

# COMP 110/L: Introduction to Algorithms and Programming

## Spring 2024

**Instructor:** Maryam Jalali ([mjalalita@csun.edu](mailto:mjalalita@csun.edu))

**Course Web Page:** <https://mjalalit.github.io/COMP110/>

**Office:** 4445

**Office Hours:** by appointment - Online Via Zoom

### Class Details:

Section	Class Title	Days & Times	Room	Class Dates
<a href="#">COMP 110-21</a> <a href="#">(16470)</a>	INTRO ALGRTH/PROG (Lecture)	TuTh 2:00PM - 3:15PM	Online via Zoom	Jan 22, 2024- May 10, 2024

Section	Class Title	Days & Times	Room	Class Dates
<a href="#">COMP 110L-22</a> <a href="#">(16474)</a>	INTRO ALGRTH/PROG (Lab)	TuTh 3:30PM - 4:45PM	Online via Zoom	Jan 22, 2024- May 10, 2024
<a href="#">COMP 110L-23</a> <a href="#">(16475)</a>	INTRO ALGRTH/PROG (Lab)	Fr 9:30AM - 12:15PM	Online via Zoom	Jan 22, 2024- May 10, 2024

### Final Exam:

Section	Class Title	Exam Date	Exam Time	Exam Room
<a href="#">COMP 110-21</a> <a href="#">(16470)</a>	INTRO ALGRTH/PROG (Lecture)	5/16/2024, Thursday	3:00PM - 5:00PM	Online via Zoom

### Zoom Lecture Policy:

The course is being run as a synchronous online course. We will never meet in person for the lectures, though we will meet virtually via Zoom regularly each week at the assigned time. The synchronous lectures will be recorded and made available through Canvas, in case students want to view them asynchronously. These lectures will only be accessible to CSUN students either enrolled or waitlisted for the course. However, by enrolling in, or waitlisting this course, you consent to having any voice or webcam recorded. That said, I will never require you to use your webcam or speak; only what you voluntarily send will be recorded. Questions can either be asked verbally or textually through the Zoom chat. I will verbally repeat any questions in the chat before answering them, but I will not identify who

said the question. Even so, it's possible that your name will end up in the meeting recording, identifying you as a participant (Zoom sometimes unavoidably shows participant names in the recording).

Maryam Jalali is inviting you to a scheduled Zoom meeting.

Topic: COMP 110/L - Lecture & Lab - SP24

Join Zoom Meeting

<https://csun.zoom.us/j/86498577959>

Meeting ID: 864 9857 7959

### **Communication:**

Please use email for messages. Please keep emails short and focused, and use a clear subject line beginning with "COMP 110 Question". Many technical questions are better handled during lecture and lab rather than email, since the class as a whole might benefit from the discussion.

You may email me (mjalalita@csun.edu) at any time; I will generally respond within 24 hours (during the academic days). Always include your name, course, and CSUN e-mail address in your messages to me; an email address like meqwik@love.com leaves me clueless about who you are!

### **Course Description (from the catalog):**

Introduction to algorithms, their representation, design, structuring, analysis, and optimization. Implementation of algorithms as structured programs in a high-level language.

### **Goals:**

This course teaches basic skills in analyzing problems and solving them by finding or creating an appropriate algorithm (a recipe for solving a problem). Once an algorithm has been identified, it is translated into an executable application using the Java programming language. This last task is often called "programming," although this step is only one among many important steps in the software development lifecycle. The principles and skills related to problem solving and algorithms are general and are not specific to any programming language.

The CSUN CS Department has made a policy decision to use the Java language for lower division courses such as COMP 110, so Java language details will be presented as an important part of both lecture and lab, although the policy may change in the future. For now, you must demonstrate an appropriate level of both problem solving and Java programming skill to successfully complete the course. The lecture component (COMP 110) focuses on concepts and practical examples. The lab (COMP 110L) focuses on developing working and correct applications using Java and problem-solving techniques covered in lecture.

This course does not assume any previous experience in computer programming and material begins at an introductory level. However, coverage is fast-paced and moves on to more advanced topics quickly. This is not a survey course for non-majors, it is a real programming course designed for students concentrating in Computer Science and related majors who need to quickly develop real programming skills.

**Course Objectives:** A successful student will be able to:

1. Demonstrate the knowledge of a computer and operating system. The editing and compilation process.
2. Translate human-readable algorithms represented by pseudo code, flowchart or flow block diagram to Java.

