

Course Syllabus

CS 111C: Data Structures and Algorithms- Java

CRN 74684, Section 931

Fall 2020

The Syllabus contains nine sections. There is a lot of information, but it is important for you to read each section. To read each section, click the heading for that section to expand and read. In the future, click on the Syllabus Navigation Link [▶ Syllabus Navigation](#) on the top right to jump between sections or revisit relevant sections.



Course Description

The analysis and design of computer algorithms and their underlying data structures. Analysis of the timing and efficiency of algorithms. Study of lists, stacks, queues, trees, backtracking, searching, sorting and recursion. Introduction to graphs, hash tables, heaps, priority queues and direct access files. Further study of abstract data types and object-oriented programming.

[Course Outline of Record](https://ccsf.curricunet.com/Report/Course/GetReport/5046?reportId=28) [\(https://ccsf.curricunet.com/Report/Course/GetReport/5046?reportId=28\)](https://ccsf.curricunet.com/Report/Course/GetReport/5046?reportId=28)

Prerequisites

You are expected to know the basics of programming in Java, including object-oriented principles, class design, and arrays.

Prerequisite: CS111B (grade of C or better) or equivalent from another institution or passing grade on the prerequisite qualifying exam.

Student Learning Outcomes

1. Predict the results of data structures, including lists, stacks, queues, trees, graphs, heaps, hash tables and priority queues, with associated algorithms such as insertion, deletion, retrieval, search, and traversal.
2. Evaluate data structures and algorithms for given problems, including sorting and searching, considering appropriateness and efficiency.
3. Design and implement algorithms and data structures, including array-based and linked list implementations.
4. Design and implement recursive solutions.

Class Meetings

This is a fully online course. All course activities will occur online.

Course Web Site

Students will use the Canvas Learning Management system for all course activities, including accessing instructional materials, submitting assignments, and viewing grades. Your instructor is here to help with the course material and can sometimes help with some Canvas issues. But, if you need help uploading an assignment or with the mechanics of Canvas, Canvas help is the number to call.

For 24/7 help with Canvas call: 1-844-592-2198.

For technical help with your RAM ID or logging in, visit the [CCSF Help Desk](https://www.ccsf.edu/academics/online-learning/online-course-support-center) (<https://www.ccsf.edu/academics/online-learning/online-course-support-center>).

Course Textbook and Technology

Textbook

- Data Structures and Abstractions with Java

5th Edition

Author: Frank M. Carrano and Timothy M. Henry

Publisher: Pearson

ISBN-13: 978-0134831695

Copyright: 2018

- The 4th and 3rd editions are also acceptable. The 2nd edition or custom editions are **not** acceptable.
- There is a 4th edition book on reserve at the library.
- There is a [free PDF of the 3rd edition](https://www.pdfdrive.com/data-structures-and-abstractions-with-java-e33708685.html) (<https://www.pdfdrive.com/data-structures-and-abstractions-with-java-e33708685.html>) available online.
- A physical book, digital copy, rental copy, or any other format of book is acceptable.
- The digital access code is **not** required.

You can download the source code from the 5th edition textbook [here](#).

Canvas

Students will use the Canvas Learning Management system for all course activities. For 24/7 help with Canvas call: 1-844-592-2198. For help with your RAM ID or with logging into Canvas, visit the [CCSF Help Desk](https://www.ccsf.edu/academics/online-learning/online-course-support-center) (<https://www.ccsf.edu/academics/online-learning/online-course-support-center>).

Required Software

- [Adobe Reader](http://get.adobe.com/reader/) (<http://get.adobe.com/reader/>)
- [Update your browser if needed for Canvas](https://community.canvaslms.com/t5/Canvas-Basics-Guide/What-are-the-browser-and-computer-requirements-for-Canvas/ta-p/66) (<https://community.canvaslms.com/t5/Canvas-Basics-Guide/What-are-the-browser-and-computer-requirements-for-Canvas/ta-p/66>)
- Ability to watch YouTube videos: [QuickTime Player](http://www.apple.com/quicktime/download/) (<http://www.apple.com/quicktime/download/>) or [Flash Player](http://www.adobe.com/ap/products/flashplayer/) (<http://www.adobe.com/ap/products/flashplayer/>)
- You are required to have access to software to write, compile, and run Java programs for our course. Review the [Java Software](#) page for more details.

Course Logistics

Important Dates

The CCSF academic calendar is available [online](https://www.ccsf.edu/en/student-services/admissions-and-registration/academic-calendar.html) [_ \(https://www.ccsf.edu/en/student-services/admissions-and-registration/academic-calendar.html\)](https://www.ccsf.edu/en/student-services/admissions-and-registration/academic-calendar.html). Below are some important dates for our class.

