CSS 133 A Wi 21: Computer Programming For Engineers II

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Instructor: Dr. Yusuf Pisan, pisan@uw.edu UW1-260Q (425) 352-3741

Class: M/W 11:00-1:00pm on Zoom (https://washington.zoom.us/j/94075537647?pwd=UmVFa0JDdSs5R1ZBZk1kUUlwaTQzUT09) Meeting ID: 940 7553 7647 password: 133A

Office Hours: Monday 1-2pm and Thursday 9-10am. Signup via Canvas Calendar

Class Discord: invite link (https://discord.gg/5mEm92e)

Course Description

Transition from basic programming skills to a rigorous process of software development. Familiarization with higher level programming techniques (recursion, generic programming, stacks, queues, trees, searching, and sorting). Emphasizes connection between algorithmic thought and implementation. Engineering applications are emphasized. Prerequisite: CSS 132; CSSSKL 133 is a co-requisite.

Learning Objectives

- Use higher level programming techniques (object-orientation, recursion, inheritance, generic programming), constructs (lists, stacks, queues, trees) and algorithms (searching, sorting).
- Analyze the running time of algorithms.
- Solve programming problems that require multi-step approaches or must be decomposed into components.

Textbooks

zyBooks: Programming in C++, F Vahid and R Lysecky, https://www.zybooks.com/catalog/programming-c-plus-plus/ (https://www.zybooks.com/catalog/programming-c-plus-plus/)

This is an e-book with integrated exercises. To get the e-book:

1. Sign in or create an account at https://learn.zybooks.com/ (https://learn.zybooks.com/) with your @uw.edu email
2. Enter zyBook code: UWBCSS133PisanWinter2021
3. Subscribe

Bradley, Aaron R., Programming for Engineers: A Foundational Approach to Learning C and Matlab, 2011, ISBN 978-3642233029. Available as a PDF through the University of Washington library

http://alliance-primo.hosted.exlibrisgroup.com/UW:all:CP71129050430001451 **(http://alliance-primo.hosted.exlibrisgroup.com/UW:all:CP71129050430001451)**

Grading

- Exercises: 15%
- Projects: 30%
- Exams: 35%
- Final: 20%

A scale of 90s (3.5-4.0), 80s (2.5-3.4), 70s (1.5-2.4), 60s (0.5-1.4) is a rough guide. A student who achieves 75% of the possible points will receive a 2.0 grade in this course. Students with 95% and above will receive a 4.0 grade. Scores in between will be interpolated.

Distance Learning

Owing to the UW response to COVID-19, this course will be delivered entirely online through the Canvas learning management system and Zoom (supplemented by other web resources). This means that you will need to put in more time on your own than in a conventional course. Of course, the benefit of this structure is that you do not need to be physically present at UW-Bothell.

This course is scheduled to run synchronously at your scheduled class time via Zoom. These Zoom class sessions will be recorded. The recording will capture the presenter's audio, video and computer screen. Student audio and video will be recorded if they share their computer audio and video during the recorded session. The recordings will only be accessible to students enrolled in the course to review materials. These recordings will not be shared with or accessible to the public. The University and Zoom have FERPA-compliant agreements in place to protect the security and privacy of UW Zoom accounts. Students who do not wish to be recorded should 1) change their Zoom screen name to hide any personal identifying information such as their name or UW netid, and 2) not share their computer audio or video during their Zoom sessions.

Policies

Pet Policy: If a pet enters the camera frame during class, we will pause our discussion for an introduction to that pet and admiration by all. All pets are welcome

Assignment Submission: Exercises will be graded as Complete/Incomplete. You can miss up to 3 exercises without penalty.

For projects, you can work individually or in pairs. When working as a pair, all substantial work must be performed with both students present (virtually). You can submit one and only one project 24 hours late without any penalty (if working as a pair both people will need to use their one-time extension). If you are using your 24 hour extension, post a brief explanation to "Using Extension" assignment.

Other than when working in pairs, talking about code is OK, looking at each others code is not OK. Looking at references to understand how a functions gets used is OK; looking up assignment solutions is not OK. It is also not acceptable for your code or solutions to be publicly accessible on the web (for example, a public GitHub repository). Plagiarism will result in an assignment score of zero and a misconduct letter in your student record. Please be very careful to adhere to the student code of conduct: http://www.washington.edu/cssc/for-students/student-code-of-conduct/ I will make allowances for exceptional circumstances such as sickness, bereavement and official university business. I will not make exceptions for work, other classes, personal obligations, etc.

