THE UNIVERSITY OF VERMONT
COMPUTER SCIENCE

CS021 / Introduction to Programming I / 2023 Spring

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Sections A, C and D
Instructor: Clayton Cafiero
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Office: Innovation E309
Office hours: T 8:30 AM–9:45 AM, 3:00 PM–4:00 PM; F 11:00 AM–12:30 PM, or by appointment

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Office: Innovation E446
Office hours: M 12:00–1:00 PM, or by appointment

Class meetings:
Section A: T/Th 10:05–11:20 AM, Marsh 105
Section C: T/Th 1:15–2:30 PM, Kalkin 003
Section D: M/W 3:30–4:45 PM, Williams 301

Section F
Instructor: Sami Connolly
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Office: Innovation E456
Office hours: M 5:15–6:15 PM, or by appointment

GTA: Csenge Petak
Email: cpetak@uvm.edu
Location: Innovation 3rd fl. commons (S)
Office hours: M 1:00–2:00 PM; F 2:30–3:30 PM

Class meetings:
Section F: T/Th 4:25–5:40 PM, Kalkin 003

UTA help desk: S-W 5:00–7:00 PM
Location(s): See Blackboard

Welcome to the course!

Description:

(From the SOC) "Programming I teaches problem solving, and the problem solving process, in the context of computer programming in Python. Topics will include variables, selection statements, repetition statements, functions, flow of control, simple input/output and basic data structures. Throughout the course, good programming style will be emphasized. The course assumes no prior programming experience."

Learning objectives: Throughout this course, you will

- learn the fundamentals of computer programming,

- begin writing idiomatic Python,

- develop critical thinking and problem-solving skills,

- think creatively to solve problems,

- express solutions clearly and accurately,

- learn to implement non-trivial programs in a high-level programming language, and

- develop programming maturity (confidence, willingness to experiment).

Flipped classroom: This course is taught as a "flipped" class—that is, it incorporates some lecture and extensive "active learning" exercises. The objective is to provide you with more hands-on experience and practical guidance as you learn how to solve problems through computer programming. This means that you are expected to complete direct instruction—typically in the form of readings and videos—*prior* to coming to class. In our first meeting each week, there will be "mini-lectures", question and answer sessions, and review. Then we will engage in hands-on, active learning exercises, with instructor and TA support.

Each week's instructional material will include readings and videos posted on Blackboard.

Computer: For this course, you should have a reliable computer on which you can write, run, and debug code. Windows ≥ 10 and MacOS ≥ 12.0 are supported. If you have a Linux machine, that's fine, but you're on your own for support.

Software: You will be writing programs in Python, and accordingly you should have a reasonably current version of Python installed on your computer (*e.g.*, version $\geq 3.9.0$). Python source code is in plain-text format, and you may write and edit Python code with any plain-text editor (*e.g.*, Sublime or similar). However, it's helpful to use an integrated development environment (IDE). An IDE provides additional functionality not available with a plain-text editor (syntax highlighting, debugging, *etc.*). Recommended:

- **Thonny**, Python IDE for beginners: https://thonny.org/

- **IDLE**, Python's integrated development and learning environment: https://python.org/

These are both lightweight and easy to use. Installation instructions are available on Blackboard.

You may wish to try JetBrains' PyCharm (Fleet isn't quite ready for prime time) or Microsoft Visual Studio Code. These are more feature-rich IDEs, but can be overwhelming to new users. You're welcome to try either, but as far as support goes, you're on your own. PyCharm has a free "community" edition for educational purposes. See: https://www.jetbrains.com/pycharm/download/ or https://code.visualstudio.com/.

Weekly Schedule of Topics
(tentative and subject to change):

Week	Topic
1	Computers and programming; types, variable, and expressions
2	Functions
3	Console I/O; f-strings; imports and the `math` module
4	Branching, flow control, and Boolean logic; program structure
5	Sequences: lists, tuples, and strings; mutability and immutability
6	Loops and iteration; stacks and queues
7	The `random` module; games and simulations
8	First exam
	Spring recess
9	File I/O; the `csv` module
10	`pip` and virtual environments; introduction to Matplotlib
11	Exception handling
12	Dictionaries; introduction to graphs
13	Second exam
14	Work on final project
13	Work on final project

Grading:

Weight	Assessment
5.0%	in-class exercises (11, drop 1)
20.0%	lab / pair programming (11, drop 1)
25.0%	programming homework (10)
5.0%	brief metacognition essays (2)
10.0%	quizzes (10)
25.0%	exams (2)
10.0%	final project
100.0%	TOTAL

Quizzes: In most weeks there will be a brief quiz administered in class using iClicker. The best approach is to get the iClicker student mobile app on your smartphone. Sign-on will be through UVM's institutional login using your UVM NetID and password. More details will be presented in class.