3. Write and test Java programs using the 4 fundamentals of programming: sequence, choice, loop, and methods.
4. Construct programs that require several methods and good knowledge of passing parameters.
5. Demonstrate the knowledge of basic steps of software development: problem statement, program development, testing and documentation.
6. Solve problems with one- and two-dimensional arrays.
7. Use basic sorting and searching methods.
8. Apply the class String.
9. Read and write text files. Demonstrate practical using of Exception Handling.
10. Recognize the role of Object-Oriented Programming in software development.
11. Run the examples and exercises studied in the course.
12. Understand the ideas of Polymorphism and Inheritance.

**Prerequisites:** Grade of “C” or better in MATH 102, 103, 104, 105, 150A or 255A, or a passing score on the Math Placement Test (MPT) that satisfies prerequisites for MATH 150A or 255A.

**Corequisite:** COMP 110L. Introduction to algorithms, their representation, design, structuring, analysis and optimization. Implementation of algorithms as structured programs in a high-level language. Lab: 3 hours per week. (Available for General Education, Lifelong Learning if required by student’s major.)

### Course Material:

Most of the resource (Slides, labs, tutorials,..) will be posted on <https://mjalalit.github.io/COMP110/> .

Videos and announcements will be available on Canvas ( <https://canvas.csun.edu> ).

Grades will be posted on canvas ( <https://canvas.csun.edu> ).

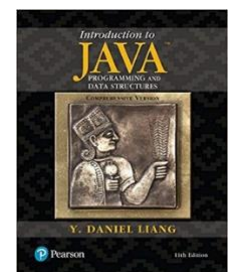
Any questions about a Lab/Exam grade should be addressed within two days of posting. After two days, all grades are final.

### Textbook:

No textbook is required. If you’d like a textbook for further study, a good supplemental textbook is:

“Introduction to Java Programming and Data Structures”, Comprehensive Version, 11th Edition - ISBN-13: 978-0-13-467094-2

Any edition from the past several years will suffice.



### Software Tools:

This class requires you to have direct and continual access to a computer. In short, it is a de facto requirement to own your own laptop computer to be successful in your chosen field.

You are free to do your work on your personal laptop. Lab machines use the Linux OS, but the software applications required for class work are available for all common OSes. You must install the Java Development Kit (JDK) and an editor to write programs for the class. You can use whatever editor you prefer. If you don’t have a preference, then I suggest JGrasp. It is important that you install the JDK first, then the JGrasp editor. Make sure you install the JDK, not the JRE (Java Runtime Environment).

For the JDK, go to:

<http://www.oracle.com/technetwork/java/javase/downloads/index.html>

Download the Java SE (Standard Edition) JDK, the latest version, SE 14.

Install JDK first, before proceeding to download and install JGrasp.

For JGrasp, go to:

<http://www.jgrasp.org>

Click on the Downloads link and download the installation for your platform (Windows, MacOS, or Linux/Unix).

This software is available in JD1104 and in the open computer science labs.

### **Course Format and Required Technology Resources:**

This course will be taught completely online (no campus meetings will be required), in a synchronous format (this course will have scheduled live meeting times). All activities, assignments and exams in this course will be completed via Canvas. To succeed in this course, you must have reliable access to a computer and internet connection. CSUN offers currently enrolled students the option to borrow devices such as computers and internet hotspots through its [Device Loaner Program](#).

### **Course Etiquette:**

<https://docs.google.com/document/d/1Q7Gv6a5l1minPxqxHA12zgddy4SJKMTdPjzRaE97RwM/edit?usp=sharing>

### **Accessibility, Academic, and Other Support Resources for Students:**

<https://docs.google.com/document/d/1MFULw4Ybpyu3FliHUCIzjxmsHxCGSBFRAPNxycOTCHw/edit?usp=sharing>

### **Grading:**

You will receive a **single combined grade** for the lecture and lab. Your grade is based on the following components. Canvas will be only used for posting the grades of the exams, quizzes and labs. At any point of semester, if you want to estimate your performance in the class, you must use the following table.

Lab Assignments	25%
Lab Midterm Exam #1	10%
Lab Midterm Exam #2	15%
Midterm Exam	15%
Lab Final Exam	15%
Final Exam	20%

Lab assignments will be frequent, typically with two due per week. The exact number of lab assignments has not been set, as this will depend somewhat on how the class progresses. These are low-stakes assignments which are intended to introduce an entirely new concept for the first time. Lab assignments are submitted through Canvas (<https://canvas.csun.edu/>). In the event that there is a problem with Canvas, you may email your assignment to me ([mjalalita@csun.edu](mailto:mjalalita@csun.edu)), though this should be considered a last resort.

**Grading Policy:** Exam questions will relate to the contents of both the textbooks **and** *material discussed in class*. To do well, you should attend virtual class regularly, participate in discussions, do all assignments, and take notes. If you miss a class, please make sure to review the posted material including the videos for the lecture and go over the important points with them.

