Area of Interest: Environmental and Applied Sciences

# Science and Technology Foundations

Ontario College Certificate

Program Code: 1528X01FWO

1 Year

Ottawa Campus

## Our Program

**Explore the fields of science and technology to define your career pathway.**

Innovations in science and technology have improved our daily lives by making the world easier to navigate and more accessible. The one-year Science and Technology Foundations Ontario College Certificate allows you to explore academic and career opportunities within the fields of applied science and technology, while developing fundamental skills in these areas and preparing you for a well-suited academic and professional pathway.

In this program, you develop core skills through lectures and practical laboratories, which are common to all areas of applied science and technology, such as critical thinking, problem solving, team work, communication, computer skills, and applied mathematics. You increase your own awareness of industry and career opportunities within the fields of applied science and technology. You have an option of selecting two courses relating to either electronics or chemistry to guide possible career choices. You also develop strong academic and career planning skills to support you through the next stages of your studies and into your career.

This science and technology foundations program provides you with an introduction to more advanced programs in these fields, including, but not limited to:

- Biotechnology - Advanced
- Environmental Technician
- Electromechanical Engineering
- Mechanical Engineering Technology
- Manufacturing Engineering Technician

As a graduate, you will qualify to receive transfer credits in related programs for some courses taken in this program. Contact the Program Coordinator to explore specific transfer credit opportunities.

## Learning Outcomes

The graduate has reliably demonstrated the ability to:

- Use math skills to solve routine problems related to applied science and technology.
- Use critical thinking processes and problem-solving techniques to develop systematic approaches in applied science and technology.
- Communicate using appropriate language, strategies and techniques to convey messages clearly and concisely in applied science and technology environments.
- Use academic strategies to support success and wellness in lifelong learning and career development.
- Apply the basic technical skills required to complete a set of procedures in an applied science and technology lab.

- Apply digital literacy skills at an introductory level for success in applied science and technology.

- Examine the professional requirements and opportunities in various applied science and technology fields to inform academic and professional goals.

- Identify and apply discipline-specific practices that contribute to the local and global community through social responsibility, economic commitment and environmental stewardship.

## Program of Study

| Level: 01 | Courses | Hours |
|---|---|---|
| ENL2029T | Foundations of Communication | 42.0 |
| FAM0080 | Life Skills for Academic Study | 56.0 |
| MAT0101 | Mathematics for Technology 1 | 70.0 |
| SCI0011 | Applied Science for Technology | 42.0 |
| SCI0012 | Applied Science for Technology Lab | 56.0 |
| SCI0013 | Career Exploration in Science and Technology | 28.0 |
| **Level: 02** | **Courses** | **Hours** |
| DAT2004 | Computer Applications | 42.0 |
| ENL1813T | Communications I | 42.0 |
| MAT8001T | Mathematics for Technology 2 | 70.0 |
| **Elective: choose 2** | **Courses** | **Hours** |
| CHE1304 | Chemistry 1 | 42.0 |
| CHE1305 | Chemistry 1 Lab | 42.0 |
| ELN1104 | Electronics Tutorial | 14.0 |
| ELN9104 | Dc and Ac Electronics | 84.0 |
| **Choose one from equivalencies:** | **Courses** | **Hours** |
| GED1528 | General Education Elective | 42.0 |
| | | |

## Fees for the 2025/2026 Academic Year

Tuition and related ancillary fees for this program can be viewed by using the Tuition and Fees Estimator tool at https://www.algonquincollege.com/ro/pay/fee-estimator/

Further information on fees can be found by visiting the Registrar's Office website at https://www.algonquincollege.com/ro/

Fees are subject to change.

Additional program related expenses include:

Approximately $800 for books and consumable supplies.

## Admission Requirements for the 2026/2027 Academic Year

### College Eligibility

- Ontario Secondary School Diploma (OSSD) or equivalent;

- Mature Student status (19 years of age or older and without a high sch diploma at the start of the program). Eligibility may be determined by academic achievement testing, for which a fee will be charged.

### Program Eligibility

- English, Grade 12 (ENG4C or equivalent).

- Applicants with international transcripts must provide proof of the subject specific requirements noted above and may be required to provide proof of language proficiency. Domestic applicants with international transcripts must be evaluated through the International Credential Assessment Service of Canada (ICAS) or World Education Services (WES).

