CS112: Introduction to Computer Programming

(Spring 2025)

All Sections

1 Course Basics

Instructors

Professor	Email	Office	Section (meets face-to-face)
Ghada Abdelmoumin	gabdelmo	ENGR 4439	004 (TR 9:00 – 10:15 am Innovation Hall 105)
Sara-Lynn Gopalkrishna	slgopal	BUCHAN D217E	003 (MW 1:30 – 2:45 pm Planetary Hall 131)
Shahnaz Kamberi	kamberis	ENGR 2706	002 (MW 12:00 – 1:15 pm Innovation Hall 103)
Parastoo Kamranfar	pkamranf	RSCH 361	001 (TR 3:00 – 4:15 pm Lecture Hall 1)

Course Overview:

This course provides rigorous introduction to problem solving through development of computer programs. It focuses on identifying algorithmic patterns in problems, describing problem solutions in high-level pseudocode, then implementing in a procedural programming language. Basic programming concepts are covered in detail including expressions, control structures, simple data types, and input/output. Program testing and debugging are discussed to verify that problems are solved correctly. This is a 4-credits course, limited to two attempts, and meets Mason Core IT requirements.

Course Outcomes:

Upon completion of this course, students will be able to:

- use procedural programming language concepts including expressions, decision statements, simple data types, Boolean logic, input/output, loop constructs, and procedures.
- combine programming techniques to solve problems of varying degrees of difficulty.
- refine computer programs through testing and debugging to ensure proper operation.
- read, understand, and evaluate a program specification to independently implement the desired behavior.
- understand issues and ethics related to obtaining and using code from unknown, unreliable, or unethical sources, as a precursor to best professional practices.

Mason Core IT Learning Outcomes:

- Students will understand the principles of information storage, exchange, security, and privacy and be aware of related ethical issues.
- Students will become critical consumers of digital information; they will be capable of selecting and evaluating appropriate, relevant, and trustworthy sources of information.
- Students can use appropriate information and computing technologies to organize and analyze information and use it to guide decision-making.
- Students will be able to choose and apply appropriate algorithmic methods to solve a problem.

Prerequisite

C or better in MATH 104, 105, or 113 (or sufficient score on the math placement test).

1.1 Textbook

Required - zyBooks Online Textbook

- Sign in or create an account at **learn.zybooks.com**
- Enter zyBook code: **GMUCS112Spring2025**
- Subscribe using any credit card. Discounted price for GMU students is **$58** (instead of $64). Be aware that the price at GMU Bookstore is higher.
- Students that **retake the course** contact **support@zybooks.com** to have the book added to your library for **free.**
- Students may begin subscribing on Jan 07, 2025 and the cutoff to subscribe is Apr 30, 2025. Subscriptions will last until May 28, 2025.

Quite Optional - The Practice of Computing Using Python, Second Edition. William Punch and Richard Enbody. This is for students who want extra reading resources. You might be able to view a copy for free at Fenwick Library.

1.2 Piazza

- Announcements, Discussion, GTA/UTA contacts and office hours will be on Piazza.
- All correspondence will go through Piazza. You can send private messages to the instructors (visible to all professors, GTAs, and UTAs) as well as post public questions visible to all students, collaborate on responses, and tag everything by topic.
- Unless you have a confidential matter to discuss directly with an individual professor/TA, please do not email us directly -- use a private piazza post. *Project help questions sent via email are of extremely low priority, as they were sent to the wrong place and will most likely be responded to with "please post on Piazza".*
- **The discussion board on Piazza is required reading for all programming assignments**. You MUST read the discussion board daily for clarifications and potential updates.

1.3 Canvas

Important Notice: This course will be hosted on Canvas for the Spring 2025 semester. Please ensure you are familiar with accessing and navigating this platform. Resources and support are available at: https://lms.gmu.edu/getting-started-students/ to help you get started. If you have any questions, contact the ITS Support Center for assistance.

- Course schedule, course syllabus, description of assignments, lecture slides, and helpful videos will be posted on Canvas.
- All programming assignments will be submitted (per published deadlines) via Canvas/Gradescope.
- All grades will be posted to Canvas/Gradescope.

2 Grading

Category	Points	Percent	Notes
Reading	----	5%	Make sure you are **logged in to zyBooks to get credit** for reading completion. No drops.
Labs	10 Points each/12 total 100 Points	10%	Drop 2 lowest, average others evenly.
Programming Assignments	6 total 50 points each	30%	No drops.
Tests			
Midterm Exam	100 Points	25%	See section 2.4 on Exams
Final Exam	100 points	30%	**Must pass final exam (>=60.0%) to pass the class.** See section 2.4 on Exams.