- **Class begins:** Monday, August 31, 2020
- **Holiday:** September 5-7
- Last day to drop for refund: September 10
- Last day to add: September 18
- Last day to drop without a W: September 18
- **Holiday:** November 11
- Last day to drop with a W: November 19
- **Holiday:** November 26-29
- **Final exam:** December 15-18 (online)
- **Class ends:** December 18
- Grades available on myRAM: January 11, 2021

Dropping the Class

Students who do not participate in the academically related activity during the first week of class (including posting to the [Check-In Discussion](#), submitting [Homework 00: Course Procedures](#), and submitting [Homework M1: Review](#)) will be considered “no shows” and will be dropped from the class.

If you decide to discontinue this course, **it is your responsibility to officially drop it** to avoid getting no refund (after 10% of course length), a W symbol (after 20%), or a grade (after 60%).

You must *actively participate* in the course to remain in the course and not be dropped by the instructor. You must sign into the course, participate in discussions, and submit assignments. Students who do not log into the course on Canvas for over one week will be dropped from class for non-participation. Students who have not engaged in academically related activity for a week will be dropped from the class. Logging in and just viewing the course materials, by itself, is NOT active engagement.

It is strongly advised that if you need to miss more than one homework deadline that you contact me to avoid being dropped from the class.

Pass-NoPass (P/NP)

This class must be taken for a letter grade; it cannot be taken as Pass-NoPass.

Course Communication

Instructor: Jessica Masters

Email: jlmasters@ccsf.edu (<mailto:jlmasters@ccsf.edu>)

I prefer to receive messages through email, rather than the Canvas Inbox.

Communication Plan

- I will respond to your messages within 48 hours (although usually much sooner!) during the work week (Monday-Friday), excluding holidays, between the hours of 8:00am - 4:00pm.
- Assignments are due at 11:59pm, but I will not be online at this time. Be sure to start work early and ask questions early on so you can get an answer in time.
- I will participate in the discussion boards to answer student questions.
- I strive to review and grade homeworks within a week of the due date. You will receive comments and feedback on all projects and on many of the homework coding questions.

Instructor Announcements

The instructor will post announcements on the “[Announcements](#)” page in Canvas several times each week. Announcements contain critical information such as upcoming deadlines, common mistakes or feedback, or summaries of current topics. Canvas notifies students according to their preferred [Notification Preferences](https://community.canvaslms.com/t5/Student-Guide/How-do-I-manage-notifications-for-a-single-course-as-a-student/ta-p/430) (<https://community.canvaslms.com/t5/Student-Guide/How-do-I-manage-notifications-for-a-single-course-as-a-student/ta-p/430>) as soon as the instructor creates an Announcement. Be sure you are reading the Announcements.

Discussion Boards

The discussion boards are our only method of group communication for the class. Post all course-related questions to the discussion boards. Posting questions, posting answers, and reading other students' posts is key to being successful in the course.

If you have a question about something, it's *very* likely that someone else has the same question. Posting the question allows everyone to benefit from the question, answer, and discussion. The discussion boards take the place of an in-class discussion, where you would hear (and perhaps respond to) other students' questions and answers.

Online discussion boards are widely used in the "real world" (e.g., stack overflow). Consider using them in our class to be good practice for using them out in the world!

Pronto

I will **not** be use Pronto to communicate. Students are welcome to use it to communicate with each other. I will not read or respond to Pronto posts.

Grading

Visit the “[Grades](#)” page in Canvas to keep track of your grades. We continually grade homework and projects throughout the week and post grades and comments. There are student TAs who will also

assist with grading.

Methods of Evaluation

The course work is weighted as follows to determine your final grade:

Homework: 30%

Projects: 30%

Exams: 30%

Participation: 10%

Late Policy and Dropped Grades

I drop the lowest homework grade. I do not drop any project grades.

Homework is accepted up to 2 days after the due date with a 10% late penalty each day. Projects are accepted up to 5 days after the due date with a 10% late penalty each day. There are no further late submissions accepted unless you have arranged an extension with the instructor.

If you have concerns about completing an assignment on time or by the late deadline, contact me well in advance of the due date to ask about an extension.

Assignments are evaluated based syntax, logic, and style. Solutions should be syntactically correct (i.e., compile and use correct Java syntax), semantically correct (i.e., accomplish the task), and follow Java coding conventions.

Homework

Most modules will have one homework assignment. Homework involves coding questions, multiple-choice questions, and short-answer questions.

Homework is listed as "quizzes" on Canvas. But it is **not** a quiz. You can work on the homework as much as you want up until the deadline. **You do not have to complete the homework in one sitting.** In fact, you should **not** complete the homework all at once. You should work on it throughout the week. However, note that you can only click "Submit" one time, so be sure you are completely finished when you submit.

