CAPILANO UNIVERSITY

COURSE OUTLINE		
TERM: Summer 2019	**COURSE NO:** COMP 115	
INSTRUCTOR:	**COURSE TITLE:** Learn to Code	
OFFICE: LOCAL: **E-MAIL:** @capilanou.ca	**SECTION NO(S):**	**CREDITS: 4.0**
OFFICE HOURS:		
COURSE WEBSITE:		

Capilano University acknowledges with respect the Lil'wat, Musqueam, Squamish, Sechelt, and Tsleil-Waututh people on whose territories our campuses are located.

COURSE FORMAT
1.5 hours of class time, 3 hours of lab time, plus an additional 1.5 hours delivered through online or other activities for a 15-week semester, which includes two weeks for final exams.

COURSE PREREQUISITES
Applications of Math 11 or Foundations of Math 11 or Principles of Math 11 or Pre-calculus 11 or BMTH 044 or BMTH 048 or Math Placement Test (Pre-calculus MPT) or COMP 101 with a minimum B- grade

CALENDAR DESCRIPTION
An introduction to the principles and practices of writing quality code, for students with little or no prior coding experience. Students learn to apply a suite of fundamental principles and strategies for thinking clearly about problems, managing complexity, and designing creative, structured solutions. Students learn to develop the data structures and algorithms to express their solutions, to evaluate and test their designs, and to code them in a modern, high-level programming language, such as Python.

COURSE NOTE
COMP 115 is an approved Numeracy course for Cap Core requirements.
COMP 115 is an approved Science and Technology course for Cap Core requirements.
COMP 115 is an approved Science course.
COMP 115 is an approved Quantitative/Analytical course for baccalaureate degrees.

REQUIRED TEXTS AND/OR RESOURCES
Downey, Allan B. *Think Python: How to Think Like a Computer Scientist*. 2nd ed., Green Tea Press, 2015.

COURSE STUDENT LEARNING OUTCOMES
On successful completion of this course, students will be able to do the following:
- Describe how data can be encoded, structured, and manipulated by an algorithm;

- Trace an algorithm at different levels of abstraction;
- Design suitable, well-structured data models for small problems;
- Apply principles of abstraction, decomposition, and pattern recognition to design structured solutions for small problems;
- Code their designs in a high-level programming language;
- Write DRY (don't repeat yourself) code, with low coupling and high cohesion.

Students who complete this Numeracy course will be able to do the following:

- Apply both analytical and numerical skills to solve problems;
- Summarize and analyze data in quantitative forms;
- Interpret and draw conclusions from an analysis of quantitative data;
- Represent quantitative information in a variety of forms (e.g. symbolically, visually, numerically, and verbally);
- Incorporate quantitative evidence in support of an argument.

Students who complete this Science and Technology course will be able to do the following:

- Apply numerical and computational strategies to solve problems;
- Evaluate scientific information (e.g., distinguish primary and secondary sources, assess credibility and validity of information).
- Demonstrate how a problem, concept, or process can be modelled numerically, graphically, or algorithmically;
- Explain how scientific inquiry is based on investigation of evidence and evolves based on new findings;
- Participate in scientific inquiry and communicate the elements of the process, including making careful and systematic observations, developing and testing a hypothesis, analyzing evidence, and interpreting results.

COURSE CONTENT

Weeks (approx.)	Topics
2	Data Representations: types, encoding, analysis, abstraction; literal values, primitives, strings, tuples, lists, dictionaries, objects
3	Coding Basics: variables, operators, expressions, statements, control structures, functions, input/output, files
2	Problem Solving: decomposition, pattern recognition, data modeling, algorithm design
2	Algorithms: selection, iteration, accumulation, searching, sorting, recursion, complexity
2	Design Principles: abstraction, patterns; DRY, coupling, cohesion
1	Software Development: code review, debugging, automated testing
1	Review and Testing
(2)	Final Exam Period (Weeks 14 – 15)

EVALUATION PROFILE

Projects	20%
Lab Assignments & Quizzes	20%
Term Tests	20%
Final Exam (comprehensive)	35%
Performance Evaluation	5%
TOTAL	100%

GRADING PROFILE

A+ = 90-100	B+ = 77-79	C+ = 67-69	D = 50-59
A = 85-89	B = 73-76	C = 63-66	F = 0-49
A- = 80-84	B- = 70-72	C- = 60-62	

Grading System explanation
- The default *performance evaluation* component in the evaluation profile is pro-rated to the grade earned on the remainder of the profile. In exceptional circumstances, a student's improved performance in the later part of the term may justify an elevated grade. The instructor has sole discretion, in such cases, to alter the performance evaluation to elevate the student's grade to better reflect their performance at the end of term.

Incomplete Grades
Grades of Incomplete "I" are assigned only in exceptional circumstances when a student requests extra time to complete their coursework. Such agreements are made only at the request of the student, who is responsible to determine from the instructor the outstanding requirements of the course.

Late Assignments
Assignments are due at the beginning of the class on the due date listed. If you anticipate handing in an assignment late, please consult with your instructor beforehand.
Late assignments will be penalized 10% if submitted late on the due date, then 20% for each successive day until a solution is posted, and will not be accepted thereafter.

