific research. The emphasis will be on understanding the underlying concepts and principles and applying them to a diversity of body systems. The student will apply information learned within this course to their ongoing investigation of future careers in health sciences.

PH2024 Chemistry II

Chemistry II will enable the learner to build upon the foundation of the fundamental concepts of chemistry covered in Chemistry I. The learner will apply the concepts from Chemistry I to the study of organic chemistry and biochemistry. The focus is on the understanding of the chemical basis of life. Topics covered will include hydrocarbons, derivatives of hydrocarbons, and biochemistry. Connections are regularly made between the principles of organic and biochemistry covered in this course and the content of Human Biology I and II. Special emphasis will be placed on the application of these concepts to the health and biosciences.

PH2034 Physics

This course is a rigorous introduction to physics which will enable the student to develop a foundation in the fundamental concepts of physics. The student will apply critical thinking and problem-solving techniques to physics concepts related to the health science field. The student will conceptually and quantitatively study concepts including kinematics, forces, work, energy and power, fluids and pressure, nuclear physics, electrostatics, magnetism, waves and electromagnetic radiation. This course will provide the student with a physics-based perspective of health and the human body.