Institute Office: Room 3014, CCT Building

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CCT111H5S LEC0101 Critical Coding Course Outline - Winter 2024

Class Location & Time Tue, 11:00 AM - 01:00 PM IB 235

Instructor Luke Russell

Office Location Zoom

Office Hours Thursdays 6pm (email for Zoom link 48h before)

Telephone Zoom

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Course Web Site https://q.utoronto.ca

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Course Description

This experiential learning course introduces students to the practice and theory of coding, programming, and basic development of user-oriented software. The lectures illustrate a core range of software development concepts that provide the foundations needed for the practical coding of front-end applications such as mobile interfaces or of back-end software such as introductory artificial intelligence or social media analysis. The practicals are lab-based and focus on applying these theoretical skills to solving problems grounded in a critical understanding of the interaction between people, culture, and society, by developing software or apps in languages such as Java, Objective C, Swift, Python. [24L, 12P]

Corequisite: CCT109H5 and CCT110H5 (SSc)

Distribution Requirement: SSc

It is your responsibility to ensure that the prerequisites for course have been met. Students without the prerequisites can be removed at any time. No waivers will be granted.

Goals and Learning Objectives

Welcome to the class!

I look forward to exploring the world of programming together, as we build up a CCT 111 class community!!

This course provides an elementary introduction to computer programming, suitable for students with little programming background. Students will learn fundamental concepts and terminology of computing, acquire elementary skills for programming in a high-level language and be exposed to diverse applications of programming. Students will also be introduced to the practice of programming in society and across disciplines, and the ethical impacts and outcomes of programming.

Upon successful completion of this course, and after participation and contribution to all course activities, students will be positioned to be able to do the following (based on time):

- 1. Apply computational thinking to analyze problems and develop appropriate solutions
- 2. Understand foundational programming principles, concepts, and methods;
- 3. Develop short computer programs in Python demonstrating fundamental concepts such as variables, data types, assignment, arrays, conditionals, loops, functions, and input/output operations;
- 4. Use an IDE for program development (file organization, coding, and debugging)
- 5. Test and assess the quality of short programs;
- 6. Write useful and effective in-code comments and other documentation;
- 7. Explain how programming is situated in and reflects broader societal structures, along with relevant ethical issues.

Required Materials

Required Text - zyBooks Python Learning Platform

- 1. Sign in or create an account at learn.zybooks.com
- 2. Enter zyBook code: UTORONTOCCT111RussellWinter2024
- 3. Subscribe (\$49USD)

Optional Text - Downey, A. B. (2015). Think Python: How to Think Like a Computer Scientist (2nd edition). Sebastopol, CA: O'Reilly Media. Free download at: http://greenteapress.com/wp/think-python-2e/.

Other course readings and materials will be supplied through Quercus.

Python - Python programming language (version 3+). Free installations for Python are available for various OSes, and instructions will be provided in the first lab, as well as on Quercus.

A Python IDE - *Google Colab is* a freely available cloud-hosted Python development environment. You are free to use the editor of your choice, but this one is recommended if you have no experience with another one. We may use other tools such as VS Code, Pycharm, *Wing IDE 101* (https://wingware.com/downloads/wingide-101) and Google Colab and may be reccomended as the term goes on.

Assessment and Grading Policies

Type	Description	Due Date	Weight
Lab	Lab exercises	On-going	10%
Assignment	Assignment 1 - Coding Exercise	2024-01-30	10%
Term Test	Test 1	2024-02-27	20%
Assignment	Assignment 2 - Coding Exercise	2024-02-13	12.5%
Assignment	Assignment 3 - Tentative Topic - Information visualization presentation and report	2024-03-26	15%
Term Test	Test 2	2024-04-02	25%
Other	Zybook Learning Activities	2024-04-02	5%
Class Participation	Class Contribution (Attendance, Contribution, Presentation Peer Reviews, etc)	On-going	2.5%
		Tota	ıl 100%

You should receive at least one significant mark (15%) before the last day you can drop a course without academic penalty.

