

CSCI 151: Intro Programming for Data Science

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In Person Course Meeting:

Monday/Friday 12:00PM – 12:50PM in Roddy 140)

Wednesday 11:00AM – 12:50PM in Roddy 140/Caputo 131)

Office Hours:

You can find me at the below times in my office, Roddy 142

Monday/Friday: 2:00PM – 2:55PM

Tuesday: 12:00PM – 01:00PM

Wednesday: 1:00PM – 3:00PM

Course Description

Introduction to computer programming for the student not intending to major in computer science or related fields. Emphasis on learning to develop programs in an appropriate programming language (currently Python) to manipulate and analyze data from domains such as science, business, engineering, and the humanities.

Course Outcomes

1. Use a computer system to edit and execute a program
2. Design an algorithm to solve a data-oriented computational problem.
3. Implement an algorithm as an executable program.
4. Use basic programming techniques including functional decomposition, control structures and collection processing.
5. Use accepted style when writing a program.
6. Test a program to ensure its correctness and robustness.
7. Analyze and process a data set to discover important statistical information.

Textbook

Paul Deitel & Harvey Deitel *Intro to Python for Computer Science and Data Science*
ISBN: 0-13-540467-3 OR 978-0-13-540467-6

The textbook is highly recommended for this course

Note about the textbook: I will be occasionally assigning homework problems out of the textbook, but otherwise we will not be using it for graded materials. That said, I recommend you follow along the lectures by reading the textbook.

Course Policies

Responses

I will respond to emails within 24 weekday hours unless an exception is noted through email, D2L, or in class. Please note that this means if you email me the night before an exam or assignment submission, I am not guaranteed to respond. Start labs when they are assigned, not right before they are due. If for some reason I have not responded within 24 hours, please resend the email or send a reminder. I'm not perfect and occasionally an email will slip through. This is not personal or intentional.

D2L (Desire2Learn)

D2L is Millersville's learning management system (LMS). It has many features we'll be using throughout this course.

- Grades: This is where you will check your grades and any homework feedback.
- Homework: This is where homework problems will be posted and submitted.
- Announcements: This is where all course-related announcements will be posted, including exam dates and instructions, new assignments, due dates, schedule/due date modifications, class cancellations, etc. Please check back frequently and/or turn on email notifications for when announcements are posted. This is extremely important!

Anaconda

Anaconda and Spyder are the Python command line and integrated development environment we will be using in CSCI 151 (and 152). It is installed on the computers in Caputo 131, our Mac lab. You can download Anaconda for free from [here](#) and install it on your own computer regardless of operating system. Please be sure you're using the latest version as of the start of the semester.

Computer Labs

Outside of class, you may work on homework or labs in Caputo 130 and/or 131, our Linux and Mac labs. If you need any assistance getting set up, please see Mrs. Tonya Pyles in Roddy 132.

Discord

We have a CSCI Discord! Even if you are not a major, I highly recommend joining our community. Opportunities available through Discord:

- Easy access to CSCI professors. We post and engage with the community frequently.
- Voice chat for general social discussion with students/professors.
- Official department events. These range from watch parties to game nights to AMAs with former students or members of the industry.
- Join or attend meetings for official CSCI organizations, including the coding club and cyber defense organization.
- Get help! There are channels for each course in the major (including this one!), general technology assistance, official department resources, programming languages, and tutoring.
- Social channels for general chat, memes, gaming, music, anime, coding, and more! We take requests if you'd like to start a new channel!

Office Hours

I hold office hours for your benefit. Please do not hesitate to show up to office hours! If you find that my office hours do not fit your schedule, let me know so we can arrange for a time that does work. Don't wait until you are completely stuck! I love seeing people in office hours. In my experience, one of the biggest mistakes students make in this class is not engaging with office hours early/frequently enough.

Assistance

We are all here to learn from each other, and part of that process involves overcoming challenge and frustration. Mistakes will be made. This is normal, and I am here to help you navigate the difficulties you will face in my class. Asking for help is a sign of strength and maturity, and I will respect your learning needs. Regardless of your struggles and regardless of who you are or where you come from, you belong in my class. You are always free to email me or come to my office hours. I will listen to any concerns you have. Your voice and experience matters to me. Please help me create a safe and inclusive learning environment by respecting yourself and your peers.

Tutoring

Tutoring is available from the department for this course most/all weekday evenings. More information can be found on the department website. Tutoring will be available in the labs and possibly over Discord.