Most homeworks will include extra credit questions. These are optional and can never hurt your grade.

You can use all available resources on homework assignments. You can work with other students. Each student must submit their own homework assignment.

Projects

There are four projects. Projects are more extensive Java programs. You will have 1-3 weeks to complete each project.

Projects must compile to receive credit. Projects that do not compile will receive a score of 0.

You are allowed to work in a group on all projects if you choose. You will earn 10 points extra credit in the Projects category for each project you submit with a group, with a max of 20 points.

Many projects contain extra credit. This portion of the project is optional and can never hurt your grade.

Participation

Participation is based on posts made to each module's graded practice discussion board. You are required to post one answer to this discussion board in each module. Note that posts in other discussion boards do not count towards your participation score.

Your posted answer is worth 10 points. Answers are not graded and you are not being scored based on the correctness of your answer, only on your participation.

There are 13 graded practice boards. You can only earn a max of 100 participation points and this part of the grade cannot go over 100%. This allows you to miss up to three practice posts and still get 100% for your participation score.

The purpose of the graded practice discussion boards is to get practice with and feedback on topics before you submit your homework or project. Participation posts are due before the homework, usually on Sunday at 11:59pm.

I review the graded discussion boards every day Monday - Friday. I do not leave feedback on correct posts, I only score them with the 10 points. It is best to post early in the week if possible to get feedback on topics early.

Exams

There is an online midterm and an online final exam. The exams are open-note, open-book, open-Internet.

The exam material comes from the textbook, class lectures, class videos, and supplemental materials. It is your responsibility to take the online exams by the due date. You must complete exams on your own and cannot communicate with anyone other than the instructor during the exam.

Letter Grades

Grades will be assigned as follows:

- A: 90% - 100%
- B: 80% - 89.9%
- C: 70% - 79.9%
- D: 60% - 69.9%
- F or FW: < 60%

An "F" grade indicates that a student attended, participated and completed the course but failed to master the course curriculum.

An "FW" grade indicates the student stopped attending a course after the "last day to withdraw" deadline and subsequently did not submit any work or participate in any exams. Please check with your counselor and financial aid advisor for possible implications of the FW grade on residency and financial aid status.

Calculating Your Course Grade:

- Add up all of your homework points (including extra credit) and divide by the total number of points available so far.
 - Note that this might be over 100% because of extra credit.
 - Multiply this number by 0.30. This is your homework score (homework is worth 30% of your grade).
- Add up all of your project points (including extra credit and groupwork points) and divide by the total number of project points available so far.
 - Note that this might be over 100% because of extra credit.
 - Multiply this number by 0.30. This is your project score (projects are worth 30% of your grade).
- Add up your midterm and final exam score and divide by the total number of points available.
 - Multiply by 0.30. This is your exam score.
 - Note that if you want to get a sense of your grade before the midterm, you can put in an estimated grade for the midterm, such as 0.80 if you think you will score an 80% on the exams.
- Add up all of your participation points and divide by the total number of participation points available so far (which is 10 points * the number of weekly practice/discussion forums).
 - There is a maximum of 100 points, so if the total is more than 100, use 100 instead.
 - Multiply this number by 0.10. This is your participation score.
 - The participation score cannot be over 100%. If your score is over 100%, use 100%.
- Add up the four scores and this is your course grade.

Expectations

Student Expectations

This is a somewhat compressed course (16 weeks instead of 17.5). Students are expected to spend approximately **15 hours per week** completing course activities. Please make sure you have the time and dedication for this amount of work.

Here is what I expect of students each week:

- Watch the instructor-provided lecture videos while following along with the provided lecture notes and source code.
- Read the textbook.
- Complete the practice questions and post one answer to the graded discussion board.
 - The more you code, the more successful you will be!
 - Practice, practice, practice!
- Complete the assigned activities and submit them on time.
- Participate in the discussion boards.
 - Post questions that you have.
 - Answer other students' questions when you can.
 - Read the questions, answers, and discussions posted by other students.
- Do your own work and your best work.
- One more time because it's so important: Practice, practice, practice!

Instructor Expectations

Here is what you can expect of your instructor:

- I will respond to your email or message within 48 hours during the week, unless I inform you otherwise.
- I will treat you and your ideas with respect.
- I attempt to grade homework assignments within a week of the deadline.
- I will post grades and feedback in the Canvas Gradebook.
- I will give feedback on any project or coding question as to why points were deducted.
- I will work hard to make this a great class.