Requirements and Criteria

Class Contribution - Ongoing

This includes factors like your attendance, contribution to class discussions (in-person and electrionic as applicable), Presentation Peer Reviews, etc

Weekly lab exercises - Ongoing

You must attend each lab. Each week, the lab practical will regularly be devoted to a related exercise, and you will be graded as part of a "lab signout process". These will typically be practical programming exercises that apply the concepts and skills discussed in class, which may be completed in pairs or small groups as discussed in the class. This is **the only** class activity that can be completed cooperatively and submitted with another student (unless other authorizations are provided in class).

The current plan are for between 9 and 10 labs, and they will be weighed equally. They will be held each Tuesday based on your registered section. **In-Person labs start in the second module.**

Zybook Learning Activities - Ongoing

The course textbook and reference material to help you learn the course material is available through ZyBooks.

"Zybook" is not really a "book", but is the set of asynchronous learning activities you will do each week, and is a part of the lesson itself.

We chose this electronic resource because

- 1) it costs less than print books and is more up-to-date, and
- 2) it includes learning activities that help you in the course, and in future skills.

For the 5% contribution mark, please complete all the participation and challenge activities in all the sections of the book not marked as "optional".

Assignments

There will be 3 individual assignments. As these are summative assessments, the "correctness" and formulation of your responses will be an important part of your grade. The coding problems will be related to the recently covered course topics, and allow you to demonstrate your competence with those aspects of programming.

Term Tests

The first test will assess your understanding of the programming techniques and societal applications as you are introduced to them through the in-person lectures, recorded content, labs, and zybooks. The second test will also serve as a summative evaluation of your coding and problem-solving skills. The first test covers materials from the first six modules, roughly; and the second test focuses on material covered in the second half of the course, but the second test will include some from the first half as well.

Each exam may consist of an applied 'live' coding portion using a format introduced in class, along with other formats. You must be present during the class time to write the tests.

Teaching Methods

The course is primarily an in-person class, but some online activities will be used as announced. Unless explicitly announced, you are expected to attend the class as scheduled. In-Person attendance is <u>required</u> for the lab components (as sign out will be based on questions asked during the lab) and midterm+test, which will be held during class, unless announced otherwise.

Procedures and Rules

E-Culture Policy

Only student U of T email accounts should be used for course communication and all emails from students must include the course code in the subject line and should be signed with the full student name and student number.

The instructional staff will make every effort to answer appropriately addressed emails within 3-5 working days. However, you should not expect responses outside business hours, and last-minute assignment or test-related questions may not be answered "in time".

It is your responsibility to read your U of T email on a regular basis. This will ensure that you receive important information from your instructors and the university.

It is your responsibility to read your email regularly and check course information updates and announcements through Quercus. Students who choose to opt out of receiving messages through Quercus are still responsible for actions required, or changes communicated through those announcements and messages.

Learning Technology

Course material, such as lectures and code samples, will be available on Quercus. Announcements on Quercus will be the regular way of distributing information to all students.

All assignments must be submitted on Quercus in the indicated format, typically .py or PDF files. No email submissions will be considered, except in special pre-arranged circumstances.

Students must ensure they have access to a computer where Python can be installed, coding assignments can be completed, classes can be attended. Please bring your computer to the lecture.

Late Penalties

You are expected to complete assignments on time. There will be a penalty for lateness of 10% deducted per day and work that is

not handed in one week after the due date will not be accepted.

Accommodation for Missed Tests and Late Assignments

Students in **CCT109H5**, **CCT110H5**, **CCT111H5**, **CCT112H5** and **CCT208H5** should always follow the Special Consideration Request (SCR) process outlined below. Students in other classes should follow the process below *only if they are seeking accommodation for tests or assignments worth 20% or more of the final grade*. Students in other classes seeking accommodation for tests or assignments worth less than 20% should contact their instructors directly.

Reasons for special consideration could include:

- Accident
- Illness
- Emergency procedure
- Bereavement
- University-sponsored athletics/competitions
- Compulsory legal duties e.g. (jury duty)
- Religious accommodations
- Disability accommodations

Reasons for special consideration do not include*:

- Pre-planned vacations or social commitments
- Transportation delays
- Technology malfunctions
- Time management, course loads
- Course conflicts, team work conflicts
- Misreading a deadline/timetable
- Late course enrolment
- Scheduled elective medical appointments

SCR Process:

You have three days or 72 Hours (including weekends) from the assignment deadline or date of the missed test/quiz to complete the SCR process in full.