Missed Exams/Quizzes/Labs
A score of zero is normally given for missed work. Make-up exams, quizzes and/or tests may be permitted, at the discretion of the instructor, and generally only in cases of medical emergency or severe personal crisis. In some cases, it may not be possible to accommodate a missed exam or quiz. Please consult with your instructor, ideally *before* the missed activity.

Attendance
Students are expected to attend and fully participate in all classes, labs, and associated activities. Students are responsible for all information given during lectures, labs, and tutorials, including exam dates and assignment deadlines, even if they were unable to attend for any reason.

English Usage
Students are expected to proofread all written work for any grammatical, spelling and stylistic errors. Instructors may deduct marks for incorrect grammar and spelling in written assignments.

Electronic Devices
Students may use electronic devices during class solely for class-related activities, such as note-taking, coding, and "just in time" research to contribute to class discussions.

Online Communication
Outside of the classroom, instructors will (if necessary) communicate with students using either their official Capilano University email or Moodle; please check both regularly. Official communication between Capilano University and students is delivered to students' Capilano University email addresses only.

UNIVERSITY OPERATIONAL DETAILS

Tools for Success
Many services are available to support student success for Capilano University students. A central navigation point for all services can be found at: https://www.capilanou.ca/student-life/

Capilano University Security: download the CapU Mobile Safety App

Policy Statement (S2009-06)
Capilano University has policies on Academic Appeals (including appeal of final grade), Student Conduct, Academic Integrity, Academic Probation and other educational issues. These and other policies are available on the University website.

Academic Integrity (S2017-05)
Any instance of academic dishonesty or breach of the standards of academic integrity is serious and students will be held accountable for their actions, whether acting alone or in a group. See policy and procedures S2017-05 Academic Integrity for more information: https://www.capilanou.ca/about-capu/governance/policies/

Violations of academic integrity, including dishonesty in assignments, examinations, or other academic performances, are prohibited and will be handled in accordance with the Student Academic Integrity Procedures.

Academic dishonesty is any act that breaches one or more of the principles of academic integrity. Acts of academic dishonesty may include but are not limited to the following types:

Cheating: Using or providing unauthorized aids, assistance or materials while preparing or completing assessments, or when completing practical work (in clinical, practicum, or lab settings), including but not limited to the following:
- Copying or attempting to copy the work of another during an assessment;
- Communicating work to another student during an examination;

- Using unauthorized aids, notes, or electronic devices or means during an examination;
- Unauthorized possession of an assessment or answer key; and/or,
- Submitting of a substantially similar assessment by two or more students, except in the case where such submission is specifically authorized by the instructor.

Fraud: Creation or use of falsified documents.

Misuse or misrepresentation of sources: Presenting source material in such a way as to distort its original purpose or implication(s); misattributing words, ideas, etc. to someone other than the original source; misrepresenting or manipulating research findings or data; and/or suppressing aspects of findings or data in order to present conclusions in a light other than the research, taken as a whole, would support.

Plagiarism: Presenting or submitting, as one's own work, the research, words, ideas, artistic imagery, arguments, calculations, illustrations, or diagrams of another person or persons without explicit or accurate citation or credit.

Self-Plagiarism: Submitting one's own work for credit in more than one course without the permission of the instructors, or re-submitting work, in whole or in part, for which credit has already been granted without permission of the instructors.

Prohibited Conduct: The following are examples of other conduct specifically prohibited:
- Taking unauthorized possession of the work of another student (for example, intercepting and removing such work from a photocopier or printer, or collecting the graded work of another student from a stack of papers);
- Falsifying one's own and/or other students' attendance in a course;
- Impersonating or allowing the impersonation of an individual;
- Modifying a graded assessment then submitting it for re-grading; or,
- Assisting or attempting to assist another person to commit any breach of academic integrity.

Sexual Violence and Misconduct

All Members of the University Community have the right to work, teach and study in an environment that is free from all forms of sexual violence and misconduct. Policy B401 defines sexual assault as follows:

> Sexual assault is any form of sexual contact that occurs without ongoing and freely given consent, including the threat of sexual contact without consent. Sexual assault can be committed by a stranger, someone known to the survivor or an intimate partner.

Safety and security at the University are a priority and any form of sexual violence and misconduct will not be tolerated or condoned. The University expects all Students and Members of the University Community to abide by all laws and University policies, including B.401 Sexual Violence and Misconduct Policy and B.401.1 Sexual Violence and Misconduct Procedure.(found on Policy page https://www.capilanou.ca/about-capu/governance/policies/)

Emergencies: Students are expected to familiarise themselves with the emergency policies where appropriate and the emergency procedures posted on the wall of the classroom.

DEPARTMENT OR PROGRAM OPERATIONAL DETAILS

Computer Access

Students may bring and use their own computing devices, running any modern OS (i.e., Windows, OSX, or Linux).   Every effort is made to ensure that required course software can be freely downloaded and installed on student computer. However, it is the responsibility of each student to ensure their computer meets the minimum requirements of required course software, and to perform the installation and configuration of such software themselves.

Computer labs at the University will have course-required software installed and configured – students may use lab computers to complete all their course work.

Drop-in access to the University computers is available during the hours posted outside each lab, subject to availability. Please respect an instructor's directions if asked to leave the lab due to a class booking.

University policies on student conduct and use of University computer systems, available on the University website, will be strictly enforced.