

# CS 101: Introduction to Computer Science

James Madison University, Fall  
2020 Semester, 3 Credits

Home Page:

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

Classroom:

ISAT/CS 236 on  
Mon/Wed/Fri

Section 1: 2:10 pm – 3:00 pm

Section 2: 4:00 pm – 4:50 pm

Section 3: 5:05 pm – 5:55 pm

Course Instructor:

Dr. Sharon Simmons

[simmonsj@jmu.edu](mailto:simmonsj@jmu.edu)

Office: ISAT/CS 221

Phone: 540-568-4196



## 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.

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. You will NOT need an access code.

## 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 will be taught using a hybrid approach. On most Mondays and Fridays, lectures will be live (synchronous) on zoom. It is expected that you attend lecture via zoom at the set time. On Wednesdays, we will meet in person. We will utilize two classrooms on Wednesday, ISAT/CS 236 and ISAT/CS ???, and there will be an instructor in each classroom. Small groups of size 6 to 8, will be have a 20 minute time slot during your class time to attend class on campus and ask questions. You will be notified of which room and time to attend on each Wednesday. The Wednesday class will also have a synchronous zoom option for those that can not attend in person.

## 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.

### Labs (12%)

Each week includes a lab experience that helps you apply what you have learned in fun and practical ways. These are due Wednesday at 10pm. The labs will take about 60–90 minutes to complete. A lab will assigned each Monday, and it’s important that you begin working on them so you can come to Wednesday’s class with questions You will be required to submit the results of each lab electronically by Wednesday at 10pm. Lab submissions must also be a pdf and submitted via canvas.

## **Exercises (18%)**

Each week includes a set of exercise to complete by Thursday at 10pm. We will introduce the exercises each Monday, and it's important that you begin working on them so you can come to Wednesday's class with questions. 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, 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. A pdf is required and will be submitted via canvas.

## **Quizzes (10%)**

We will have an online canvas quiz at the end of each week, due Friday at 10pm. The quizzes include vocabulary matching, multiple choice, and fill in the blank questions. Many of these questions will be similar to ones at the end of the chapter, so it pays off to practice them during your study time. The quizzes are open notes and book. You may take the quiz twice and receive the higher score.

## **Exams (40%)**

There is an online exam after we complete three weeks of course material. There will be four exams throughout the semester. Each exam will be timed, and the work must be done individually. The exams will have a time limit of 90 minutes. 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. Exams will be made available Friday at 6pm and available until Sunday at 10pm. 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.

## **Projects (20%)**

During the middle and end of the semester, you will be required to complete a substantial project. Both of these "performance tasks" will be collaborative in nature and done in groups. You should view them as a take-home midterm and final exam. The first task will explore a computing innovation of your choice and include a written paper and poster presentation. The second task will be a programming project of your choice and an online demonstration (details forthcoming), polished source code and an individual reflection

## **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 Thursday, 09/04/20 (signatures required after Friday). The last day to withdraw from a course with a W grade is 10/28/20. 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>). 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**

Late work will not be accepted for unexcused absences. There will be no make-up opportunities and no extra credit assignments. 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>. 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.