The **first time** in the semester that you are seeking accommodation, please complete the following steps:

- 1. Login to ACORN, and click on Profile & Settings from the left-hand menu.
- 2. Click on Absence Declaration
- 3. Record each day that you are absent as soon as it begins up until the day you return to campus for classes or other activities.
- 4. Login to the <u>SCR</u> system and complete the required steps. Documentation is not required.

For all subsequent times that you require an accommodation, you should only login to the <u>SCR</u> system and complete the required steps. Documentation is not required, however, it may be requested after the SCR has been reviewed.

Important note about missed makeup tests: As stated in the <u>Academic Calendar</u>, "If the student is granted permission to take a makeup test and misses it, then they are assigned a mark of zero for the test unless the instructor is satisfied that missing the makeup test was unavoidable. Students are not automatically entitled to a second makeup test."

If you are registered with AccessAbility at UTM and/or Accessible Learning Services at Sheridan, and the reason for missing a test or a deadline pertains to a disability, you are still required to submit an SCR at the link above. In such cases, the department will accept documentation supplied by the UTM AccessAbility Resource Centre. If you require further information, please speak with your accessibility services advisor. Please see the section on "AccessAbility" for more information.

Further details regarding SCR policy are available here: https://www.utm.utoronto.ca/iccit/student-resources/policies-procedures/special-consideration-requests-scr-late-assignments

Re-marking Pieces of Term Work

General

A student who believes that his or her written term work has been unfairly marked may ask the person who marked the work for re-

^{*} For these situations, refer to your course syllabus and speak directly with your instructor.

evaluation. Students have up to one month from the date of return of an item of term work or from the date the mark was made available to inquire about the mark and file for an appeal. For example, should the work be returned or the mark be made available on March 3rd, the student has until April 3rd to inquire in writing and start the re-marking process. Instructors must acknowledge receipt of a student request for re-marking within **3-working days**, and decisions should be provided in a timely fashion.

If an academic misconduct case is in progress for the piece of term work in question, a student may not appeal until the matter is resolved.

Details

Regrade requests for term work worth less than 20% of the final mark may be submitted to the person who marked the work for re-evaluation. The student must submit (1) the original piece of work and (2) a written explanation detailing why they believe the work was unfairly/incorrectly marked. If the student is not satisfied with this re-evaluation, he or she may appeal to the instructor in charge of the course if the work was not marked by the instructor (e.g., was marked by a TA). In these instances where the instructor was not the one who marked the work, the student must now submit to the instructor (1) the original piece of work, (2) the written reasons as to why he or she believes the work was unfairly/incorrectly marked, and (3) communications from the original marker as to why no change in mark was made. If a re-marking is granted by an instructor, the student must accept the resulting mark as the new mark, whether it goes up or down or remains the same. Continuing with the remark or the appeal means the student accepts this condition. Instructors and TAs should ensure all communication with the student is in writing (e.g. follow-up email) and keep a copy for later reference.

Only term work worth at least 20% of the course mark may be appealed beyond the instructor. Such appeals must first follow the same guidelines as those mentioned directly above for work worth less than 20%. To escalate an appeal beyond the instructor, the student must submit to the department (1) all previous communications between the student, original marker, and the instructor (2) the detailed reason(s) documenting why the mark for the work was inappropriate and (3) the original piece of work. If the department believes that re-marking is justified, the department shall select an independent reader. The student must agree in writing to be bound by the results of the re-reading process or abandon the appeal. Again, the student must accept that the mark resulting from the appeal may be higher or lower or the same as the original mark. Where possible, the independent reader should be given a clean, anonymous copy of the work. Without knowing the original assigned mark, the reader shall determine a mark for the work. The marking of the work should be considered within the context of the course of instruction for which it was submitted. If the new mark differs substantially from the original mark, the department shall determine a final mark taking into account both available marks.