We reserve the right to administer up to two "pop" quizzes per section. If we have any pop quizzes, they will be administered in class, on paper or using iClicker.

Metacognition essays: Over the course of the semester you will write two *very brief* metacognition essays. The first essay is due Sunday 12 February at 11:00 PM. The second essay is due Sunday 16 April at 11:00 PM. See additional instructions, guidelines, and prompts posted on Blackboard.

Class participation: You are expected to be an active participant in class. The more engaged you are, the more you will learn—and the more fun you'll have. This includes being prepared and attentive, responding when called on, participating in group discussion, and asking questions as appropriate. When it comes to asking questions, *please don't be shy!* There's no such thing as a "dumb" or "silly" question. If there's something you don't understand—*ask*! Asking questions helps you understand the material presented in the course. Asking questions is good for your classmates. It's almost certain that if you need clarification on some point, that there's at least one other student in the class with the same question. So help each other out—*ask*! Finally, when you ask a question you help us do a better job of explaining. If we explain something, and you still don't quite grasp it, chances are that we didn't do as good a job of explaining as we might have.

You're expected to read materials, watch videos, *etc.* as *advance* preparation for class. In class, we will have extensive, hands-on programming exercises. Much of this will be done using the "pair programming" approach—two people work as a team. There are two roles: one person serves as the "driver" (at the keyboard) and the other serves as the "navigator." Every 15–20 minutes you'll switch roles. So be prepared to work in teams.

If you are not able to attend in-person classes please notify your instructor via email as soon as possible. While we are happy to grant reasonable accommodations due to documented illness or emergencies, you are responsible for making up any work you have missed.

Office hours: Posted office hours (above) are times when we have committed to be available, with the primary purpose of providing assistance to students. If you can't make it to regularly posted office hours, send a message or check in before or after class, and we can schedule another time that's convenient.

Also, for quick questions, you can try to connect via email. However, for assistance via email you must ask a specific question! "What's wrong with my code?" isn't specific enough. (We will not do your debugging for you.)

The secret word is "warble."

Late policy / extensions: Each programming assignment has a specific due date / time. You may submit work up to 24 hours after the due date / time, however, late submissions will be penalized 20%. Submissions that are more than 24 hours late will not be accepted unless an extension has been granted. We will consider reasonable requests for extensions when extenuating circumstances arise. (It can't hurt to ask.) However, extensions will not be granted if the request for extension is made within 24 hours of the time an assignment is due, except in the most extraordinary circumstances. So if you wish to request an extension, *do so early*! If an extension is granted, you must submit your work by the agreed-upon extension date.

This policy does not apply to certain lab exercises which must be completed in class.

Student course evaluations: Students are warmly encouraged to complete an evaluation of the course at its conclusion. Evaluations are anonymous and confidential, and the information gained, including constructive criticisms, will be used to improve the course.

Defects / bonus points: As you might expect, we will deduct points on assignments, quizzes, or exams where you've made an error. It's only fair that instructors should be held to a similar standard. Accordingly, bonus points are awarded for reporting and correcting defects in instructor-written course materials.

- 1.0 point: Material defect. This includes any error whatsoever in code or solutions, or any error in writing that changes materially the sense of what is written. This also includes incorrect due dates for posted assessments.

- Up to 0.5 point: Minor defect. This includes typos, misspellings, or minor errors which do not affect materially the readability or sense of what is written. Determination of points for minor defects is at the instructor's sole discretion.

Due to the unfortunate behavior of some students who have favored the practice of "bonus point mining" over proper study, no student may earn more than three bonus points in this course.

Due to the fact that we are still writing and revising autograders, autograder defects are not fair game for defect bonus points (but by all means, please report, and perhaps we will award a discretionary point here and there).

