**CS 143: Computer Science II – Data Structures with Java**

**Fall Quarter 2019**

# Course Details

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| --- | --- |
| **Instructor** |  |
| **Class Hours** |  |
| **Office Hours** |  |

# CS143 – Computer Science II (5 credits)

This course is a continuation of Computer Science fundamentals. Students explore an in-depth look at object-oriented programming. Data abstraction and implementation topics include abstract data types, stacks, queues, linked lists, binary trees, predefined collection classes, recursion, complexity, searching, and sorting.

## Course Outcomes

1. Design and implement solutions to ambiguous problems.
2. Read and write code using Object Oriented Programming principles, including: classes, Objects, encapsulation, inheritance and interfaces
3. Implement, utilize, and compare List implementations (Array and Node)
4. Implement, utilize, and compare Collection interfaces and classes, including: abstractions (List, Set, Map, Stack, Queue) and implementations (Hash Table and Tree)
5. Read and write recursive methods, including recursive tracing and helper functions
6. Process data, including: searching and sorting
7. Analyze code in regard to complexity, performance analysis, and dynamic memory management

## Prerequisite

Completion of CS& 141 with a grade of 2.0 or better.

# Required Materials

## Textbook

* Building Java Programs: A Back to Basics Approach,

4th Edition (preferred, but newer/older versions should work)  
by Stuart Reges and Marty Stepp (same book is used for CS143)

* + Available @ the Bookstore or Amazon: [Student Value Edition](http://a.co/hPqGU0I), [Regular Edition](http://a.co/8znVJ4k)

*Approximate* Topic Coverage

|  |  |
| --- | --- |
| Week 1 | CS141 Review |
| Week 2 | CS141 Review |
| Week 3 | Sets & Maps  Big-O |
| Week 4 | Searching & Sorting Recursion |
| Week 5 | Recursion (cont.) |
| Week 6 | Iterators & Generics  Stacks & Queues |
| Week 7 | Linked Lists |
| Week 8 | Linked List (cont.) |
| Week 9 | Trees |
| Week 10 | Trees (cont.) |

## Software

* *[Java Development Kit (JDK)](http://www.oracle.com/technetwork/java/javase/downloads/index.html) (freely available online)*
* *[JGrasp IDE](http://www.jgrasp.org/) (freely available online)*

## Computer & Technical Requirements

* It is expected that when students enroll for this course they will be able to use a computer, be able to upload and download files, and successfully navigate browsers and websites.
* Students will receive homework throughout the course that must be completed on a computer with Internet access. The school library computers can be used for these purposes.
* **Need help?** Canvas questions can be directed to Shoreline e-Learning at [elearning@shoreline.edu](mailto:elearning@shoreline.edu), (206) 546-6966, visit Building 1200, or [24hour Canvas Support via chat or telephone](http://www.shoreline.edu/virtual-campus/elearning/canvas.aspx). Canvas and basic computing support is also available on campus at the [Shoreline Business Technology & eLearning Center](http://www.shoreline.edu/apply-and-aid/learning-support-centers/business-computer-software.aspx) in Building 1300, Room 1304.
* More [information on general technical requirements](http://www.shoreline.edu/virtual-campus/elearning/tech.aspx) can be found here.

# Grading and Assessment

Below is the breakdown of grading categories:

|  |  |
| --- | --- |
| **Activity** | **Percentage** |
| Learning Practice | 20 |
| Learning Reflections | 20 |
| Long Homework | 20 |
| Exams (4, one is dropped) | 40 |

## Late Policy

* Students are expected to turn in all assignments by the due date and time.
* Assignments not submitted on-time may receive zero points.
* Alternate arrangements *may* be approved for flexible due dates in special circumstances when the instructor is contacted **prior** to the due date. *No day-of extensions will be given.*
* Under no circumstance will an assignment be accepted beyond one week past an assignment’s due date.