Assessment

- A+ (>= 98.0%) A (>= 92.0%) A– (>= 90.0%)
- B+ (>= 88.0%) B (>= 82.0%) B– (>= 80.0%)
- C+ (>= 78.0%) C (>= 72.0%) C– (>= 70.0%)
- D (>= 60.0%)
- F (< 60.0%)
- There will be no make-up or extra-credit assignments at the end of the semester; your grade should be a measure of your semester-long progress.

2.1 Individual Programming Assignments

Programming assignments (PAs) are an important part of your grade. Don't be surprised if you are spending more than 10 hours on each one. Using an Artificial Intelligence (AI) to complete assignments is an Honor Code violation (see Honor Code section below) and it prevents you from learning the material for this course. You must write code on your own to learn computer programming.

- ### Canvas Submission

  Activities and assignments in this course will regularly use the Canvas learning system, available at https://canvas.gmu.edu/. *Students are required to have regular, reliable access to a computer with an updated operating system and a stable broadband Internet connection.*

  - All assignments are to be submitted to Gradescope/Canvas. You can submit your work an unlimited number of times to Gradescope/Canvas prior to the assignment deadline, and by default only the last version will be graded.
  - **Turning in the wrong files will result in a zero. You can and should download your submitted attempts to verify that you turned in a working copy.**
  - Canvas/Gradescope being unavailable is not an excuse for turning in a late assignment; in the rare situation that the website is somehow unavailable or giving the student an error, the student MUST email their submission to their Professor/GTA before the deadline, otherwise it will be considered late.
  - Catastrophic computer failure will not be cause for an extension. Use a backup service such as DropBox (or any cloud service), emailing yourself, storing to a USB drive, whatever it takes. Every semester multiple student's computer die, are stolen, or otherwise 'lose' their files. Don't be the student who forgot to (frequently) back up your work!

  All course materials posted to Canvas or other course sites are private to this class; by federal law, any materials that identify specific students (via their name, voice, or image) must not be shared with anyone not enrolled in this class.

- ### Deadlines
  - Each programming assignment has a posted deadline.
  - The latest you can turn in a programming assignment is 24 hours after the posted deadline, no exceptions (unless you have ODS accommodations). Assignments turned in within 24 hours late will acquire a grade penalty of **20%**. Each programming assignment is worth 50 points. If you turn in within 24 hours late: recorded_grade = min(raw_score, 40).
  - Therefore, you must turn in work within 24 hours of the original deadline! Assignments turned in more than 24 hours late will not be accepted.
  - Turning in 1 minute late and turning in 23 hours and 59 minutes late are treated the same (and therefore there are no "partial late penalties").
  - If the campus closes, or if a class meeting needs to be canceled or adjusted due to weather or other concern, students should check Canvas or Piazza for updates on how to continue learning and for information about any changes to events or assignments.

- **Broken Code == Bad Scores**
  - Any code turned in that does not run (immediately crashes due to errors), specifically on Python 3.12 or above, will receive significantly lower score. At this point, if the grader can quickly fix your code, you might get some points back. If the grader cannot immediately spot and fix the issue, you might not get any points at all.
  - Turning in code that runs is a big deal!

- **Honor Code: Special Notes for Programming Assignments**
  - Programming assignments are considered individual efforts; therefore, no sharing of code and/or discussion of problem solutions are allowed with anyone except the TAs or the professors. Student submissions will be manually and automatically assessed for cheating. **You may not look at or otherwise view or discuss any other individual's code, pseudocode, or algorithms.**
  - **You may not use any Internet resources or AI tools** to create code or algorithms, besides the textbooks, the slides, and Piazza; unless otherwise specified. However, you are free to look up the syntax errors you encounter online, to gain an understanding of what the syntax error means. The assignments we're doing this semester can be directly solved using techniques discussed in class, and no outside material is needed unless otherwise noted.
  - **It is your responsibility** to lock your computers with a password, to not post your code to websites like Pastebin that are publicly accessible, to guard your USB drives and computers, to not upload your files to someone else's computer, etc. **You are liable for any access gained to your code**.
  - See Honor code section below for more details.

