

Syllabus

Course Information	
Course:	CS100
Format:	Lecture
Section:	004, P01
Semester:	Spring 2024
Date/Time:	TR 10:30 AM - 11:45 AM
Location:	Buchanan Hall D023 (BUCHAN D023)

Instructor	
Name:	Ahmed Bin Zaman
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Office:	ENGR 4455
Office Hours:	Thursdays 3:30 PM – 5:30 PM

Course Description

This course is intended to help students learn to think in the manner necessary to fully grasp the nature and power of the digital world around us. The early era of the Internet and the personal computer led to the need for "computer literacy." Now the changing nature of our global society requires that students learn new ways to think about problems and how to solve them, regardless of students' specific fields of endeavor. Through this course, students will explore major issues related to the "big ideas" of computational thinking (namely, Creativity, Abstraction, Data, Algorithms, Programming, Internet, and Societal Impact), as well as how these issues will impact their future lives. (3 credits).

Student Learning Outcomes (LO)

Upon completing the course, the student will be able to:

1. Students will be able to use technology to locate, access, evaluate, and use information, and appropriately cite resources from digital/electronic media.
2. Students will understand the core IT concepts in a range of current and emerging technologies and learn to apply appropriate technologies to a range of tasks.
3. Students will understand many of the key ethical, legal, and social issues related to information technology and how to interpret and comply with ethical principles, laws, regulations, and institutional policies.
4. Students will understand the essential issues related to information security, how to take precautions and use techniques and tools to defend against computer crimes.
5. Students will recognize the significance of the "big ideas" of computational thinking.

Mason Core IT Learning Outcomes (LO)

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

Topics

- Representation of ideas with bits
- Basic Boolean logic
- Devices to implement logic functions
- Programming languages for data and action
- Primitive operations and abstraction
- Algorithms for work and play
- Communication between machines
- Computing security concepts
- Basic data analysis
- Impact of automation and communication on human societies
- Human and machine intelligence

Course Prerequisites/Co-requisites None

Technical Competencies

Basic Blackboard knowledge is assumed.

Textbooks for the class (Both Free)

- **Required:** W. Daniel Hillis, *The Pattern on the Stone: The Simple Ideas that Make Computers Work*, (available free online from the GMU University Libraries <https://ebookcentral-proquest-com.mutex.gmu.edu/lib/GMU/detail.action?docID=1826311>)

Note: You have to login to GMU CAS to access the book when you are off-campus.

- **Required:** Wentworth, Elkner, Allen, and Meyers, *How to Think Like a Computer Scientist: Learning with Python 3*; (available free online at <https://openbookproject.net/thinkcs/python/english3e/>)

Required Materials/Software/Hardware

Students will need access to:

For Class --

- Computer on which they can access Internet sites and install programs
- Internet Connection
- Blackboard
- Piazza – for announcements, discussions, TA contact information

For Assignments --

- Microsoft Word or some form of Word Processor
- Python <https://www.python.org/>
- Geany <https://www.geany.org/>
- For Hosting Website on mason.gmu.edu/~NetID
<https://its.gmu.edu/knowledge-base/how-to-set-up-a-personal-site/>
<https://its.gmu.edu/knowledge-base/how-to-upload-files-with-filezilla/>
 VPN <https://its.gmu.edu/service/virtual-private-network-vpn/>

*There are computer labs on campus which provide this capability (limited).

Course Grading, Examinations, & Grades Composition

Your final grade is based on the following scale:

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%)					

Grading Scheme		
Assignments	Points	Weight
Participation	Lessons Learned Entries in Blackboard (14 total) 100 Points	10%
Homework	8 Homework Assignments Total 50 Points Each or 400 Points Total	40%
Mini Exams	3 Mini-Exams Total 100 Points Each or 300 Points Total	30%
Final Exam	200 Points	20%
Total Points: 1000 Points		Total: 100%

- Your Homework is due electronically (via Blackboard) on the date as assigned by your instructor. You may resubmit as many times as you like up until the deadline. But only the most recent upload is graded.
- For grade disputes please contact the grader (the TA for Homeworks, the instructor for Exams) first. You must initiate a dispute within a week of receiving your grade for the dispute to be considered.
- Late work is penalized **-10% per day late, up to a maximum of 2 days**. Thus, a Homework assignment submitted 1 day late which would have scored an 87% would instead receive a 77%. A Homework assignment 2 days late which would have scored an 87% will receive 67%, or a Homework assignment that would have received 45/50 (90%) would receive 35/50 (70%).
- An assignment which is more than 2 days late **will not** be accepted.
- A missed exam will result in a zero.
- Please contact the instructor as soon as possible if there are documented extenuating circumstances which affect your ability to complete an assignment or exam (you must contact the instructor **PRIOR** to the deadline of the assignment or exam).

Email Communication/Class Materials Policies

Students must use their Mason email account to receive important University information, including communications related to this class. I will not respond to messages sent from or send messages to a non-Mason email address. I expect all email to be written in a professional manner, please indicate your name and what course you are referring to in your email.

Unless you have a confidential matter to discuss directly with the professor/TA, please do not email us directly -- use a Piazza post. HW 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".

Please give 48 hours for faculty to respond to email on weekdays. Emails sent on the weekend will be responded to on the following Monday/Tuesday.

The use of computers is required in this class. During class, you will only be permitted to work on material related to the class. Engaging in activities not related to the course (e.g., gaming, email, chat, etc.) **during class** will result in a significant deduction of your participation grade.