More information available here: [Shoreline's full Grades Policy (#6260)](https://www.shoreline.edu/about-shoreline/policies-procedures/documents/6260GradesPolicy.pdf)

## Academic Integrity

Academic honesty and integrity are expected. Shoreline Community College has a strict policy on cheating and plagiarism. You are cheating if you copy, steal, borrow, consult, or use any means to obtain answers from classmates or unauthorized sources for any assignment inside or outside class. Any student found guilty of cheating and/or plagiarism will receive a zero for the assignment. If it happens a second time, you may fail the course.

**Long Homework Assignments are individual.** All code you submit must be your own work. You may discuss general ideas of how to approach an assignment, but never specific details about the code to write. Any help you receive from or provide to classmates should be limited and should never involve details of how to code a solution.

* You **may not** work as a partner with another student on an assignment.
* You **may not** show another student your solution to an assignment for any reason.
* You **may not** look at another's solution for any reason.
* You **may not** have another person "walk you through" an assignment, describe in detail how to solve it, or sit with you as you write it. You also may not provide such help to another student. This includes tutors and current or former students.
* You **may not** post your homework solution code online to ask others for help. This includes public message boards, forums, file sharing sites and services, or any other online system.

Please note that **both parties involved in a cheating case are equally guilty**. That is, helping someone else cheat is just as bad as reading someone else’s solution. There are many resources for students who are struggling, and the right thing to do in this situation is to point them to these resources.

## Mandatory Decimal Grading

**Final GPA decimal grading** will be used in accordance with the following table.

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## Tutoring Services

Shoreline provides excellent tutoring services!

1. You can request **2-hours of FREE tutoring a week** through Campus Tutoring Services. <https://www.shoreline.edu/apply-and-aid/learning-support-centers/tutoring.aspx>
2. You can utilize weekly **drop-in tutoring in the CSELC** (Computer Science and Engineering Learning Center). Ask your instructor for hours. <https://www.shoreline.edu/apply-and-aid/learning-support-centers/computer-science-engineering.aspx>

# Letter of Recommendation Requests

Letters of recommendation are often needed for applications to transfer universities, jobs, and internships. Instructors take pride in the letters that they write for students and can only craft strong letters for students whom them know well. Part of your job as a college student is to become the kind of student that a professor can speak highly of in a letter of recommendation — hardworking, capable, and intellectually inquisitive.

Before requesting a letter of recommendation, ask yourself:

* Have I discussed my academic or career goals with this instructor?
* Have I demonstrated an excellent work ethic or produced quality work in this course?
* Have I shown or communicated a passion for the subject or concepts that were taught?
* Will this instructor be able to incorporate personal and specific details about my academic growth or trajectory?

It is not necessary that the person writing your recommendation be able to speak to every bullet point above, but they should be able to speak to at least one of them.

Remember that requests may be declined for a variety of reasons, including, but not limited to: insufficient time to write the letter, not knowing the student well enough to provide specific character observations, or too much time has elapsed since working with the student.

**Requests for recommendations should come well in advance of the deadline for submission (i.e., at least 14 days in advance of the deadline, but the more notice the better).**

# Student Services

## Campus Closures / Cancelled Class

There are two types of suspended operations possible: campus is closed or classes are cancelled.  In the event of campus closure or cancelled class, students will be notified via Canvas of their expectations in relation to school work.

You can read Shoreline’s [Suspended Operations Procedures](https://www.shoreline.edu/about-shoreline/policies-procedures/documents/6030SuspendedOperationsProcedure.pdf).

## Students with Disabilities

Shoreline Community College is committed to providing educational programs without regard to disabling conditions as defined by Section 504 of the Rehabilitation Act of 1973. Reasonable accommodations will be made and no otherwise qualified individual with disabling conditions shall, on the basis of disability, be excluded from participation in, be denied the benefits of, or otherwise be subjected to discrimination under any program, activity or service administered by the college.

For more information: <http://www.shoreline.edu/oss/students-with-disabilities/>

## Tutoring Services

Tutoring Services provides students with free one-on-one tutoring support for any Shoreline Community College classes. Students can receive 2 hours of free tutoring a week per class they are registered for in a quarter.