Attendance: Attend all classes. You are responsible for all the material covered in class, as well as any announcements including change of due dates or assignment specifications. There will also be graded in-class group exercises to practice problem solving. If you miss a class, I expect you to make-up for it on your own by asking your friends, reviewing the textbook, lecture materials, etc.

Communication: We will use discord as an extension of the classroom. Use a meaningful nickname and act professionally. If your question can be answered publicly by me or by a classmate, post it to discord. Use the office hours for complex issues or topics you are struggling with.

Use your UW email rather than "Canvas Messaging" to communicate directly with me. "Canvas Submission Comments" should only be used to draw the grader's attention to a specific part of your submission.

Problems: If you are having difficulties, come and talk to me. If I don’t know about it, I cannot help you. Small problems can be fixed easily early in the quarter, but might become impossible to fix later on.

Course Material: Lecture notes and other material will be posted to Canvas under "Files".

See the **School of STEM Course Policies (https://www.uwb.edu/getattachment/stem/about/stem-policies/classroom-policies-stem-fc-1-12-17.pdf)** , which covers:

- Academic Integrity
- Access and Accommodations
- Classroom Emergency Preparedness
- For Our Veterans
- Grade of Incomplete
- Inclement Weather
- Parenting Resources
- Religious Accommodations
- Respect for Diversity
- Student Support Services
- Surviving Sexual and Relationship Violence
- Wonder How to Address Faculty?

Course Calendar

Week	Tuesday/Thursday	Notes
4 Jan 6 Jan	Introduction - C and Unix	H01
11 Jan 13 Jan	Arrays, Strings, structs, define	H02
18 Jan 20 Jan	No-Class **Exam-1**	18 Jan, Martin Luther King Day H03
25 Jan 27 Jan	Objects and Classes	H04
1 Feb 3 Feb	Streams - Queue - Stack	H05
8 Feb 10 Feb	Matlab **Exam-2**	H06
15 Feb 17 Feb	Inheritance	15 Feb, Presidents' Day H07
22 Feb 24 Feb	Recursion	H08
1 Mar 3 Mar	STL Containers **Exam-3**	H09
8 Mar 10 Mar	Search and Sort - Trees	H10
15 Mar 17 Mar	**Final** - 17 Mar	No classes during finals week

Course Summary:

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Date	Details	
Mon Jan 4, 2021	**CSS 133A** (https://canvas.uw.edu/calendar?event_id=1803985&include_contexts=course_1444250)	11am to 1pm

Date	Details	
	Zoom Profile Picture (https://canvas.uw.edu/courses/1444250/assignments/5964176)	due by 11am
	Office Hours (https://canvas.uw.edu/appointment_groups/8595)	1pm to Mar 11 at 10am
Wed Jan 6, 2021	CSS 133A (https://canvas.uw.edu/calendar?event_id=1803986&include_contexts=course_1444250)	11am to 1pm
Sun Jan 10, 2021	Post on Discord (https://canvas.uw.edu/courses/1444250/assignments/5930919)	due by 11:59pm
	Project01 (https://canvas.uw.edu/courses/1444250/assignments/5930908)	due by 11:59pm
	Send Email (https://canvas.uw.edu/courses/1444250/assignments/5930920)	due by 11:59pm
	Using Extension (https://canvas.uw.edu/courses/1444250/assignments/5930922)	due by 11:59pm
Mon Jan 11, 2021	CSS 133A (https://canvas.uw.edu/calendar?event_id=1803987&include_contexts=course_1444250)	11am to 1pm
Wed Jan 13, 2021	CSS 133A (https://canvas.uw.edu/calendar?event_id=1803988&include_contexts=course_1444250)	11am to 1pm
Sun Jan 17, 2021	Project02 (https://canvas.uw.edu/courses/1444250/assignments/5930909)	due by 11:59pm
Mon Jan 18, 2021	CSS 133A (https://canvas.uw.edu/calendar?event_id=1803989&include_contexts=course_1444250)	11am to 1pm
Wed Jan 20, 2021	CSS 133A (https://canvas.uw.edu/calendar?event_id=1803990&include_contexts=course_1444250)	11am to 1pm