The final level of appeal is to the <u>Dean's Office</u>. Appeals must already have been considered at the two previous levels (Instructor followed by Department), with the decision reviewed by the head of the academic unit, before they will be considered by the Dean's Office. Appeals must be submitted in writing, and include all previous correspondence, as soon as possible after the student receives the final response from the academic unit, but no later than one month after. Appeals to the Dean's Office about the marking of term work will be reviewed to ensure that appropriate procedures have been followed in earlier appeals, that the student has been treated fairly, and that the standards applied have been consistent with those applied to other students doing the assignment. Any mark resulting from such an appeal will become the new mark, whether it is higher or lower or the same as the previous one. This process applies only to term work; appeals for re-reads of final examinations are handled directly by the Office of the Registrar.

Issues Pertaining to Term Work and Instructional Activities

Issues arising within a course that concern the pedagogical relationship of the instructor and the student, such as essays, term work, term tests, grading practices, or conduct of instructors, fall within the authority of the department. Students are entitled to seek resolution of these issues, either orally or in writing to the course instructor and, if needed, the ICCIT Director for resolution.

Following a response from the ICCIT Director, students may submit an appeal, in writing, to the <u>Vice-Principal</u>, <u>Academic and Dean</u>.

Privacy and Use of Course Materials Notifications

This course, including your participation, may be recorded on video. For questions about recording and use of videos in which you appear please contact your instructor.

Academic Integrity

Academic integrity is essential to the pursuit of learning and scholarship in a university, and to ensuring that a degree from the University of Toronto is a strong signal of each student's individual academic achievement. As a result, the University treats cases of cheating and plagiarism very seriously. The University of Toronto's Code of Behaviour on Academic Matters (www.governingcouncil.utoronto.ca/policies/behaveac.htm) outlines the behaviours that constitute academic dishonesty and the processes for addressing academic offences. Potential offences include, but are not limited to:

In papers and assignments:

- Using someone else's ideas or words without appropriate acknowledgement.
- Submitting your own work in more than one course without the permission of the instructor.
- Making up sources or facts.
- Obtaining or providing unauthorized assistance on any assignment.

On tests and exams:

- Using or possessing unauthorized aids.
- Looking at someone else's answers during an exam or test.
- Misrepresenting your identity.

In academic work:

- Falsifying institutional documents or grades.
- Falsifying or altering any documentation required by the University, including (but not limited to) doctor's notes.

All suspected cases of academic dishonesty will be investigated following procedures outlined in the Code of Behaviour on Academic Matters. You are instructed to read the following for more information: http://www.utm.utoronto.ca/academic-integrity/academicintegrity.utoronto.ca/).

Normally, students may be required to submit their course essays to Turnitin.com for a review of textual similarity and detection of possible plagiarism. In doing so, students will allow their essays to be included as source documents in the Turnitin.com reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University's use of the Turnitin.com service are described on the Turnitin.com web site.

Expectations for Conduct in the Academic Setting

Students agree that by taking this course, they agree to adhere to the <u>ICCIT Expectations for Conduct in the Academic Setting</u> set out at https://www.utm.utoronto.ca/iccit/student-resources/policies-procedures/iccit-code-conduct.

Copyright in Instructional Settings

If a student wishes to tape-record, photograph, video-record or otherwise reproduce lecture presentations, course notes or other similar materials provided by instructors, he or she must obtain the instructor's written consent beforehand. Otherwise all such reproduction is an infringement of copyright and is absolutely prohibited. In the case of private use by students with disabilities, the instructor's consent will not be unreasonably withheld.

For more information on copyright and the University of Toronto, please visit https://onesearch.library.utoronto.ca/copyright/copyright-resources.

Code submitted for assignments in this class must be the original product of the student(s) submitting it. Ethical code reuse practices will be taught and must be followed.

Generative AI Tools in the Class

This course focuses on the development of programming skills and strategies, and there may be areas where use of Generative AI (such as ChatGPT and similar tools) may enhance the educational experience. Students may be able to utilize Generative AI tools for some of these tasks, as announced by the instructor. However, it is important to note that using Generative AI to write entire assignments, code files, exams, or other major assignments for this course without explicit permission will not be permitted and will diminish the critical thinking skills that are a learning outcome. Students are expected to understand and abide by the principles of academic integrity when using these tools.

