COMSC 174 – Introduction to Computing I
3 Credits, 3 hours lecture, 3 hours lab

Prerequisites: Math 30 or 30-1

Academic Calendar:

COMSC 174 use a problem-driven approach to introduce the fundamental ideas of Computing Science. Emphasis is on the underlying process behind the solution, independent of programming language or style. Basic notions of state, control flow, data structures, recursion, modularization, and testing are introduced through solving simple problems in a variety of domains such as text analysis, map navigation, game search, simulation, and cryptography. Students learn to program by reading and modifying existing programs as well as writing new ones. No prior programming experience is necessary.

Description:

This course provides an introduction to basic concepts in computing science driven by real-world problem-solving. This course aims to develop students' coding and problem-solving skills with a focus on data analysis, science and visualization. Programming skills will be developed using Python programming language.

Instructor

Instructor	Tamar Richards-Thomas
Office	S209A
Phone	780-791-4822
Email	tamar.richardsthomas@keyano.ca

Office Hours

Tuesday, Thursday	13:00 – 14:00 (or by appointment)
Monday, Wednesday	14:00 – 15:00

Hours of Instruction

Monday	15:00 – 16:20
Tuesday	15:00 – 16:20 (Lab/Tutorial)
Wednesday	15:00 – 16:20

Course Outcomes

Upon successful completion of the course, the student will be able to:
- Attain proficiency in scientific programming and data visualization (Python is the supporting environment)
- Understand relevant terminology and proper use of vocabulary related to the course outline
- Express real-world problems precisely
- Solve these problems using efficient algorithms developed in python by constructing a feasible solution
- Implement the solution to the problem by writing a program

Required Resources

There are no required textbooks for this course. However, the following textbook is highly recommended:

Python for Everyone, (2nd Edition) by Cay S. Horstmann and Rance D. Necaise, Wiley, 2016.

There are two versions available:

- Paperback: ISBN : 978-1-119-05655-3
- e-Text: ISBN : 978-1-118-73522-0

The first edition of this textbook can also be used.

Programming Tools

Python programming language (https://www.python.org/), particularly Python 3.8 or the latest version, will be available on lecture and lab computers for this course. Python 3.8 version for Windows and Macs can be found at: https://www.python.org/downloads/. Please download and install Python prior to the start of the course on your personal computer if possible. When you download and install Python, you will get a simple editor/development environment called IDLE; you may use this for editing and creating your Python programs.

Other supplies and requirements

1. Hard copy of completed, signed plagiarism course certificate. No assignments will be accepted until this requirement is met.
2. Moodle (http://ilearn.keyano.ca). The course outline, lecture notes, and other resources will be made available on Moodle.
3. Keyano College email address. I will not correspond with students using their personal email addresses for a plethora of liability, security, and confidentiality reasons.

Evaluation

Laboratory Exercises	10%
Assignments 1	5%
Assignments 2	8%
Assignments 3	10%
Assignments 4	12%
Midterm Exam (2 hrs)	20%
Final Exam (3 hrs)	35%
Total	100%

All assignments are worth 35% of your overall mark for this course. If an assignment is cancelled for any reason, the remaining assignment weights will be pro-rated to add up to 35%.)

Grading System

Descriptor	Alpha Grade	4.0 Scale	Percent	Rubric for Letter Grades
	A+	4.0	95 – 100	Work shows in-depth and critical analysis, well developed ideas, creativity, excellent writing, clarity and proper format.
Excellent	A	4.0	85 – 94.9	
	A-	3.7	80 – 84.9	
	B+	3.3	77 – 79.9	Work is generally of high quality, well developed, well written, has clarity, and uses proper format.
Good	B	3.0	73 – 76.9	
	B-	2.7	70 – 72.9	
	C+	2.3	67 – 69.9	Work has some developed ideas but needs more attention to clarity, style and formatting.
Satisfactory	C	2.0	63 – 66.9	
Progression	C-	1.7	60 – 62.9	
Poor	D+	1.3	55 – 59.9	Work is completed in a general way with minimal support, or is poorly written or did not use proper format.
Minimum Pass	D	1.0	50 – 54.9	
Failure	F	0.0	< 50	Responses fail to demonstrate appropriate understanding or are fundamentally incomplete.

A grade of C- or better is required for progression or transfer.