2.2 Labs

- All lab assignment grades will be averaged together. Lab assignments will be tasks completed during the scheduled lab time.
- Lab tasks require attendance at your *designated* lab time to get the credit.
- **Any missed lab assignment is simply missed, regardless of the reason why** (travel, illness, work, traffic, receiving a major award, getting married, saving the universe, etc.). Two of the lowest lab grades will be dropped to cover the very rare cases of understandable missed labs.
- If you choose to miss a lab early on for no reason, and later, must miss one for some understandable reason, you would have used up your drops unnecessarily. Try to save the drop so you can throw out a bad grade, and not just hide a lazy zero. Pretending you don't have these available drops is your best approach.

2.3 e-book Readings

- zyBook readings are graded based on the completion percentage of activities **before the designated deadline** of each chapter.
- See the course schedule on Canvas for reading assignment due dates.
- Make sure you're logged in to get credit for reading completion.
- Optional subsections are not considered for zyBook reading.

2.4 Exams

- Exams are closed book/notes unless specified otherwise by instructor.
- The final exam is cumulative. If you perform better on the final exam than your midterm exam, we will replace the midterm grade with the final grade.
- Due to the above, no midterm exam make-ups/reschedules are permitted. Missing the midterm exam is a 0 on the midterm exam until you take the final exam to replace the 0.
- If you know in advance that you are unable to take the final exam by the deadline posted for a valid and unavoidable reason (such as a scheduled surgery, etc.), you must notify the professor at least one week before the scheduled exam date to make arrangements for a make-up.
- If you miss the final exam deadline due to a university-accepted excused absence (such as an illness or car accident the day and time of the exam), you must notify your professor within 24 hours of your absence to make arrangements for a makeup. Failure to follow either of these policies will result in a zero on the final exam.
- Per departmental policy, you must pass a significant exam threshold to receive a passing grade in this class, regardless of your performance on other assignments. Failing the final exam (<60.0%), will result in a failing grade (F) for the entire course. **You must pass the final exam to pass the course.**

2.5 Contested Grades

- If you feel points have been incorrectly deducted, contact the grader. For all programming assignments and lab work, that is your GTA. For exams, that is your professor. Contesting of grades on any/all submissions must be requested **within one week** of receiving the grade (on Canvas or Gradescope (regrade request)). No grade changes will be considered after that deadline.

3 Office Hours and Discussion Board

There is substantial support available to you outside of lecture time in the form of office hours and the online discussion board (Piazza). If you are having difficulty on a programming assignment or lab, we encourage you to reach out **as early as possible**. That said, to ensure fairness and facilitate learning, we have some basic rules for seeking help outlined below. Please note that Piazza is a discussion forum for you, the students, to discuss the course and the course material. There will be UTAs assigned to check on this forum regularly and try to moderate the discussion, but this is NOT a replacement for office hours, lecture with your professor, or labs.

3.1 Rules for Office Hours

- Students must use their Mason email account to receive important University information, including communications related to this class.
- We will not respond to messages sent from or send messages to a non-Mason email address. Please indicate your name and what course you are referring to in your email.
- Please give 48 hours (usually 24 hours or less) for faculty to respond to email on weekdays.
- Emails sent on the weekend will be responded to on the following Monday.
- For students seeking help with programming assignments during office hours, students must identify the line number, through debug print statements, where they believe an error to be before seeing the TA or instructor. **This implies that you must have at least one test case that fails to bring to office hours before the TAs or instructor can help you.**

- For more general programming assignment questions, students must bring their own pseudocode to office hours before the TA or professor can help you.
- **Under no circumstances will the professor or GTA reveal any code for an assignment during office hours.** Students must make significant individual effort on all programming assignments before coming to see a GTA/professor. **Waiting until the last minute, in the expectations that the entire programming assignment will be explained in one office hours session, is not feasible.**
- Office hours are often crowded - do not rely on them for last minute help, as we cannot guarantee that we will be able to spend significant time with every student.
- If you have any questions about what you are/aren't permitted to do on a programming assignment or lab, and you and the TA cannot find the answer written somewhere, you should ask your professor. **"So-and-so said" will not be accepted as a reason for grade re-evaluations** (unless "so-and-so" is your professor).