My Expectations of Students

- Come to class prepared and on time.
- Engage in active discussion during lecture. I will never cold call you, but please participate to the best of your ability. My class and pace rely on frequent student participation. This will be challenging with such a small class, so I will expect you to contribute your thoughts multiple times per class period.
- Advocate for yourself. If you are struggling or unhappy with any aspect of this course, I want to know about it so we can make a plan to maximize your success. I am open to constructive criticism. I cannot guarantee I will change anything, but the only way to know change is desired is if you communicate with me.

- Ask questions. Do not hesitate to clarify a concept.
- Do your best work and be confident in your abilities.
- Check D2L and your email frequently for announcements and additional information.
- Adhere to Millersville University’s Academic Honesty Guidelines.

Lecture

Attendance of course lecture is mandatory. I often discuss the upcoming schedule and due dates promptly at the beginning of class. I encourage everyone to make an active attempt toward participating. Computer science is not a topic you’ll learn by listening alone. Please refrain from using your computer or phone for any other reason than attending the course. It is easy to get distracted with technology and fall behind.

Laboratory

Attendance of the laboratory component is also mandatory. Labs will be given at the start of the laboratory period and will most likely take more time to complete than that one class meeting. Labs should be worked on and completed individually unless otherwise specified.

Grading Policy

- **30%** of your grade will be determined by laboratory assignments.
- **30%** of your grade will be determined by two midterm examinations (15% each).
- **25%** of your grade will be determined by a cumulative final examination.
- **10%** of your grade will be determined by homework assignments.
- **5%** of your grade will be determined *at the professor’s discretion* based on attendance, active participation during lecture, and/or presence during office hours. More information below.

I grade on a hundred-point grading scale. An 89.50 is a B+/A-. Active effort and participation will be rewarded.

≥ 93	≥ 90	≥ 87	≥ 83	≥ 80	≥ 77	≥ 73	≥ 70	≥ 67	≥ 63	≥ 60	< 60
A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F

YOU MUST ATTEMPT ALL EXAMINATIONS AND LABS TO PASS THE COURSE.

Attendance

Attendance during lecture is expected. If you cannot attend class due to illness, emergency, or conflict with an official university event, please send me an email 24 hours before the absence if possible. We can arrange to discuss what you missed.

Homework

There will be approximately 10 homework assignments (weekly, not during exam weeks) for which you will answer questions and/or write small code snippets. These will be similar in nature and difficulty to what you might see on an exam. Homeworks will be completed outside of class. Assignments can be found and submitted on/through D2L. The purpose of these assignments is to give you practice answering the types of questions that are likely to appear on an exam. No late homework assignments will be accepted. Grading for homework assignments will be based on effort, not correctness. Give each problem your best attempt.

Labs

There will be approximately 11 labs throughout the semester in which you will write a small- to medium-sized program or set of scripts. They will be submitted through D2L. You may submit labs any number of times before the due date with no penalty. The only submission that will be graded is the latest one. Labs will have a grading turnaround time of one (1) week from the due date. Lab grades can only be contested for up to one week from when the grade is posted on Desire2Learn. Four grace days will be provided throughout the semester without penalty for lab submissions only, although this may result in a delay of your grade. There are no partial grace days. Once a grace day has been used, you may submit any number of times for an additional 24 hours. Otherwise, no late submissions will be permitted. At least 1 hour of our lab period will be spent working on the current week's lab. I will be available to answer questions. You should expect to spend considerable amounts of time outside of class completing labs. Start early!

Labs will be due Mondays at midnight. While this gives you some flexibility, please be aware that I may not be able to respond to emails late at night the night a lab is due. I will have office hours on Monday and there will be tutoring from 5-8 on Mondays. Please plan accordingly.

Exams

Exams are the way to prove how much you have learned and retained. I take these especially seriously, and as such, here is what you can expect from an exam in this class:

- My exams are especially challenging.
- Exams are closed book and closed notes. One standard size (3x5) notecard with handwritten notes may be brought to the exam.
- I do not ask many questions that require memorization. In general, if the answer can be found within a few seconds with internet access, it's not worth my time to ask and not worth your time to memorize.
- Expect a significant portion of an exam to involve problem solving and using the tools you have seen in class to solve problems you have not seen before.
- You will receive an exam study guide a week before the exam. This will contain a detailed list of topics we have covered. When I make exams, I get inspiration from this list. A valid way to study for an exam is to write everything you know or can find about each of these topics.
- Another valid way to study for my exams is to do the homework optional problems. Getting familiarity and experience with Java concepts.
- Exams will be closed book, closed notes. You are expected to know correct Python syntax.

- You are not to use your phone or headphones during an exam. If you need to use the restroom during the exam, leave all electronics on your desk.
- Exams will be graded within one week of your taking it.
- I will be collecting exams again after they have been gone over. You cannot take a graded exam home with you. If you have any questions about your old exams, I'm happy to go over it again with you during office hours.

