

PHIL 121 - Programming for AI 1

Instructor:	Eric Pacuit (pacuit.org)
Semester:	Fall 2026
Email:	epacuit@umd.edu
Course Website:	https://umd.instructure.com/courses/1411542
Class Times:	MW 2:00pm - 3:15pm
Location:	ESJ B0324
Office Hours:	TBA
Office:	Skinner 1103A

Course Description

Designed for students with little to no prior programming experience to build a solid foundation in Python programming and the problem-solving skills essential for working with AI. Students will learn variables, data types, conditionals, loops, functions, input/output, and basics of object-oriented programming. Practical skills include setting up a development environment, using Jupyter notebooks, and version control with Git. Students will actively write, analyze, test, and debug code in and out of class. Beyond coding, students will learn to state problems clearly, break them into parts, track down mistakes, and evaluate AI-generated solutions. This is the first course in a two-course sequence introducing students to important topics in programming, specifically tailored for Artificial Intelligence (AI) applications.

BA in Human Centered AI

This is a required course in the new BA in Human Centered AI (it is the first course in the technical core sequence). For more information about the HCAI major, consult the program website.

Note: This course will be renamed HCAI 121, starting in Spring 2027.

Course Objectives

The goal of this course is to build a solid foundation in programming and the problem-solving skills essential for working with AI. Students will learn to write, read, test, and evaluate code. Upon successful completion of this course, students will be able to:

1. Develop and test small-scale computer programs in Python using good programming practices.
2. Break down loosely specified problems into precise formulations and modular, reusable components.
3. Systematically diagnose and correct errors through careful reasoning and targeted testing.
4. Critically evaluate AI-generated code by identifying errors, limitations, and unstated assumptions.

Required Resources

- This term we will be using Piazza for class discussion. The system is highly catered to getting you help fast and efficiently from both me and your classmates. Rather than emailing questions to me, I encourage you to post your questions on Piazza.
- Readings: The primary textbook for the course is:
 - Allen B. Downey, Think Python, 3rd edition. Free online: <https://greenteapress.com/wp/think-python-3rd-edition/>

Supplemental texts include:

- Python 3 Tutorial (official documentation): <https://docs.python.org/3/tutorial/>
- Online Python Tutor (code visualization): <https://pythontutor.com/>
- Leo Porter and Daniel Zingaro, *Learn AI-Assisted Python Programming*
- Perry Xiao, *Artificial Intelligence Programming with Python* (selected chapters)
- Software and tools we will use:
 - GitHub: <https://github.com/>
 - Google Colab: <https://colab.research.google.com/>
 - VS Code: <https://code.visualstudio.com/>
 - uv: <https://docs.astral.sh/uv/>

Course Structure

This course will meet **Mondays and Wednesdays, 2:00pm–3:15pm**. During class, we will introduce new topics and do live coding. **Bring your laptop to class**. We will write code together, work through problems, and discuss questions as a group.

Grading Policy

The course requirements are:

- **Participation:** Participation has two parts.
 - **In-class questions:** During most lectures we will work through “participation questions” using Poll Everywhere (<https://PollEv.com/epacuit/register>). These are graded for participation only: you receive full credit for answering, whether or not your answer is correct. *You are encouraged to discuss these questions with your classmates.*
 - **Weekly question:** Each week you will submit a short question about the course material through ELMS. Point to a specific idea, example, or line of code from lecture, and tell me one of: what confused you about it, what more you would like to know, or a connection or observation that came to mind. Any of these earns full credit. The weekly question is typically due **Tuesdays at 11pm**.

- **Weekly Quizzes:** Beginning in Week 2, there will be a short in-person quiz at the start of class **each Wednesday**. Quizzes are closed-book and completed on paper. They cover material from the current and previous weeks and are closely related to the in-class participation questions.
 - If you miss a quiz, you must schedule the make-up within one week.
 - Your **lowest one or two quiz scores will be dropped** to account for absences and off days.
- **Projects:** There will be 2-3 main programming projects during the semester (in addition to smaller projects). Each main project has two parts: a working program and a short written component (explaining your approach, what you tried, and how you tested your code). You may be asked to briefly walk me through your project. The AI-tool policy for each project will be stated in the assignment.
- **Exams:** There will be two in-person exams.
 - **Midterm:** Given during the lecture time, on paper.
 - **Final Exam:** Cumulative, with more emphasis on material after the midterm, given during finals week. Consult <https://registrar.umd.edu/registration/register-classes/final-exams> for the time and location of the final exam.

Grades will be assigned according to the following weights:

Participation	10%
Weekly Quizzes	30%
Programming Projects	30%
Midterm	15%
Final Exam	15%

Your final grade may be curved, but the final grade cutoffs are typically as follows:

A+	> 100%	B+	87%	C+	77%	D+	67%	F	< 60%
A	92%	B	82%	C	72%	D	62%		
A-	90%	B-	80%	C-	70%	D-	60%		

Tentative Schedule

The following schedule is tentative and subject to change.