3.2 Rules for the Discussion Board (Piazza)

- Students are encouraged to use the discussion board, Piazza, to ask and answer questions about assignments, labs, course material, etc.
- No sharing answers or code solutions to assignments on the discussion board. See Honor Code section below for more details.
- Students can post questions and code privately, although the instructor reserves the right to make any post public, so that other students can see the responses.
- For students wishing to post their code privately to Piazza, the same rules apply as when coming to office hours; if you have code written, you must produce at least one failing test case where you have identified what line number is giving you problems.
- UTAs will be assigned to moderate the student discussion, help review student answers, answer private questions, and address questions which have not received a student answer. Therefore, responses to questions can be expected **within 24 hours**, though often much sooner.
- Statements made on the discussion boards, even by TAs and especially by other students, should **NOT** be considered the definitive word on the subject unless it is verified by your professor (in the assignment description, in class, posted on Piazza, etc.). The UTAs can flag professors if/when clarifications are needed.
- If you have any questions about what you are/aren't permitted to do on a programming assignment or exam, and you/others cannot find the answer written somewhere, you should ask your professor. **"So-and-so said" will not be accepted as a reason for grade re-evaluations** (unless "so-and-so" is your professor).

4 Honor Code/Academic Standards

- The honor code at George Mason is an important part of our academic culture. A degree from this institution should be a direct measure of your own progress and abilities, and as such, at all times we must ensure that all work that should be your own is your own.
- All students are expected to abide by the GMU Honor Code and Academic Standards Code. These policies are rigorously enforced.
- The computer science department has an CS Honor Code Policies to understand better what constitutes cheating in the CS setting. It clarifies some scenarios that are unique to our sort of assignments. Note that the CS department doesn't have any "extra" policy for the honor code on top of the university's, this document merely helps you to understand how the honor code applies to programming and CS, but it doesn't restrict it at all.

- We take the honor code quite seriously. Any attempts at copying or sharing code, algorithms, or other violations of the honor code simply will not be tolerated. Cheating will be prosecuted and result in a notification of the Honor Committee as outlined in the GMU Honor Code. **Sharing, collaboration, or looking at any code or algorithm related to programming assignments that is not your own is considered cheating. This includes using code found on the internet.**
- As seductively simple as it may seem to just copy and paste work from a friend, or even to just work on the assignment on your own machines next to each other, remember that it is just as easy to compare your work automatically and electronically, and discover the similarities in text and structure. We use automated software to flag suspicious cases, and then review them to find the cases that must be submitted to the Office of Academic Integrity.
- The **use of AI tools** (including but not limited to Copilot, ChatGPT) to aid in the completion of graded assignments/exams, and the use of solutions which are derived directly or indirectly from AI prompts, is considered unauthorized assistance and **is strictly prohibited under the honor code**.
- **Confirmed violations of the Academic Standards Code or the CS Honor Code are generally Level 2 violations which result in a final grade of an F in the course.**
- Please read Understanding the Honor Code - Dr. Snyder's thoughts about the purpose of the honor code in a computer science course.
- Sharing of instructor-created materials, particularly materials relevant to assignments or exams, to public online "study" sites is considered a violation of Mason's Honor Code.
- There are opportunities to study, work, and learn together throughout this course - zyBook questions, lab exercises, and more. Mostly you will need to work independently for any sort of "test" and for homework assignments.

5 University Policies

Student Resources

https://stearnscenter.gmu.edu/knowledge-center/knowing-mason-students/student-support-resources-on-campus/

The four policies below affect students in all courses at George Mason University. This Course Policy Addendum must be made available to students in all courses (see Catalog Policy AP.2.5).

Academic Standards

Academic Standards exist to promote authentic scholarship, support the institution's goal of maintaining high standards of academic excellence, and encourage continued ethical behavior of faculty and students to cultivate an educational community which values integrity and produces graduates who carry this commitment forward into professional practice.

As members of the George Mason University community, we are committed to fostering an environment of trust, respect, and scholarly excellence. Our academic standards are the foundation of this commitment, guiding our behavior and interactions within this academic community. The practices for implementing these standards adapt to modern practices, disciplinary contexts, and technological advancements. Our standards are embodied in our courses, policies, and scholarship, and are upheld in the following principles:

- **Honesty:** Providing accurate information in all academic endeavors, including communications, assignments, and examinations.

- **Acknowledgement:** Giving proper credit for all contributions to one's work. This involves the use of accurate citations and references for any ideas, words, or materials created by others in the style appropriate to the discipline. It also includes acknowledging shared authorship in group projects, co-authored pieces, and project reports.
- **Uniqueness of Work:** Ensuring that all submitted work is the result of one's own effort and is original, including free from self-plagiarism. This principle extends to written assignments, code, presentations, exams, and all other forms of academic work.