Activities and assignments in this course will regularly use the Blackboard learning system, available at <https://mymasonportal.gmu.edu/>. Students are required to have regular, reliable access to a computer with an updated operating system and a stable broadband Internet connection (cable modem, DSL, satellite broadband, etc., with a consistent 1.5 Mbps [megabits per second] download speed or higher.

All course materials posted to Blackboard 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.

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. For more information, see the Office of Academic Integrity’s summary of information about online study sites.

University Policies

Beginning Fall 2018, there is a limit of two graded attempts for this course. A W does not count as a graded attempt. Please see the University Catalog and consult with your academic advisor if you have any questions.

Honor Code: The [University Honor Code](#) is upheld and supported by the [Office for Academic Integrity](#). Mason is an Honor Code university; please see the Office for Academic Integrity for a full description of the code and the honor committee process. The principle of academic integrity is taken very seriously and violations are treated gravely. What does academic integrity mean in this course? Essentially this: when you are responsible for a task, you will perform that task. When you rely on someone else’s work in an aspect of the performance of that task, you will give full credit in the proper, accepted form. Another aspect of academic integrity is the free play of ideas. Vigorous discussion and debate are encouraged in this course, with the firm expectation that all aspects of the class will be conducted with civility and respect for differing ideas, perspectives, and traditions. When in doubt (of any kind) please ask for guidance and clarification. Here is a training module on the Honor Code if you’re interested: [student integrity training module](#).

Gender Identity and Pronoun use: If you wish, please share your name and gender pronouns with me and how best to address you in class and via email. I use he/him for myself and you may address me as Dr. Zaman/Dr. Z or Professor Zaman/Professor Z in email and verbally. You can update your chosen name and pronouns here: [change name and pronouns on Mason records](#).

Disability Services at George Mason University is committed to providing equitable access to learning opportunities for all students by upholding the laws that ensure equal treatment of people with disabilities. If you are seeking accommodations for this class, please first visit <https://ds.gmu.edu/> for detailed information about the Disability Services registration process. Then please discuss your approved accommodations with me. Disability Services is located in Student Union Building I (SUB I), Suite 2500. Email: ods@gmu.edu | Phone: (703) 993-2474.

George Mason University, an intentionally [inclusive community](#), promotes and maintains an equitable and just work and learning environment. We welcome and value individuals and their differences including race, economic status, gender expression and identity, sex, sexual orientation, ethnicity, national origin, first language, religion, age, and disability. As a member of the George Mason University community, the Computer Science department plays an integral role in building an educational environment that is committed to anti-racism and inclusive excellence. For more information on how to continuously cultivate the practice of anti-racism, see this guide from the National Museum of African American History and Culture on how to be anti-racist: <https://nmaahc.si.edu/learn/talking-about-race/topics/being-antiracist>.

Title IX: As a faculty member and designated “Responsible Employee,” I am required to report all disclosures of sexual assault, interpersonal violence, and stalking to Mason’s Title IX Coordinator per university policy 1412. If you wish to speak with someone confidentially, please contact the Student Support and Advocacy Center (703-380-1434) or Counseling and Psychological Services (703-993-2380). You may also seek assistance from Mason’s Title IX Coordinator (703-993-8730; titleix@gmu.edu).

Student Support Resources on Campus: <https://stearnscenter.gmu.edu/knowledge-center/knowning-mason-students/student-support-resources-on-campus/>.

Incomplete Grades: <https://chssundergrad.gmu.edu/other-forms/incompletes>.

Campus Closure due to Weather: If the campus closes or class is canceled due to weather or other concern, students should check Blackboard for updates on how to continue learning and information about any changes to events or assignments.

Safe Return to Campus Statement: All students taking courses with a face-to-face component are required to follow the university's public health and safety precautions and procedures outlined on the university Safe Return to Campus webpage (<https://www2.gmu.edu/safe-return-campus>).

More Course Policies and Expectations

- The expectations of this course are for you to put in at least 5+ hours of work/week outside of class, to complete this course successfully.
- You are expected to treat the faculty and each other respectfully. I will treat you with respect and fairness.
- You are expected to come to class on time, participate in class and stay the full class period.
- Submitting assignments on time is expected of all students.
- All assignments must be submitted using Blackboard. *Emailed assignments will not be graded [*unless Blackboard is down and is not working and the assignment is due that day/time; in which case please email the assignment to timestamp it].
- Students must verify that the correct assignment has been submitted by the due date. Blank copies and incorrect file format assignments turned in will automatically receive a zero grade.
- No make-up for missed exams and/or missed assignments accepted except for documented mitigating circumstances. Example of a mitigating circumstance is death in immediate family, or student's illness as verified by a physician. In such a case, you must notify me within 24 hours of the deadline.
- I will let you know what my assignment expectations are prior to work being assigned, and you are expected to turn in assignments on the due date as specified by me.
- Your grade is NOT based on how hard you work but based on how you have mastered the material.
- 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.

In addition, please remember these 7 principles:

“(1) Knowledge is a privilege that is earned through hard work, challenge, and discomfort. (2) Learning isn't about satisfying requirements; it's about living a satisfying life. (3) When you are struggling, it's your responsibility to ask for help. (4) Failure is the bedrock of learning, embrace your failures as opportunities. (5) No one has the same learning or test-taking style. (6) Teachers develop policies that apply to everyone. There are penalties for breaking the rules just as there are in the world outside of school. (7) Teachers can only facilitate learning; education is something we accomplish for ourselves throughout a lifetime.”

- <https://www.rootsofaction.com/avoiding-academic-entitlement-helping-youth-develop-realistic-expectations-for-college/>