



THE UNIVERSITY OF VERMONT
COMPUTER SCIENCE

CS021 / Introduction to Programming I / 2022 Fall

Compiled: 2022-08-28 07:04

Instructor: Clayton Cafiero <clayton.cafiero@uvm.edu>

Office: Innovation E309

Office hours: W 09:00–10:00 AM; Th 12:00–01:00 PM; F 09:00–11:00 AM

GTA: Mohsen Ghasemizade <mghasemi@uvm.edu>; T 12:00–01:00 PM

UTA office hours: Su–W 05:00–07:00 PM (location TBD)

Class meetings:

Section A: M/W 3:30–4:45 PM, Perkins 102

Section B: T/Th 1:15–2:30 PM, Jeffords 127

Section F: T/Th 2:50–4:05 PM, Rowell 110

Welcome to the course!

Description:

(From the SOC) “Programming I teaches problem solving, and the problem solving process, in the context of high level computer programming. This section of CS 021 uses Python as a vehicle to introduce the elements of computer programming. 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. However, students should be proficient working with files within their computing environment and [with] basic high school mathematics concepts (arithmetic, order of operations, etc.)”

Learning objectives: Throughout this course, you will

- learn the fundamentals of computer programming,
- 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).

Differences between sections: Sections A and F are designated as “for CS majors”, and section B is not. All sections have been merged in Blackboard. There will be additional material posted on Blackboard for CS majors. This material will be clearly marked as such, and only those in sections A and F will be responsible for it.

Hybrid classroom: This course is taught as a hybrid 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, cross-referenced with the (optional) textbook.

Textbook: Textbook is optional. Tony Gaddis, *Starting Out With Python, 5th edition*. Pearson, 2021, ISBN-13 978-0-1369123-30 (ebook), 978-0-1359290-32 (hard copy). *Note:* You do not need an access key, and we will *not* use the online portion provided by Pearson (MyLab), so a used book or ebook or rental is just fine. In fact, the fourth edition is OK too and would likely be less expensive as a used book. The only issue with using the fourth edition is that page numbers may vary somewhat. If you want to use this and don’t mind cross-referencing and substituting page numbers for the fourth edition, that’s fine.

Computer: For this course, you should have a reliable computer on which you can write, run, and debug code. Windows ≥ 11 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 $\geq 3.7.0$). 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.*). I recommend:

- **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 (which is what I’ve used professionally for many years) 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	Introduction to computers and programming
2	Input, processing, and output
3	Functions I
4	Branching, flow control, and Boolean logic
5	Lists and tuples
6	Loops and iteration
7	Debugging, review, and exam I
8	Functions II
9	Reading from and writing to files
10	Handling exceptions
11	Dictionaries and sets
12	Review and exam II
<i>Thanksgiving recess</i>	
13	Work on final project
14	Work on final project

Grading:

Weight	Assessment
5.5%	in-class exercises (12, drop 1)
11.0%	lab / pair programming (12, drop 1)
33.0%	programming homework (11)
4.5%	brief metacognition essays (3)
10.0%	quizzes (11, drop one)
10%	exam I
12%	exam II
14%	final project
100%	TOTAL

Quizzes: There will be eleven brief quizzes administered in class using iClicker Cloud. The best approach is to get the iClicker Cloud 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.

I reserve the right to administer up to two “pop” quizzes. If we have any pop quizzes, they will be administered in class, on paper or using iClicker Cloud.

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” question (I earnestly believe this). 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 me do a better job of explaining. If I explain something, and you still don't quite grasp it, chances are that I didn't do as good a job of explaining as I 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 me via email as soon as possible. While I am happy to grant reasonable accommodations due to illness or emergencies, you are responsible for making up any work you have missed.

Metacognition essays: Over the course of the semester you will write three *very brief* metacognition essays. The first essay is due Sunday 18 September at 11:00 PM. The other two essays have flexible submission—you may submit these at any time after the first due date and Sunday 5 December at 11:00 PM. See additional instructions, guidelines, and prompts posted on Blackboard.

Office hours: Posted office hours (above) are times when I have committed to be in my office, with the primary purpose of providing assistance to students, either in person or via MS Teams. If you can't make it to regularly posted office hours, send a message or see me before or after class, and we can schedule another time that's convenient for both of us. Also, for quick questions, you can try to connect via email.

Masks are welcome during office hours, but not required. If I'm not wearing a mask and you'd like me to, just say so.

If you have COVID-like symptoms or have been exposed or have tested positive, we can meet remotely via MS Teams. The secret word is “tortoise,” but keep reading—I may change my mind.

Late policy / extensions: Each assignment will have a specific due date and time, and *late work will not be accepted unless an extension has been granted*. I 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 or after the due date, except in the most extraordinary, documented 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.

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, I will deduct points on assignments, quizzes, or exams where you've made an error. I think it only fair that I should be held to a similar standard. Therefore, bonus points will be awarded to the student who correctly identifies any error for which I am responsible in materials I distribute to this class. This includes sample code, presentation slides, lecture notes, quizzes, *etc.* For any given error, a bonus point will be awarded only to the *first* student reporting the error. Bonus points are added to your final grade before assigning letter grades—a point or two may make a big difference. Happy hunting.

Other opportunities for bonus points may be announced in class.

Academic integrity: Materials used in this course, including, but not limited to assignments, specifications, rubrics, exams, quizzes, and instructional materials, are copyright protected works. Any unauthorized copying or distribution of course materials 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 for help or solutions is strictly prohibited. Any outside sources, where permitted with prior instructor approval, must be cited.

Submissions may be screened and evaluated using plagiarism detection software (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.

Masks: Masks are welcome in class, but not required. If you have COVID-like symptoms or have been exposed or have tested positive, please follow University of Vermont protocols. See: <https://go.uvm.edu/y4w7b> for current COVID policy. That said, it is a common courtesy in many parts of the world to wear a mask if you have a communicable disease—COVID, flu, or a common cold. So please don't hesitate to wear a mask if you think it may protect you or your classmates.

Statement on alcohol and other drugs: I 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.

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>.

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

CEMS Inclusion Statement: I 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.”

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.

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 Cloud app during polls and quizzes. You may use a laptop or tablet, but only for active learning sessions, taking notes, or assistive technologies.

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