- IELTS-International English Language Testing Service (Academic) Overall band of 6.0 with a minimum of 5.5 in each band OR TOEFL-Internet-based (iBT)-overall 80, with a minimum of 20 in each component: Reading 20; Listening 20; Speaking 20; Writing 20 OR Duolingo English Test (DET) Overall 110, minimum of 110 in Literacy and no score below 95.

## Admission Requirements for 2025/2026 Academic Year

### College Eligibility

- Ontario Secondary School Diploma (OSSD) or equivalent. Applicants with an OSSD showing senior English and/or Mathematics courses at the Basic Level, or with Workplace or Open courses, will be tested to determine their eligibility for admission; OR

- Academic and Career Entrance (ACE) certificate; OR

- General Educational Development (GED) certificate; OR

- Mature Student status (19 years of age or older and without a high school diploma at the start of the program). Eligibility may be determined by academic achievement testing for which a fee will be charged.

### Program Eligibility

- English, Grade 12 (ENG4C or equivalent).

- Applicants with international transcripts must provide proof of the subject-specific requirements noted above and may be required to provide proof of language proficiency. Domestic applicants with international transcripts must be evaluated through the International Credential Assessment Service of Canada (ICAS) or World Education Services (WES).

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Not sure if you meet all of the requirements? Academic Upgrading may be able to help with that: https://www.algonquincollege.com/access/ .

## Application Information

**SCIENCE AND TECHNOLOGY FOUNDATIONS**
**Program Code 1528X01FWO**

Applications to full-time day programs must be submitted with official transcripts showing completion of the academic admission requirements through:

https://www.ontariocolleges.ca/en

60 Corporate Court
Guelph, Ontario
N1G 5J3
1-888-892-2228

Students currently enrolled in an Ontario secondary school should notify their Guidance Office prior to their online application at https://www.ontariocolleges.ca/en

Applications for Fall Term and Winter Term admission received by February 1st will be given equal consideration. Applications received after February 1st will be processed on a first-come, first-served basis as long as places are available.

International applicants please visit this link for application process information:
https://algonquincollege.my.site.com/myac360/s/self-registration-page

For further information on the admissions process, contact:
Registrar's Office
Algonquin College
1385 Woodroffe Ave
Ottawa, ON K2G 1V8
Telephone: 613-727-0002
Toll-free: 1-800-565-4723
TTY: 613-727-7766
Fax: 613-727-7632
Contact: https://www.algonquincollege.com/ro/

## Contact Information

### Program Coordinator(s)

- Elisabeth von Moos, mailto:vonmooe@algonquincollege.com , 613-727-4723, ext. 3451

## Course Descriptions

### CHE1304 Chemistry 1

Chemistry is a branch of physical science that explores the composition, structure, properties, and transformations of matter. Students examine fundamental chemical principles to understand the processes and interactions that govern the physical, chemical, and biological systems in the natural world. Students gain an understanding of the classification of matter and atomic structure and bonding, explore different reaction types with an introduction to acid-base chemistry and investigate the behaviour of gases. Students become proficient with calculations using moles, including reaction stoichiometry and solution preparation. The course includes lectures and problem-solving exercises to help students apply chemical principles in biotechnology contexts in future courses.

Prerequisite(s): none
Corerequisite(s):none

### CHE1305 Chemistry 1 Lab

Chemistry is a branch of physical science that explores the composition, structure, properties, and transformations of matter. Students engage in hands-on laboratory activities to develop practical skills in chemical analysis and reinforce theoretical principles. Laboratory experiments emphasize the proper use and calibration of standard equipment, precise handling of glassware, accurate solution preparation, fundamental acid-base chemistry, systematic data collection, and analytical techniques. Throughout, students apply best practices in laboratory safety and compliance with standard operating procedures.

Prerequisite(s): none
Corerequisite(s):none

### DAT2004 Computer Applications

Knowledge of common computer applications is crucial in any modern workplace. Students

examine the essentials of the computer operating system and use current software packages to perform practical workplace tasks. Tasks incorporate file management, file sharing, email and electronic calendars, documents with graphical illustrations, spreadsheets and presentations. Assignments are linked to vocationally-specific problems and projects.

Prerequisite(s): none
Corerequisite(s):none

**ELN1104 Electronics Tutorial**

Possessing basic knowledge of entry-level electronics and related careers help to guide career pathways. Through discussions, students explore the theory behind electrical circuits to develop fundamental knowledge of electronics. Students examine professional requirements and opportunities as well as lifelong learning strategies relating to the field of electronics.