Proposed Schedule of Topics

Dates	Topics	Lab/Tutorial	Notes
Aug. 31 – Sept. 3	Introduction to Python Data types, objects, arithmetic operations, comparison	No lab period	Orientation
Sept. 6 - 10	Introduction to Python (Cont'd) Data types, objects, arithmetic operations, comparison	Tutorial #1	**Labour Day
Sept. 13 –17	Python basics Numbers, String and Arrays	Lab #1 (Introduction)	
Sept. 20 – 24	Module and Scripts	Tutorial #2	
Sept. 21 – Oct. 1	Model Code and Control Flow Conditionals, Boolean, and Logic	Lab #2	
Oct. 4 - 8	Model Code and Control Flow Loops: if, for, and While	Tutorial #3	
Oct. 11 – 15	Modules and Functions	Lab #3	**Thanksgiving
Oct. 18 – 22	Introduction to Procedures	Tutorial #4	
Oct. 25 – 29	Basic data structures: Lists (Number, String, and Object)	Lab #4	
Nov. 1 - 5	Basic data structures Cont'd Dictionaries	Tutorial #5	
Nov. 8 – 12	Basic data structures Cont'd Introduction to Dictionaries	Lab #5	**Remembrance **Reading break
Nov. 15 – 19	File Basic I/O & Exceptions, Data processing and Visualization	Tutorial #6	
Nov. 22 – 26	Classes Objects, Basic Object-Oriented Design, Inheritance, Introduction to Polymorphism	Lab #6	
Nov. 29 – Dec. 1	Classes (Cont'd) Objects, Basic Object-Oriented Design, Inheritance, Introduction to Polymorphism	No lab period	

** College closes

Disclaimer: Date and time allotted to each topic is subject to change

Student Responsibilities

It is your responsibility as a student to contact the Office of the Registrar to complete the forms for Withdrawal or Change of Registration, and any other forms. Please refer to the list of important dates as noted in the Academic Schedule in the Keyano College credit calendar.

More specific details are found in the Student Rights and Student Code of Conduct section of the Keyano College credit calendar. It is the responsibility of each student to be aware of the guidelines outlined in the Student Rights and Student Code of Conduct Policies.

Student Attendance

Class attendance is useful for two reasons. First, class attendance maximizes a students' learning experience. Second, attending class is a good way to keep informed of matters relating to the administration of the course (e.g., the timing of assignments and exams). Ultimately, you are responsible for your own learning and performance in this course.

It is the responsibility of each student to be prepared for all classes. Students who miss classes are responsible for the material covered in those classes and for ensuring that they are prepared for the next class, including the completion of any assignments and / or notes that may be due.

Academic Misconduct

Students are considered to be responsible adults and should adhere to principles of intellectual integrity. Intellectual dishonesty may take many forms, such as:

- Plagiarism or the submission of another person's work as one's own
- The use of unauthorized aids in assignments or examinations (cheating)
- Collusion or the unauthorized collaboration with others in preparing work
- The deliberate misrepresentation of qualifications
- The willful distortion of results or data
- Substitution in an examination by another person
- Handing in the same unchanged work as submitted for another assignment
- Breach of confidentiality.

The consequences for academic misconduct range from a verbal reprimand to expulsion from the College. More specific descriptions and details are found in the Student Rights and Student Code of Conduct section of the Keyano College credit calendar. It is the responsibility of each student to be aware of the guidelines outlined in the Student Rights and Student Code of Conduct Policies.

In order to ensure your understanding of the concept of plagiarism, you must successfully complete the online tutorial found on ilearn.keyano.ca. Then print the certificate, sign it, and show it to each of your instructors. Your course work will not be graded until you show this signed certificate.

Specialized Supports
The Student Academic Support Services (SASS) department: Accessibility Services, Skill Centre, Wellness Services and Student Life Department work together to support student success at Keyano College.

Accessibility Services (CC167) supports student success through group and individualized instruction of learning, study and test taking strategies, and adaptive technologies. Students with documented disabilities, or who suspect a disability, can meet with the Learning Strategists to discuss accommodation of the learning barriers that they may be experiencing. Students who have accessed accommodations in the past are encouraged to visit our office at their earliest opportunity to discuss the availability of accommodations in their current courses. Individual appointments can be made by calling 780-791-8934.

Skill Centre (CC119) provides a learning space where students can gather to share ideas, collaborate on projects and get new perspectives on learning from our tutorial staff. Students visiting the centre have access to one-to-one or group tutoring, facilitated study groups, and assistance in academic writing. The Skill Centre's Peer Tutor program provides paid employment opportunities for students who have demonstrated academic success and want to share what they have learned. Tutoring is available free to any students registered at Keyano College on a drop-in basis, from 8:30 am to 5:00 pm Monday through Friday. Additional evening hours are subject to tutor availability and are posted in the Skill Centre.

Wellness Services (CC260) offers a caring, inclusive, and respectful environment where students can access free group and individual support to meet academic and life challenges. Mental Health Coordinators offer a safe and confidential environment to seek help with personal concerns. The Mindfulness Room in CC260 is available as a quiet space for students to relax during regular office hours. Wellness Service welcomes students to participate in any of the group sessions offered throughout the academic year addressing such topics as Mindfulness and Test Anxiety. Individual appointments can be made by calling 780-791-8934.

Student Life Department (CC210) is a place for students to go when they don't know who else can answer their questions. The staff will help students navigate barriers to success and if they don't know the answer, they will find it out. Student success is directly affected by how connected a student feels to their college. The student life department is there to help students get connected.

Please watch your Keyano email for workshop announcements from our Student Academic Support Services team.