Violations of these standards—including but not limited to plagiarism, fabrication, and cheating—are taken seriously and will be addressed in accordance with university policies. The process for reporting, investigating, and adjudicating violations is outlined in the university's procedures. Consequences of violations may include academic sanctions, disciplinary actions, and other measures necessary to uphold the integrity of our academic community.

The principles outlined in these academic standards reflect our collective commitment to upholding the highest standards of honesty, acknowledgement, and uniqueness of work. By adhering to these principles, we ensure the continued excellence and integrity of George Mason University's academic community.

Student responsibility: Students are responsible for understanding how these general expectations regarding academic standards apply to each course, assignment, or exam they participate in; students should ask their instructor for clarification on any aspect that is not clear to them.

Accommodations for Students with Disabilities

Disability Services at George Mason University is committed to upholding the letter and spirit of the laws that ensure equal treatment of people with disabilities. Under the administration of University Life, Disability Services implements and coordinates reasonable accommodations and disability-related services that afford equal access to university programs and activities. Students can begin the registration process with Disability Services at any time during their enrollment at George Mason University. If you are seeking accommodations, please visit https://ds.gmu.edu/ for detailed information about the Disability Services registration process. Disability Services is located in Student Union Building I (SUB I), Suite 2500. Email: ods@gmu.edu. Phone: (703) 993-2474.

Student responsibility: Students are responsible for registering with Disability Services and communicating about their approved accommodations with their instructor *in advance* of any relevant class meeting, assignment, or exam.

FERPA and Use of GMU Email Addresses for Course Communication

The Family Educational Rights and Privacy Act (FERPA) governs the disclosure of education records for eligible students and is an essential aspect of any course. **Students must use their GMU email account** to receive important University information, including communications related to this class. Instructors will not respond to messages sent from or send messages regarding course content to a non-GMU email address.

Student responsibility: Students are responsible for checking their GMU email regularly for course-related information, and/or ensuring that GMU email messages are forwarded to an account they do check.

Title IX Resources and Required Reporting
As a part of George Mason University's commitment to providing a safe and non-discriminatory learning, living, and working environment for all members of the University community, the University does not discriminate on the basis of sex or gender in any of its education or employment programs and activities. Accordingly, **all non-confidential employees, including your faculty member, have a legal requirement to report to the Title IX Coordinator, all relevant details obtained directly or indirectly about any incident of Prohibited Conduct** (such as sexual harassment, sexual assault, gender-based stalking, dating/domestic violence). Upon notifying the Title IX Coordinator of possible Prohibited Conduct, the Title IX Coordinator will assess the report and determine if outreach is required. If outreach is required, the individual the report is about (the "Complainant") will receive a communication, likely in the form of an email, offering that person the option to meet with a representative of the Title IX office.

For more information about non-confidential employees, resources, and Prohibited Conduct, please see University Policy 1202: Sexual and Gender-Based Misconduct and Other Forms of Interpersonal Violence. Questions regarding Title IX can be directed to the Title IX Coordinator via email to TitleIX@gmu.edu, by phone at 703-993-8730, or in person on the Fairfax campus in Aquia 373.

Student opportunity: If you prefer to speak to someone ***confidentially***, please contact one of Mason's confidential employees in Student Support and Advocacy (SSAC), Counseling and Psychological Services (CAPS), Student Health Services (SHS), and/or the Office of the University Ombudsperson.

Mental Health

- What is listed on the syllabus are our/Mason's usual course policies. However, we fully understand that each of us may face unique obstacles. Please communicate with us if such things are getting in your way in this class. **Our goal is to facilitate your growth and success**; we can only do that if you tell us what is happening.
- If you are experiencing feelings of anxiety, panic, depression, sadness during the semester, Student Health Services and Counseling and Psychological Services Offices (703-993-2380) provides a range of resources to assist and support you.
- Students can call (703-993-2831) or walk-in during open hours to schedule an appointment to talk with a health care provider. If you or someone you know experiences a mental health crisis or emergency, seek help immediately. Call 911 for local emergency services, the National Suicide Prevention Lifeline (1-800-273-8255), or text the Crisis Text Line (741-741) anytime.
- We believe we learn best when we can show up as whole and healthy people. To learn effectively we need to have basic security: a roof over our head, a safe place to sleep, a stable place to live, and enough food to eat. If you are struggling to meet any of these basic needs, visit our campus food pantry (https://ssac.gmu.edu/patriot-pantry/), or reach out to other Mason resources https://learningservices.gmu.edu/campus-resources/. Remember, asking for assistance and advocating for yourself is an important part of your collegiate experience. **YOU** are not alone.