Bonus points for any given defect are only awarded to the first student (across all sections) who correctly identifies the error *and provides a valid correction*. Bonus points are not available for any materials which are clearly marked as drafts. Bonus points are added to your final grade before assigning letter grades—a point or two may make a big difference. Happy hunting.

Academic integrity: While most instructional materials for this course—readings and videos—are available under either the GNU Free Documentation License or the Creative Commons Attribution-ShareAlike 3.0 United States License, the same does not apply to exams, quizzes, homework assignments, specifications and rubrics. Exams, quizzes, homework assignments, keys, specifications and rubrics are copyright protected works, unless clearly and explicitly indicated otherwise. Any unauthorized copying or distribution of protected works is a violation of federal law and may result in disciplinary action. Sharing of course materials without the specific, express approval of the instructor may be a violation of the University's Code of Academic Integrity and an act of academic dishonesty, which could result in disciplinary action. This includes, among other things, distributing course materials for the purpose of sharing or seeking solutions to homework or programming assignments.

Use of online services as a source of solutions is strictly prohibited. Work you submit for evaluation must be your own. No Chegg. No CourseHero. No ChatGPT or other AI-generated content. Any work not produced by you, where permitted with prior instructor approval, must be cited. Homework submissions may be screened and evaluated using plagiarism detection software (*e.g.*, MOSS).

By enrolling in this course, you acknowledge that you have read and understand the Code of Academic Integrity, and that you agree to abide by this code. Any suspected violations will be dealt with promptly. In a word: *Don't*.

See: https://www.uvm.edu/policies/student/studentcode.pdf for more information.

Conduct: Be kind to one another and to yourself. Be respectful of yourself, others, and the institution. Please arrive on time. Please, no food in class. Please, no cell phones in class, except for using the iClicker app during polls and quizzes. You may use a laptop or tablet, but only for active learning sessions, pair programming, taking notes, or assistive technologies.

For additional information, see: https://www.uvm.edu/policies/student/studentcode.pdf.

Accommodations: In keeping with University policy, if you have a documented disability and are interested in utilizing ADA accommodations, you should contact Student Accessibility Services (SAS), the office of Disability Services on campus for students. SAS works with students and faculty in an interactive process to explore reasonable and appropriate accommodations, which are communicated to faculty in an accommodation letter.

Contact SAS: A170 Living/Learning Center; +1 802 656 7753; access@uvm.edu; or visit https://www.uvm.edu/access.

If you are entitled to use the Exam Proctoring Center, please book reservations at least four days in advance.

CEMS Inclusion Statement: We wholeheartedly support the CEMS policy on diversity, equity, and inclusion:

> "Our intention is for CEMS to be a place where you will be treated with respect and kindness. We welcome individuals of all ages, backgrounds, beliefs, interests, ethnicities, genders, gender identities, gender expressions, national origins, religious affiliations, sexual orientations, ability—and other visible and nonvisible differences. All members of the College are expected to contribute to a respectful, welcoming and inclusive environment for every other member of the community. If you ever feel that you have been unfairly treated or judged by an instructor, a mentor, another student, or another member of the CEMS community, please let someone know. Your instructors and advisors in the CEMS Office of Student Services are available to discuss any concerns, or you can report an incident of bias through the Campus Bias Response Program."

Statement on alcohol and other drugs: We want you to get the most you can out of this course. Therefore, you are expected to familiarize yourself and abide by the University's policies with regard to alcohol, cannabis, tobacco, and other drug use.[1] Please do everything you can to optimize your learning and to participate fully in this course.

Religious holidays: Students have the right to practice the religion of their choice. In order to receive extensions or excused absences, you should submit via email your documented religious holiday schedule for the semester within the first two weeks of class. Reasonable extensions will be granted where assignment deadlines conflict with religious holidays.

Student athletes: In order to receive extensions or excused absences, you should submit via email appropriate documentation as soon as possible, preferably within the first two weeks of class. Reasonable extensions will be granted where assignment deadlines conflict with team events or team travel.

Electronic communication: *We do not monitor MS Teams.* Electronic contact via email only, unless by prior arrangement.

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[1]See: https://www.uvm.edu/sites/default/files/UVM-Policies/policies/drugandalco.pdf