- Exams are closed book/closed note
- Total category grade is calculated based on the sum of all grades for the category.

**Plus/minus grading is used**, according to the scale below. The left column shows the minimal score necessary to receive the grade in the right column. The highest letter grade possible given the score is chosen; e.g., if you receive an 88.2, you'd receive a 'B+' for the course, which corresponds to being  $\geq 86.5$ .

**Make-up exams must be arranged prior to the scheduled date and will be allowed only at the discretion of the instructor. There will be no make-up quizzes.**

<b>If your score is <math>\geq</math>...</b>	<b>...you will receive...</b>
92.5	A
89.5	A-
86.5	B+
82.5	B
79.5	B-
76.5	C+
72.5	C
69.5	C-
66.5	D+
62.5	D
59.5	D-
0	F

- **NOTE: Failure to take the Final Exam will result in a grade of “WU” which is equivalent to a grade of “F”**
- An important part of this course is the notation, terminology, concepts, and definitions; therefore, I do not answer questions during examinations.
- In fairness to all, I don't give make-up for any missed projects, quizzes, or exams.
- An incomplete (I) grade is given for genuine medical and other certified emergencies only; it is never given to catch up with missed assignments. Furthermore, to receive an Incomplete grade, you must have successfully completed at least two-thirds of the semester with a passing grade.

**Plagiarism and Academic Honesty:**

***Plagiarism in any assignment or cheating in the examinations will result in a grade of F in the entire course.***

On an exam, you are expected to submit only your own work. On a programming project, it is permissible to discuss solution approaches in a general sense with other students. But when submitting a program for a grade, the program must represent your own work. It cannot be a copy of another student's program, even if you worked in a group with that student. **Penalties for academic dishonesty on a single exam or programming project may result in**

**a grade of “F” for the entire course.** A report will also be made to the Office of the Vice President for Student Affairs. Students who repeatedly violate this policy across multiple courses may be suspended or even expelled. If you have any doubts about what is considered dishonest, please ask the instructors for guidance before taking such a serious risk. In general, **full disclosure is the best policy** on any submission. In other words, if a friend helped you to complete a project, **state this fact in writing at the beginning of the submission.** Such submission may not earn full points.

### **Late Policy / Exam Scheduling:**

Late assignments will be accepted without penalty if prior arrangements have been made or there is some sort of legitimate emergency (at my discretion). If you must be absent from an exam, contact me ASAP to see if alternative accommodations can be made. Note that all exams have been scheduled ahead of time (see the Class Schedule and List of Topics).

If an assignment is otherwise submitted late, it will be penalized according to the following scale:

<b>If your assignment is late by &lt;= this many days...</b>	<b>...it will be deducted by...</b>
1	10%
2	30%
3	60%
4+	100%

To be clear, assignments which are submitted four or more days beyond the deadline will not receive credit.

### **Attendance:**

For at least the first several weeks, attendance will be closely monitored in both lecture and lab. Frequent unexcused absences will result in a grade penalty. After the first few weeks of the semester, attendance will not be monitored as closely, but note that the scheduled lecture and lab time is the most appropriate time to ask questions and get help on your projects. I am not willing to spend an unreasonable amount of time outside of class (including excessive use of email) to explain class material to anyone who is not attending lecture and lab. In other words, you are expected to participate in lecture discussions by attending lecture and get programming help on your projects in person by attending lab. **Of course for this semester all lecture and lab sessions are conducted virtually via Zoom.**

### **Disabled Students**

"If you have a disability and need accommodations, please register with the Disability Resources and Educational Services (DRES) office or the National Center on Deafness (NCOD). The DRES office is located in Bayramian Hall, room 110 and can be reached at (818) 677-2684. NCOD is located on Bertrand Street in Jeanne Chisholm Hall and can be reached at (818) 677-2611. If you would like to discuss your need for accommodations with me, please contact me to set up an appointment."

### **Changes to Syllabus**

Changes may be needed to this syllabus and to the course plan. All such changes will be announced in class and will be announced via email. Students are responsible for this information.

## List of Topics (subject to change)

Exactly which topics are covered and when is subject to change.

Wk	Topics
1	Compiling and running Java code
2	Reading user input, arithmetic operations
3	Methods and tests
4	Introduction to objects, instance variables, visibility modifiers
5	Overloading, basic conditionals, random numbers, floating point
6	Complex conditionals, switch, more random numbers
7	Command-line arguments, arrays, introduction to loops
8	More loops and arrays
9	Complex loops
10	Array of objects - Loops and array practice
11	String, multidimensional array
12	Inheritance, super, polymorphism
13	Interfaces, exceptions
14	File I/O, finally
15	Exam Review
16	Final Exam Week