

# CS 101: Introduction to Computer Science

James Madison University, Fall 2022 Semester, 3 Credits

Home Page:

<http://w3.cs.jmu.edu/cs101>

Classroom:

ISAT/CS 236 on Tuesday/Thursday

Section 1: 9:35am – 10:50am

Section 2: 11:10am – 12:25pm



## Course Instructor

Prof Sharon Simmons

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Office: King 221

Office Hours:

Zoom until the end of September, then in-person or zoom

<https://jmu-edu.zoom.us/my/sharonsimmons>

Tuesday: 1:00 pm – 3:00 pm

Wednesday: 1:00pm – 3:-00pm

and by appointment

## Catalog Description

How to think like a computer scientist. Topics include an overview of the context of computing, computational operations, computational devices, algorithms and data structures, the storage and transmission of data, the presentation of information, and the limits of computing. Students learn about the design and implementation of computational systems, the value of abstraction, problem solving, and the ways in which computation impacts society. There are no prerequisites.

## Required Textbook

Glenn Brookshear and Dennis Brylow (2015). *Computer Science: An Overview*, 12th Edition. Pearson Education, Upper Saddle River, NJ.

ISBN: 0133760065



[https://www.amazon.com/Computer-Science-Overview-Glenn-Brookshear/dp/0133760065/ref=sr\\_1\\_2](https://www.amazon.com/Computer-Science-Overview-Glenn-Brookshear/dp/0133760065/ref=sr_1_2)

You may find on other sites as well.

Other editions such as the 11th or 13th are acceptable. However, you will be responsible for any material presented in class that may only appear in the 12th edition. Also the homeworks vary in each edition so you will be responsible to complete the homework questions from the 12th Edition. The first couple of chapters are posted on canvas until you receive your textbook. Please do not delay in getting your book. You will NOT need an access code. You should pay no more than \$20 for this book.

## Learning Objectives

By the end of this course, you should be able to:

- Explain how data are represented, stored, and manipulated by computer hardware.
- Use abstraction and decomposition when reasoning about complex systems and problems.
- Describe how data can be transmitted over networks and the security concerns that arise.
- Apply computing tools and techniques to solve problems at multiple levels of abstraction.
- Connect the concern of cybersecurity with the Internet and systems built on it.
- Discuss the impact of computing within economic, social, and cultural contexts.
- Implement an algorithm that uses repetition and conditionals in a high-level language.
- Collaborate with others to gain insight, interpret data, and solve problems using computation.
- Summarize the role of algorithms, data structures, and languages in computer programming.
- Use metacognitive strategies (e.g., the study cycle) to make your learning more effective.

## Methods of Instruction

This course uses a “flipped classroom” approach for a significant portion of the scheduled class time. Instead of listening to long lectures during class time and doing homework individually, you will learn some content on your own and complete assignments during class. You may not be accustomed to this approach, but if you *trust in the process* you will learn so much! Most weeks will focus on a single chapter from the textbook. Please see the course canvas site for weekly format and due dates [CS101 Canvas site](#). The canvas site has all the information regarding weekly due

dates. Note that exercises have **10pm** due date time and not midnight as you might have in other courses. Labs are due Friday at 5pm. This time is strictly enforced.

There are **three exams** in the course as indicated on the syllabus. The first two exams will be timed exams on canvas and will be available for two days as indicated on the schedule, starting at **9am** of the first day and close at **10pm** the following day. The third exam will be given during the week of finals and will be a timed exam on canvas but will only be available during the final exam times for the course. Please see below about all the deliverables in the course.

## How to Succeed

- *When you attend lecture:* Take notes during lecture and rewrite notes after lecture.
- *When you read the book:* For each paragraph, write a short sentence that explains the main idea in your own words.
- *When you watch videos:* Pause, rewind, and take notes about the main concepts; make connections to the reading.
- *When you start the lab:* Read through all of the instructions and make a list of questions to ask at the beginning of class.
- *Before you start the exercises:* Review the questions at the end of each section. The answers are in the back of the book.
- *When you prepare for the exam:* Review lecture notes, videos, labs, exercises and quizzes since the last exam.

## Textbook Readings

We will maintain a detailed schedule with assigned readings, video lectures, and other resources on the [course home page](#) as the semester progresses. You are strongly encouraged to *study* (i.e., understand well enough to teach) the designated textbook sections, even if some material is not “covered” in class. It is not expected that you read every single word, although in many sections that will be most effective. The textbook will be a valuable resource for succeeding in the course—otherwise, we wouldn’t have required you to get a copy.

## In Person and Online Interactions

We are currently planning all lectures in person on the scheduled class time. You are expected to attend all scheduled class times. Your instructor office hours will primarily be in person in your professor’s office. Some office hours may be held on Zoom. You must use the JMU license of Zoom and your JMU eid to log onto Zoom.