Equity Statement

The University of Toronto is committed to equity and respect for diversity. All members of the learning environment in this course should strive to create an atmosphere of mutual respect. As a course instructor, I will neither condone nor tolerate behaviour that undermines the dignity or self-esteem of any individual in this course and wish to be alerted to any attempt to create an intimidating or hostile environment. It is our collective responsibility to create a space that is inclusive and welcomes discussion. Discrimination, harassment and hate speech will not be tolerated. If you have any questions, comments, or concerns you may contact the UTM Equity and Diversity officer at edo.utm@utoronto.ca or the University of Toronto Mississauga Students' Union Vice President Equity at vpequity@utmsu.ca. http://www.utm.utoronto.ca/equity-diversity/

Other Resources

AccessAbility

The University provides academic accommodations for students with disabilities in accordance with the terms of the Ontario

Human Rights Code, including those who have a physical, sensory, or learning disability, mental health condition, acquired brain injury, or chronic health condition, be it visible or hidden.

If you have a disability or health consideration that may require accommodations, please approach the AccessAbility Resource Centre as soon as possible. The AccessAbility staff are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations. The sooner you let us know your needs, the quicker we can assist you in achieving your learning goals in this course.

To register with AccessAbility*, please call the centre at 905-569-4699 or e-mail access.utm@utoronto.ca. http://www.utm.utoronto.ca/access/

*Students attending Sheridan-based courses with accommodation needs must register with the AccessAbility Resources Centre at UTM and the Accessible Learning Services at Sheridan College. For assistance at Sheridan, please contact Accessible Learning Services at 905-845-9430, ext. 2530 or trafalgar.als@sheridancollege.ca. For more information, please visit: https://www.sheridancollege.ca/en/student-life/student-services/accessible-learning-services.

Robert Gillespie Academic Skills Centre

The centre offers wide-ranging support to help students identify and develop the academic skills they need for success in their studies, including: understanding learning styles; essay and report writing; time management; lecture-listening; note-taking; and studying for tests and exams.

http://www.utm.utoronto.ca/asc

UTM Library (Hazel McCallion Academic Learning Centre)

The UTM library provides access to a vast collection of online and print resources to faculty, staff, and students. Various services are available to students, including borrowing, interlibrary loans, online references, research help, laptop loans and the RBC Learning Commons.

http://library.utm.utoronto.ca

Course Schedule

Date	Торіс
2024-01-09	Module 1
	Tentative Topic: What is computational thinking? What is Python?
	Reading:
	1. Introduction to Python
	2. Variables and Expressions
2024-01-16	Module 2
	Tentative Topic: Basic program components and structure: Types, Branching
	Reading:
	3. Types
	4. Branching
2024-01-23	Module 3
	Tentative Topic: Loops and Functions.
	Reading:
	5. Loops
	6. Functions
2024-01-30	Module 4
	Tentative Topic: Lists and Files
	Reading:
	7. Lists
	8. Files
2024-02-06	Module 5
	Tentative Topic: Exceptions
	Reading:
	9. Exceptions
2024-02-13	Module 6
	Tentative Topic: Sets and Dictionaries
	Reading:
	10. Sets
	11. Dictionaries
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2024-02-27	Module 7
	Test 1.
2024-03-05	Module 8
	Tentative Topic: Modules
	Reading:
	12. Modules
2024-03-12	Module 9
	Tentative Topic: Data Visualization
	Reading:
	13. Searching and Sorting Algorithms
	14. Plotting
2024-03-19	Module 10
	Tentative Topic: Future of Programming
2024-03-26	Module 11
	Tentative Topic: Presentations on Visualizing and Analysing Data
2024-04-02	Module 12
	Tentative Topic: Test 2

Last Date to drop course from Academic Record and GPA is March 11, 2024.

Every attempt will be made to follow this syllabus, but its content are subject to change, according to the rules as outlined in the UTM Instructor's Handbook, section 3.2.2.