
COURSE NAME: CIS201 Introduction to Programming

Credit Value:	3
Total Course Hours:	42
Prerequisite Course(s):	None
Corequisite Course(s):	/

COURSE DESCRIPTION

This course is an introduction to programming techniques, with an emphasis on understanding the role computation can play in solving scientific problems. Upon completion, students will feel confident in their ability to develop robust, well-documented programs that accomplish useful goals. No prior knowledge of programming is required. Although a specific programming language will be used, the intent is to learn techniques of programming that can then be applied to other programming languages. Specific topics include, but are not limited to, design and development, documentation, and programming. Programming topics will include program structure, algorithms, variables, selection control, repetition control and sub programs (methods/functions). This year we will be using the open source Python programming language. Python is a relatively new interpreted programming language that is reasonably easy to learn, yet powerful enough for many different programming tasks. It runs on most computer platforms today and has many specialized packages for use in many different disciplines, including the Biopython package which offers valuable tools for the bioinformatics field.

PLAR INFORMATION

This course is eligible for Prior Learning Assessment and Recognition. Students are advised to discuss options with their program coordinator.

COURSE LEARNING OUTCOMES

Upon completion of this course, the student will have reliably demonstrated the ability to:

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| 1.0 Introduction to programming. | types. |
| 1.1 Explain what a computer program is. | 3.5 Create expressions using variables. |
| 1.2 Understand what is meant by a language syntax. | 4.0 Expressions (arithmetic & logical). |
| 1.3 Understand the terminology used in programming. | 4.1 Carry out calculations. |
| 1.4 Describe the main features of a programming language. | 4.2 Write mathematical expressions. |
| 1.5 Be able to write, and execute a program. | 4.3 Write relational expressions. |
| 2.0 Documentation and style rules. | 4.4 Write logical expressions. |
| 2.1 Be able to create basic programming documentation, including flowcharts & pseudo-code. | 4.5 Write other expressions (ex. String). |
| 2.2 Be able to write self documenting code. | 5.0 Algorithms. |
| 2.3 Be able to apply stylistic rules and conventions when writing code. | 5.1 Defining a problem. |
| 3.0 Data types (variables). | 5.2 Developing a means to solve the problem. |
| 3.1 Storing a value in a variable. | 5.3 Common algorithms. |
| 3.2 Choose the correct data types for a variable. | 5.4 Pseudocode. |
| 3.3 Declare variables. | 6.0 Selection structures. |
| 3.4 Convert variables between various data | 6.1 Decision making. |
| | 6.2 Boolean logic and relational operations. |
| | 6.3 if structure. |
| | 6.4 if..else structure. |
| | 6.5 nested if structure. |
| | 6.6 case structure. |
| | 7.0 Repetition structures. |

7.1 Repeating a section of code.

7.2 Pre-test loops.

7.3 Post-test loops.

7.4 for loops.

8.0 Input control.

8.1 Input validation.

8.2 Input loops.

9.0 Methods (procedures).

9.1 Understand how to break programs up into methods.

9.2 Create a method with no arguments.

9.3 Create a method that requires one or more arguments.

9.4 Create methods that return values.

GENERAL EDUCATION

This is not a General Education course.

ESSENTIAL EMPLOYABILITY SKILLS OUTCOMES

This course contributes to the following Ministry of Training, Colleges and Universities approved essential employability skills (EES) outcomes:

1. Communicate clearly, concisely, and correctly in the written, spoken, and visual form that fulfils the purpose and meets the needs of the audience.
3. Execute mathematical operations accurately
4. Apply a systematic approach to solve problems
5. Use a variety of thinking skills to anticipate and solve problems
6. Locate, select, organize, and document information using appropriate technology and information systems.
10. Manage the use of time and other resources to complete projects.
11. Take responsibility for one's own actions, decisions, and consequences.

EXTERNAL COURSE ACCREDITATIONS AND CONDITIONS

COURSE EVALUATION

Programming Assignments 70%

Tests 30%

PROGRAM SPECIFIC GRADING

Per College Grading System

GRADING SYSTEM

A+:	90-100%	B+:	77-79%	C+:	65-69%	D:	50-54%	S - Satisfactory
A:	85-89%	B:	73-76%	C:	60-64%	F:	0-49%	I - Incomplete
A-:	80-84%	B-:	70-72%	D+:	55-59%			F - Repeat course

*For a complete detailed description please refer to the College website.

LEARNING RESOURCES

Any applicable handouts and readings will be made available online

Resources listed on the course outline support the achievement of learning outcomes, and may be used throughout the course to varying degrees depending on the instructor's teaching methodology and the nature of the resource.

LEARNING ACTIVITIES

Lectures, Programming Laboratories, Assignments

DELIVERY MODE

3 hrs in class; mixed practice and lecture

ACADEMIC POLICIES

- Academic Integrity
- Academic Appeal
- Academic Attendance
- Grading and Assessment

For academic policies please see: <http://www.canadorecollege.ca/about-us/corporate-policy-manual>.

COLLEGE POLICIES

- Protecting human rights in support of a respectful college community

For college policies please see: <http://www.canadorecollege.ca/about-us/college-policies>.

STUDENT SUCCESS SERVICES

YOUR SUCCESS MATTERS!

We offer comprehensive, student-focused services designed to help you succeed. Canadore is committed to Student Success and offers CONFIDENTIAL services to help you in your studies. We offer:

- Study skills workshops

- Peer tutoring
- Career guidance
- Mental health and wellness tips and strategies
- Resource centre
- Assistive devices

The ultimate goal of Student Success Services is to support students so they can achieve success academically, in their career aspirations, and in their personal lives. Please don't hesitate to drop by C262 or to book an appointment please call 1-705-474-7600 ext. 5205.

FIRST PEOPLES' CENTRE:

We offer a culturally safe environment where our student focused services provide you with the following CONFIDENTIAL services:

- One on one counselling
- Elder in residence
- Peer tutoring
- Peer mentorship
- Lunch & learn workshops on study skills, self-care, life skills
- Resource Centre

Drop by our offices at C254 College Drive, E101 Commerce Court or call 705 474 7600 Ext. 5961 College Drive / 5647 Commerce Court.

WAIVER OF RESPONSIBILITY

Every attempt is made to ensure the accuracy of this information as of the date of publication. The college reserves the right to modify, change, add, or delete content.

HISTORICAL COURSE OUTLINES

Students use course outlines to support their learning. Students are responsible for retaining course outlines for future use in applications for transfer of credit to other educational institutions.