Any attempt to circumvent these rules will be considered academic dishonesty (see below) and you will be subject to the same disciplinary action. I will do everything I can to help you be prepared for the exam, but it is your responsibility to study and ask for help/clarification before the exam date. Please reach out beforehand with any questions or concerns. Cheating is not worth the risk.

University Policies

Academic Dishonesty Policy

Homework and labs play an important role in this class, designed for you to practice practical skills associated with the course and allowing both you and me to assess your current understanding of the material, which I use to assess how the class is going. The better my understanding, the better feedback I can provide and the better I can tailor the course to your learning needs. For this system to work, you have an obligation to complete assignments and labs independently and honestly.

- **Independent:** While you may discuss assignments with peers (including students not in this course), you may only do so at a level you would post to a public discussion board. You may **not** look at each others' code in Anaconda/Spyder or have discussions about specific lines of code. Please do discuss the material in a more general way. If you have such a discussion, please indicate as a comment in your code the name of the collaborator and what was discussed. Failure to do so may flag our code similarity software. If you do your own work, there is no reason to worry about this.
- **Honest:** Any work you submit should completely be a product of your own thoughts. You are **not** to refer to or copy code snippets from the internet. You may look up tutorials or code showing how to use a general concept. Googling "Python single or double quote string" and learning from an outside source how to know which string to use is perfectly fine and even encouraged. Googling "Python palindrome checker" is **academic dishonesty** because the results may include someone else's code and solution to the problem. In general, you may look up tools and techniques, but you may not look up existing solutions to problems. Submission of code copied fully or partially from another source will result in failure of the assignment, failure of the course, and/or a report to the Associate Provost that can result in expulsion from Millersville University.

Failure of a single assignment is not a major impediment to passing the course. However, being caught committing academic dishonesty requires a report to the Associate Provost and can have very serious consequences, including possible expulsion from the university. Please reach out to me if you are struggling. I am here to help you. There is much more to lose than there is to gain by committing academic dishonesty. Please don't waste my time by making me do this.

Title IX

Millersville University and its faculty are committed to assuring a safe and productive educational environment for all students. In order to meet this commitment, comply with what formally was Title IX of the Education Amendments of 1972, 20 U.S.C. §1681, et seq., and act in accordance with guidance from the Office for Civil Rights, the University requires faculty members to report to the University's Title IX Coordinator incidents of sexual violence shared by students. The only exceptions to the faculty member's reporting obligation are when incidents of sexual violence are communicated by a student during a classroom discussion, in a writing assignment for a class, or as part of a University-approved research project. Faculty members are obligated to report to the person designated in the University Protection of Minors policy incidents of sexual violence or any other abuse of a student who was, or is, a child (a person under 18 years of age) when the abuse allegedly occurred.

Information regarding the reporting of sexual violence, and the resources that are available to victims of sexual violence, is available at <http://www.millersville.edu/socialeq/title-ix-sexual-misconduct/index.php>

Counseling Resources

Students sometimes face mental health or drug/alcohol challenges in their academic careers that interfere with their academic performance and goals. Millersville University is a caring community and resources are available to assist students who are dealing with problems. The Counseling Center (717-871-7821) is an important resource for both mental health and substance abuse issues. Additional resources include: Health Services (871-5250), Center for Health Education & Promotion (871-4141), Campus Ministries, and Learning Services (717-871-5554).

Planned Course Schedule¹

- Week 01, 08/21 - 08/25:** Introduction
- Week 02, 08/28 - 09/01:** Variables and math, **Lab 1 due**
- Week 03, 09/04 - 09/08:** Conditionals, **Lab 2 due**
- Week 04, 09/11 - 09/15:** Loops, **Lab 3 due**
- Week 05, 09/18 - 09/22:** Nested Loops and File Processing, **Lab 4 due**
- Week 06, 09/25 - 09/29:** Review, **Exam**
- Week 07, 10/02 - 10/06:** Functions, **Lab 5 due**
- Week 08, 10/09 - 10/13:** Lists and Tuples, **Lab 6 due**
- Week 09, 10/16 - 10/20:** Dictionaries and Sets, **Lab 7 due**
- Week 10, 10/23 - 10/27:** Review, **Exam**
- Week 11, 10/30 - 11/03:** Arrays, **Lab 8 due**
- Week 12, 11/06 - 11/10:** Advanced Strings, **Lab 9 due**
- Week 13, 11/13 - 11/17:** Advanced Files, **Lab 10 due**
- Week 14, 11/20 - 11/24:** Course Topic of Interest 1, Review, **Lab 11 due**
- Week 15, 11/27 - 12/01:** **Final Exam**

¹Subject to change drastically