Date	Details	
	Exam-1 (https://canvas.uw.edu/courses/1444250/assignments/5930903)	due by 1:15pm
Sun Jan 24, 2021	Project03 (https://canvas.uw.edu/courses/1444250/assignments/5930910)	due by 11:59pm
Mon Jan 25, 2021	CSS 133A (https://canvas.uw.edu/calendar?event_id=1803991&include_contexts=course_1444250)	11am to 1pm
Wed Jan 27, 2021	CSS 133A (https://canvas.uw.edu/calendar?event_id=1803992&include_contexts=course_1444250)	11am to 1pm
	fileCopy (https://canvas.uw.edu/courses/1444250/assignments/5930906)	due by 11:59pm
Sun Jan 31, 2021	Project04 (https://canvas.uw.edu/courses/1444250/assignments/5930911)	due by 11:59pm
Mon Feb 1, 2021	CSS 133A (https://canvas.uw.edu/calendar?event_id=1803993&include_contexts=course_1444250)	11am to 1pm
Wed Feb 3, 2021	CSS 133A (https://canvas.uw.edu/calendar?event_id=1803994&include_contexts=course_1444250)	11am to 1pm
Sun Feb 7, 2021	Project05 (https://canvas.uw.edu/courses/1444250/assignments/5930912)	due by 11:59pm
Mon Feb 8, 2021	CSS 133A (https://canvas.uw.edu/calendar?event_id=1803995&include_contexts=course_1444250)	11am to 1pm
Wed Feb 10, 2021	CSS 133A (https://canvas.uw.edu/calendar?event_id=1803996&include_contexts=course_1444250)	11am to 1pm
	Exam-2 (https://canvas.uw.edu/courses/1444250/assignments/5930904)	due by 1:15pm

Date	Details	
	Inheritance (https://canvas.uw.edu/courses/1444250/assignments/5930917)	due by 11:59pm
Sun Feb 14, 2021	Project06 (https://canvas.uw.edu/courses/1444250/assignments/5930913)	due by 11:59pm
Mon Feb 15, 2021	CSS 133A (https://canvas.uw.edu/calendar?event_id=1803997&include_contexts=course_1444250)	11am to 1pm
Wed Feb 17, 2021	CSS 133A (https://canvas.uw.edu/calendar?event_id=1803998&include_contexts=course_1444250)	11am to 1pm
Sun Feb 21, 2021	Project07 (https://canvas.uw.edu/courses/1444250/assignments/5930914)	due by 11:59pm
Mon Feb 22, 2021	CSS 133A (https://canvas.uw.edu/calendar?event_id=1803999&include_contexts=course_1444250)	11am to 1pm
	Sorting (https://canvas.uw.edu/courses/1444250/assignments/5930921)	due by 11:59pm
Wed Feb 24, 2021	CSS 133A (https://canvas.uw.edu/calendar?event_id=1804000&include_contexts=course_1444250)	11am to 1pm
Sun Feb 28, 2021	Project08 (https://canvas.uw.edu/courses/1444250/assignments/5930915)	due by 11:59pm
Mon Mar 1, 2021	CSS 133A (https://canvas.uw.edu/calendar?event_id=1804001&include_contexts=course_1444250)	11am to 1pm
Wed Mar 3, 2021	CSS 133A (https://canvas.uw.edu/calendar?event_id=1804002&include_contexts=course_1444250)	11am to 1pm
	Exam-3 (https://canvas.uw.edu/courses/1444250/assignments/5943267)	due by 1:15pm

Date	Details	
Sun Mar 7, 2021	Project09 (https://canvas.uw.edu/courses/1444250/assignments/5930916)	due by 11:59pm
Mon Mar 8, 2021	CSS 133A (https://canvas.uw.edu/calendar?event_id=1804003&include_contexts=course_1444250)	11am to 1pm
Wed Mar 10, 2021	CSS 133A (https://canvas.uw.edu/calendar?event_id=1804004&include_contexts=course_1444250)	11am to 1pm
Sun Mar 14, 2021	Project10 (https://canvas.uw.edu/courses/1444250/assignments/5943273)	due by 11:59pm
Mon Mar 15, 2021	CSS 133A (https://canvas.uw.edu/calendar?event_id=1804005&include_contexts=course_1444250)	11am to 1pm
Wed Mar 17, 2021	CSS 133A (https://canvas.uw.edu/calendar?event_id=1804006&include_contexts=course_1444250)	11am to 1pm
	Final (https://canvas.uw.edu/courses/1444250/assignments/5930907)	due by 1:15pm