AI-tool policy. Each week is labeled with the policy for that week's work:

- **No LLM:** Do not use AI assistants. Use the textbook, the Python documentation, course staff, and classmates (high-level discussion only).
- **LLM Object:** You will use an AI tool to generate code or text, then analyze and critique what it produces.

- **LLM Cite:** You may use AI tools, but you must note where and how you used them, and verify the results yourself.

Week	Dates (M/W)	Topic	AI policy
1	Aug 31 / Sep 2	Getting started with Python	No LLM
2	Sep 7 (no class) / Sep 9	Variables, types, input & output	No LLM
3	Sep 14 / Sep 16	Functions	No LLM
4	Sep 21 / Sep 23	Conditionals & Boolean logic	No LLM
5	Sep 28 / Sep 30	Loops (<i>Project 1</i>)	No LLM
6	Oct 5 / Oct 7	Lists, tuples, dictionaries, sets	No LLM
7	Oct 12 (no class) / Oct 14	<i>Midterm exam</i>	—
8	Oct 19 / Oct 21	Dictionaries, Comprehensions	No LLM
9	Oct 26 / Oct 28	Files & CSV	No LLM
10	Nov 2 / Nov 4	Classes & objects	No LLM
11	Nov 9 / Nov 11	OOP design (<i>Project 2</i>)	LLM Cite
12	Nov 16 / Nov 18	Version control with Git	LLM Cite
13	Nov 23 / Nov 25 (no class)	Prompting & AI coding tools	LLM Object
14	Nov 30 / Dec 2	Evaluating & debugging AI code	LLM Object
15	Dec 7 / Dec 9	Final project	LLM Cite
<i>Final exam (exam week, Dec 14–21)</i>			

Course Policies & Resources

- All course related policies and resources for undergraduate students:
<http://www.ugst.umd.edu/courserelatedpolicies.html>.
- Campus land acknowledgement statement
<https://admissions.umd.edu/student/land-acknowledgement>

Communication about this Course There are two main ways to communicate important information about the course:

1. ELMS announcements (<https://umd.instructure.com/courses/1411542/announcements>)
2. Piazza (https://umd.instructure.com/courses/1411542/external_tools/90732).

Students are responsible for keeping their email address up to date, and must ensure that forwarding to another email address functions properly. Failure to check email, errors in forwarding, and returned email are the responsibility of the student, and do not constitute an excuse for missing announcements or deadlines.

Communication with Peers With a diversity of perspectives and experience, we may find ourselves in disagreement and/or debate with one another. As such, it is important that we agree to conduct ourselves in a professional manner and that we work together to foster and preserve a virtual classroom environment in which we can respectfully discuss and deliberate controversial questions.

I encourage you to confidently exercise your right to free speech—bearing in mind, of course, that you will be expected to craft and defend arguments that support your position. Keep in mind, that free speech has its limit and this course is NOT the space for hate speech, harassment, and derogatory language. I will make every reasonable attempt to create an atmosphere in which each student feels comfortable voicing their argument without fear of being personally attacked, mocked, demeaned, or devalued.

Any behavior (including harassment, sexual harassment, and racially and/or culturally derogatory language) that threatens this atmosphere will not be tolerated. Please alert me immediately if you feel threatened, dismissed, or silenced at any point during our semester together and/or if your engagement in discussion has been in some way hindered by the learning environment.

Names/Pronouns and Self-Identifications The University of Maryland recognizes the importance of a diverse student body, and we are committed to fostering inclusive and equitable classroom environments. I invite you, if you wish, to tell us how you want to be referred to both in terms of your name and your pronouns (he/him, she/her, they/them, etc.). The pronouns someone indicates are not necessarily indicative of their gender identity. Visit the campus' list of Gender Inclusive Resources to learn more.

Additionally, how you identify in terms of your gender, race, class, sexuality, religion, and dis/ability, among all aspects of your identity, is your choice whether to disclose (e.g., should it come up in classroom conversation about our experiences and perspectives) and should be self-identified, not presumed or imposed. I will do my best to address and refer to all students accordingly, and I ask you to do the same for all of your fellow Terps.

Academic Integrity The University's Code of Academic Integrity is designed to ensure that the principles of academic honesty and integrity are upheld. In accordance with this code, academic dishonesty will not be tolerated. Please ensure that you fully understand this code and its implications because all acts of academic dishonesty will be dealt with in accordance with the provisions of this code. All students are expected to adhere to this Code. It is your responsibility to read it and know what it says, so you can start your professional life on the right path.

It is important to note that course assistance websites, such as CourseHero, or AI-generated content are not permitted sources, unless the instructor explicitly gives permission. Material taken or copied from these sites can be deemed unauthorized material and a violation of academic integrity. These sites offer information that may be inaccurate or biased and that shortcut the learning process, particularly the critical thinking steps necessary for college-level assignments.