Standards of Conduct

Students who register in CCSF classes are required to abide by the [CCSF Student Code of Conduct](http://www.ccsf.edu/en/student-services/StudentAffairs/Conduct/_jcr_content/col2parsys/documentlink_1/file.res/Student%20Code%20of%20Conduct.pdf) (http://www.ccsf.edu/en/student-services/StudentAffairs/Conduct/_jcr_content/col2parsys/documentlink_1/file.res/Student%20Code%20of%20Conduct.pdf). Violation of the code is basis for referral to the Student Conduct Coordinator or dismissal from class or from the College. See the [Office of Student Affairs](https://www.ccsf.edu/en/student-services.html) (<https://www.ccsf.edu/en/student-services.html>).

Collaborating on or copying of tests, homework, or projects in whole or in part will be considered an act of academic dishonesty and result in a grade of 0 for that test or assignment. I encourage students to share information and ideas, but not their work. See these CCSF-provided links on Plagiarism:

[Encourage Academic Integrity and Prevent Plagiarism](http://www.ccsf.edu/en/library/library-services/faculty_services/integrity.html#def) (http://www.ccsf.edu/en/library/library-services/faculty_services/integrity.html#def)

[Citing Information Sources](http://www.ccsf.edu/en/library/research-help/citing.html) (<http://www.ccsf.edu/en/library/research-help/citing.html>)

Plagiarism in Computer Science

Watch my [video discussing Standards of Conduct in our course](https://youtu.be/gYFNGBfSaE4) (<https://youtu.be/gYFNGBfSaE4>).

Plagiarism means representing someone else's work as your own. Plagiarism means using the ideas, text, **or programming code** of someone else without appropriate acknowledgement. Plagiarism also consists of allowing someone else to write or alter your own work and submit it as your work.

Some examples of plagiarism/cheating:

- Copying and pasting code from a website and submitting that code as your own
- Submitting answers or code written by another student (from this semester or a previous semester)
- Submitting answers from an online source
- Posting an online request asking someone else to write an answer or code
- Posting a homework question, project, or exam question to an online study site and asking someone to complete it
- Communicating with other students or any other people other than the instructors during this exam; this includes e-mail, text, instant messaging, or any form of communication

All of the above activities will result in a 0 on the assignment or exam and potential disciplinary action.

If you are ever unsure about how to appropriately use online help sources or code that you see elsewhere, post to the discussion board to ask! Here are also some basic rules to follow to make sure you are acting ethically:

- Write your own code.
 - This is the most important thing: write your own code.
- If you get ideas or help from a website or person, that is okay. But *use those ideas* to write the code yourself.
 - I recommend reviewing the help and then putting the help away to write the answer. Close the browser, turn off the phone- whatever- just remove the resource from sight and then **write the code yourself**.
 - This will not only ensure you are not plagiarizing but will also ensure that you actually understand the concept.
- Make sure you can explain any code you submit.
- Don't post homework, projects, or exams to online study sites.



Course Schedule

Our course weeks run from Tuesday morning through Monday night. The dates of each module are listed in the title of each module.

Carefully check the due date of each assignment to make sure you know when the assignment is due. The "Calendar" icon on the left can also help with this

The schedule is subject to change.

Week/ Module	Dates	Topic
1	Monday, August 31 - Tuesday, September 8	Review
2	Wednesday, September 9- Monday, September 14	Generics
3	Tuesday, September 15 - Monday, September 21	Interfaces
4	Tuesday, September 22 - Monday, September 28	Array-Based Implementations
5	Tuesday, September 29 - Monday, October 5	Linked Node Implementations
6	Tuesday, October 6 - Monday, October 12	Timing and Efficiency
7	Tuesday, October 13 - Monday, October 19	Recursion

8	Tuesday, October 20 - Monday, October 26	Sorting and Searching
9	Tuesday, October 27 - Monday, November 2	Midterm Exam
10	Tuesday, November 3 - Monday, November 9	Stacks
11	Tuesday, November 10 - Monday, November 16	Queues
12	Tuesday, November 17 - Monday, November 30 (note this is two weeks)	Trees
13	Tuesday, December 1 - Monday, December 7	Graphs
14	Tuesday, December 8 - Monday, December 14	Hashing
15	Tuesday, December 15 - Friday, December 18	Final Exam



Academic Accommodations for Students with Disabilities

If you need classroom or testing accommodations because of a disability, or have emergency medical information to share with us, please contact us as soon as possible.

Students seeking disability related accommodations are encouraged to also register with Disabled Students Programs and Services located in Room 323 of the Rosenberg Library (415) 452-5481. Please see the [DSPS website \(http://www.ccsf.edu/en/student-services/student-counseling/dsps.html\)](http://www.ccsf.edu/en/student-services/student-counseling/dsps.html) for more information and alternate locations.