We will use Canvas to make announcements, submit assignments, and manage grades. All class-related materials (e.g., syllabus, schedule, videos, tutorials, labs) will be posted on the [course home page](#) and linked from Canvas for convenience.

## Assessment and Grading

Letter grades will be assigned on the scale A=90–100, B=80–89, C=70–79, D=60–69, F=0–59, with potential minor adjustments after considering the overall performance of the class and actual distribution of numeric scores. The instructors will use “+” and “–” grades at their discretion. All the work of the class is worth 600 points.

### **Labs: Total of 150 points which is (25%) of your final grade**

Most weeks include a lab experience that helps you apply what you have learned in fun and practical ways. These are **due Friday at 5pm**. There will be a total of 10 labs, each worth 15 points so 150 points of your final grade. The labs will take about 60–90 minutes to complete. A lab will be assigned at the beginning of the week and it's important that you begin working on them so you can come to class with questions. Submissions must also be a pdf and submitted via canvas.

### **Exercises: Total of 210 points which is (35%) of your final grade**

Each week includes two sets of exercises: A and B. Set A is worth 10 points and Set B is worth 10 points. There are 10 two-set exercises, so all exercises are worth 200 points. Set A is due by Tuesday at 10pm of the associated week. Set B is due by Thursday at 10pm of the associated week. For the first week of class, since only one day, there is only one exercise that is worth 10 points. So the total is  $200 + 10$  points. Exercises sheets are available on the detailed schedule. They are available as a pdf. You can print these out and write out answers on the print out; edit the pdf, or you can write answers on paper with the answers being clearly numbered. To turn in, either scan or take a photo and then convert to a pdf for submission. If editing a pdf, save and turn in the pdf. A pdf is required and must be submitted via canvas. When you save your pdf, you **must include your name in the filename**.

### **Exams: Total of 180 (60 points each) points which is (30%) of your final grade**

There is an online exam after we complete 4 - 5 weeks of course material. There will be a total of three exams. Each is worth 60 points so a total of 180 points. Each exam will be timed, and the work must be done individually. Canvas will keep track of the timer. You may use your notes but with a time limit, your notes should only be used as a quick reference so it is important you internalize the material as preparation for the exam. The first two exams will be made available at 9am on the day indicated on the schedule and available the next day at 10pm. The third exam will occur during the course's university scheduled final time during finals week. **Once you start the exam, you must finish in the allotted time.** This will be automated so you need to make sure that you have a quiet reliable online environment to take the exam.

### **Project: Total of 60 points which is (10%) of your final grade**

During the last four weeks of class, you will be required to complete a Python project. This project will be collaborative in nature and done in groups. You should view them as a take-home midterm and final exam.

Details will be available on the detailed schedule.

## University Policies

### Academic Honesty

If you violate the University's Honor Code (<http://www.jmu.edu/honorcode/code.shtml>), you will receive a reduced or failing grade *in the course*, other penalties may be imposed, and the violation will be reported to the Honor Council. Automated tools may be used on any assignment, at any time, to detect inappropriate collaboration and to determine the originality of submissions.

### Adding/Dropping

You are responsible for enrolling in courses and verifying your schedule on MyMadison. The deadline for adding a semester course is Friday, September 2, 2022 (signatures required afterwards). The last day to withdraw from a course with a W grade is October 26, 2022. Please see [Deadlines](#)

### Disability Services

If you have a documented disability and need accommodations in this course, please register with the Office of Disability Services (<http://www.jmu.edu/ods>, Student Success Center, Room 1202, 540-568-6705). They will provide you with an Access Plan Letter to verify your need for services and make recommendations for the course. We will be happy to discuss your access plan with you.

### Excused Absences

Students who are unable to attend class due to JMU sponsored activities (such as sports, band, academic competition, field trips, etc) or personal religious observances may request reasonable accommodations. Please notify the instructor during the first week of class regarding potential absences so that we can determine alternative methods for you to complete the required work.

### Late Work Policy

All work is due by the set due date. In extreme, documented circumstances (e.g., hospitalization), the instructor will make reasonable accommodations after consulting with the student.

### University Closings

For severe weather and other unexpected circumstances, watch for announcements relating to make-up work. See <http://www.jmu.edu/JMUpolicy/1309.shtml> for JMU's cancellation policy. Although the schedule may adapt to canceled classes, assignment deadlines generally do not change.

### Your Well-Being

As a college student, there may be times when personal stressors interfere with your academic performance and/or negatively impact your daily life. If you or someone you know is experiencing mental health challenges at James Madison University, please connect with the Counseling Center located within the Student Success Center on the 3rd floor. You can learn more about available services by visiting <https://www.jmu.edu/counselingctr> or calling 540-568-6552. Their services are free and confidential. Other available support resources to consider include, but are not limited to, the Office of the Dean of Students, the Health Center, and Learning Strategies Instruction.