Prerequisite(s): none
Corerequisite(s):none

**ELN9104 Dc and Ac Electronics**

An understanding of entry-level electronics is essential to all engineering fields. Students explore basic electrical components and how they are used in electrical circuits. Discovering and using resistors, capacitors and inductors to build circuits from schematic diagrams, students perform tests and measurements to promote their understanding of fundamental electronics. Through following the flow of energy in complete circuits, students apply troubleshooting strategies to identify, localize and correct malfunctions. Students use digital multimeters, oscilloscopes and signal generators to create and measure circuit characteristics. Students evaluate circuits using Ohm's Law, Kirchhoff's laws, superposition and other theorems. RL, RC and RLC circuits are examined. Good lab safety practices are stressed. Students provide written reports on their findings.

Prerequisite(s): none
Corerequisite(s):none

**ENL1813T Communications I**

Communication remains an essential skill sought by employers, regardless of discipline or field of study. Using a practical, vocation-oriented approach, students focus on meeting the requirements of effective communication. Through a combination of lectures, exercises, and independent learning, students practise writing, speaking, reading, listening, locating and documenting information and using technology to communicate professionally. Students develop and strengthen communication skills that contribute to success in both educational and workplace environments.

Prerequisite(s): none
Corerequisite(s):none

**ENL2029T Foundations of Communication**

Students develop language and communication skills necessary to promote success in education pathways and careers. With effective workplace communication skills as the focus, students achieve correctness and confidence in presenting messages in various formats appropriate to workplace correspondence, report writing and teamwork activities. Students compose, edit and revise a variety of workplace-oriented messages, practice presentation skills, and use technology to produce a collaborative project. In all written work, students develop and enhance their skills in English language usage, grammar, mechanics and style to meet professional workplace standards.

Prerequisite(s): none
Corerequisite(s):none

**FAM0080 Life Skills for Academic Study**

There are specific skills and competencies that students need to be successful in academic pursuits. Students develop skills in time management, learning strategies, critical thinking, online

research and group work. Students gain skills to navigate this new learning environment and explore resources to support them. Students prepare for study at the post-secondary level through group discussions, self-reflection and collaboration with peers on projects.

Prerequisite(s): none
Corerequisite(s):none

**GED1528 General Education Elective**

Students choose one course, from a group of general education electives, which meets one of the following five theme requirements: Arts in Society, Civic Life, Social and Cultural Understanding, Personal Understanding, and Science & Technology.

Prerequisite(s): none
Corerequisite(s):none

**MAT0101 Mathematics for Technology 1**

A firm foundation in mathematics is crucial to studying and working in science and technology fields. Students solidify their understanding of key math concepts. Topics include arithmetic and basic algebra, geometry, trigonometry and functions. Students manipulate equations to solve problems which include surface, area, volume and angles. Through individual and group work, students hone essential math skills.

Prerequisite(s): none
Corerequisite(s):none

**MAT8001T Mathematics for Technology 2**

A deep understanding of more complex mathematical processes is essential to studying and working in the technology fields. Students solve and graph systems of linear and quadratic equations, factor and simplify fractional polynomial expressions, simplify fractional exponents and radicals, and solve exponential and logarithmic equations. The application of theory, learned through skills-based practise, prepares students to enter their chosen technological field of study.

Prerequisite(s): none
Corerequisite(s):none

**SCI0011 Applied Science for Technology**

Scientific research and experiments help to explain the world. Students use the scientific method to develop a solid foundation for critical thinking. Through discussions, students examine the fundamental scientific skills and principles applied in physics, chemistry, and microbiology. Students examine the importance of assessing the accuracy and precision of measurements and results.

Prerequisite(s): none
Corerequisite(s):none

**SCI0012 Applied Science for Technology Lab**

Experiencing authentic lab exercises develops basic skills and exposes students to areas of potential study and employment. Students examine the scientific method through activities and learn the fundamental scientific skills and principles applied in physics, chemistry and microbiology. Laboratory experiments emphasize developing laboratory skills and expertise including: solution preparation, use and care of equipment and the safe handling and disposal of chemicals and biological samples. Students explore introductory physics concepts in a laboratory environment. Students also assess the accuracy and precision of measurements and results.

Prerequisite(s): none
Corerequisite(s):none

**SCI0013 Career Exploration in Science and Technology**

Goal-setting and life-long learning are key factors in achieving academic and personal success. Students investigate a variety of employment options in the fields of applied science and technology. Through the use of career-guidance tools and techniques, students identify employment opportunities and pursue those that match their own interests and career goals. Students explore how their own academic learning and career development are intertwined.

Prerequisite(s): none
Corerequisite(s):none