They also have drop-in learning centers, such as the Computer Science and Engineering Learning Center, Biology/Chemistry Learning Center, Business Technology & eLearning Center, Physics Learning Center, Conversation Groups, and more (schedules and availability vary).

For more information and to apply for tutoring assistance or to apply to become a tutor, please visit our office in 4228 (Library), email [pttutors@shoreline.edu](mailto:pttutors@shoreline.edu), call 206-546-4776, or check out the webpage: [www.shoreline.edu/tutoring](http://www.shoreline.edu/tutoring).

## Counseling Center

The Counseling Center provides free, confidential and professional counseling services, resources, and referral to support the academic and personal success, health, and well-being of our students and campus community.

Students often visit the Counseling Center to discuss a wide variety of topics: depression, anxiety, relationship concerns, and stress management; indecision about major or career path; and academic concerns such as failing grades, struggling with a subject, or managing a learning disability. The Center also supports students who may be feeling suicidal or in crisis.

* FOSS – 5245, 206-546-4594, [www.shoreline.edu/counseling-center](http://www.shoreline.edu/counseling-center)

Need support when they are not available? For 24/7 emergency counseling, referral, or assistance please contact:

* King County: 24-Hour Crisis Line | 866-427-4747
* Snohomish County: 24-Hour Crisis Line | 800-584-3578
* Live Chat: [crisischat.org](http://crisischat.org/)
* Crisis Text Line: Text 741741
* 911 (for immediate health-related emergency)

## Success Coaching

Shoreline Community College provides students with [Success Coaching](https://www.shoreline.edu/advising/success-coaches.aspx) to help students develop and grow their academic skills. Coaching is an ongoing professional relationship where you work on study strategies, goal planning, time management, balancing life’s priorities, focus, motivation, and organization. Coaches also help you identify and connect to other resources. Coaching is not [counseling](http://www.shoreline.edu/counseling-services/), [advising](http://www.shoreline.edu/advising/), or [tutoring](http://www.shoreline.edu/enrollment-services/learning-support-centers/tutoring.aspx).

For more information: [shoreline.edu/advising/success-coaches.aspx](http://www.shoreline.edu/advising/success-coaches.aspx).

To schedule an appointment: [successcoaching@shoreline.edu](mailto:successcoaching@shoreline.edu) or 206-546-4559.

## Additional Campus Resources

Check out the [Current Students page](https://www.shoreline.edu/currentstudents/) for more information about Academic Support, Student Services, Campus Life, and much more.

# Privacy Policies

To learn about the practices regarding personal information that may be collected from users in this course, check the privacy policies below:

* [PracticeIt](https://practiceit.cs.washington.edu/privacy-policy) Privacy Policy
* [Canvas](https://www.canvaslms.com/policies/privacy)
* [Panopto](https://www.panopto.com/privacy/)
* [Shoreline Privacy Policies](https://www.shoreline.edu/currentstudents/privacyandnondiscrimination.aspx)
* [Student Policies](https://www.shoreline.edu/currentstudents/student-policies.aspx)
* [Microsoft 365](http://www.microsoft.com/online/legal/v2/?docid=22&langid=en-us)
* [Google Privacy Policy](https://www.google.com/intl/en/policies/privacy/)

# Accessibility Policies

Below are links to accessibility policies for sites used within this course:

* [Canvas](https://www.canvaslms.com/accessibility)
* [Panopto Accessibility Features](https://support.panopto.com/articles/Documentation/accessibility-features)
* [Shoreline Community College](http://intranet.shoreline.edu/policies/documents/5000/5114.pdf) [(Audio Version)](http://intranet.shoreline.edu/policies/documents/5000/5114.pdf)
* [Microsoft Office 365](https://support.office.com/en-US/article/Accessibility-in-Office-365-ACA7ACCF-58A0-4467-BE5C-24A7E7933A9D?ui=en-US&rs=en-US&ad=US)
* [Google (covers YouTube)](https://www.google.com/accessibility/products-features.html)