Additionally, it is understandable that students may use a variety of online or virtual forums for course-wide discussion (e.g., Group lists or chats). Collaboration in this way regarding concepts discussed in this course is permissible. However, collaboration on graded assignments is strictly prohibited unless otherwise stated. Examples of prohibited collaboration include: asking classmates for answers on quizzes or exams, asking for access codes to clicker polls, etc.

Finally, on each exam or assignment you must write out and sign the following pledge:

"I pledge on my honor that I have not given or received any unauthorized assistance on this exam/assignment."

Please visit the Office of Undergraduate Studies' full list of campus-wide policies and follow up with me if you have questions.

Accessibility and Disability Services The University of Maryland is committed to creating and maintaining a welcoming and inclusive educational, working, and living environment for people of all abilities. The University of Maryland is also committed to the principle that no qualified individual with a disability shall, on the basis of disability, be excluded from participation in or be denied the benefits of the services, programs, or activities of the University, or be subjected to discrimination. The Accessibility & Disability Service (ADS) provides reasonable accommodations to qualified individuals to provide equal access to services, programs and activities. ADS cannot assist retroactively, so it is generally best to request accommodations several weeks before the semester begins or as soon as a disability becomes known. Any student who needs accommodations should contact me as soon as possible so that I have sufficient time to make arrangements.

For assistance in obtaining an accommodation, contact Accessibility and Disability Service at 301-314-7682, or email them at adsfrontdesk@umd.edu.

Student Resources and Services Taking personal responsibility for your own learning means acknowledging when your performance does not match your goals and doing something about it. I hope you will come talk to me so that I can help you find the right approach to success in this course, and I encourage you to visit UMD's Student Academic Support Services website to learn more about the wide range of campus resources available to you.

In particular, everyone can use some help sharpening their writing skills (and improving their grade) by visiting UMD's Writing Center and schedule an appointment. For consulting and training in oral communication, please visit UMD's Oral Communication Center.

You should also know there are a wide range of resources to support you with whatever you might need (UMD's Student Resources and Services website may help). If you feel it would be helpful to have someone to talk to, visit UMD's Counseling Center or one of the many other mental health resources on campus.

Notice of Mandatory Reporting Notice of mandatory reporting of sexual assault, sexual harassment, interpersonal violence, and stalking: As a faculty member, I am designated as a "Responsible University Employee," and I must report all disclosures of sexual assault, sexual harassment, interpersonal violence, and stalking to UMD's Title IX Coordinator per University Policy on Sexual Harassment and Other Sexual Misconduct.

If you wish to speak with someone confidentially, please contact one of UMD's confidential resources, such as CARE to Stop Violence (located on the Ground Floor of the Health Center) at 301-741-3442 or the Counseling Center (located at the Shoemaker Building) at 301-314-7651.

You may also seek assistance or supportive measures from UMD's Title IX Coordinator, Angela Nastase, by calling 301-405-1142, or emailing titleIXcoordinator@umd.edu.

To view further information on the above, please visit the Office of Civil Rights and Sexual Misconduct's website.

Basic Needs Security If you have difficulty affording groceries or accessing sufficient food to eat every day, or lack a safe and stable place to live, please visit UMD's Division of Student Affairs website for information about resources the campus offers you and let me know if I can help in any way.

Veteran Resources UMD provides some additional supports to our student veterans. You can access those resources at the office of Veteran Student Life. Veterans and active duty military personnel with special circumstances (e.g., upcoming deployments, drill requirements, disabilities) are welcome and encouraged to communicate these, in advance if possible, to the instructor.

Technology Policy Please refrain from using cellphones and other electronic devices during class sessions unless we have designated such use as part of a class exercise (e.g., laptops for coding exercises). Further, video recording of class sessions or activities is prohibited without advance permission from the professor.

Participation

- Given the interactive style of this class, **attendance is crucial to your performance in this class**. The best way to learn to program is to actively engage with the material.
- Each student is expected to make substantive contributions to the learning experience, and attendance is expected for every session.
- Students with a legitimate reason to miss a live session should communicate in advance with the instructor, except in the case of an emergency.
- Students who miss a live session are responsible for learning what they miss from that session.
- Additionally, students must complete all readings and assignments in a timely manner in order to fully participate in class.

Course Evaluation Please submit a course evaluation through Student Feedback on Course Experiences in order to help faculty and administrators improve teaching and learning at Maryland. All information submitted to Course Experiences is confidential. Campus will notify you when Student Feedback on Course Experiences is open for you to complete your evaluations at the end of the semester. Please go directly to the Student Feedback on Course Experiences to complete your evaluations. By completing all of your evaluations each semester, you will have the privilege of accessing through Testudo the evaluation reports for the thousands of courses for which 70% or more students submitted their evaluations.

Copyright Notice Course materials are copyrighted and may not be reproduced for anything other than personal use without written permission.