CPSC-270 Syllabus

Instructor: Dr. Durell Bouchard
Office Hours: MW: 10:50 AM - 11:50 AM or by appointment
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Course Objectives

In previous courses, you have learned how to create programs, organize them with data structures, and analyze their computational complexity. These topics and skills provide the foundations for all other computer science classes. Real-world software projects are significantly more extensive and complex than the programs you created in these classes. Fortunately, there is a sub-discipline of computer science, software engineering, dedicated to making the software development process more manageable. The techniques and tools you acquire in this class will not only prepare you for upper-level computer science courses but also equip you for success in software development after graduation.

Intended Learning Outcomes: By the end of the course, successful students will be able to:

1. Design and implement large software projects using a suitable software process model.
2. Review code for design, readability, and computational complexity.
3. Create appropriate and thorough test cases for a software implementation.
4. Utilize and comprehend the features of an integrated development environment, including compiling, debugging, testing, and version control.

Course Content

Prerequisites: CPSC-250

Text: *Clean Code: A Handbook of Agile Software Craftmanship*, by Robert C. Martin, Prentice Hall, 2008.

Project: The primary focus of the course is a semester-long software development group project. This project aims to integrate all the software engineering tools and skills you have acquired throughout the semester into the development of a mobile app.

Activities: In-class activities provide you with a structured experience in software engineering, enhancing your ability to use and understand the tools available for software development. These activities bridge the gap between the reading material and lectures, preparing you for the project.

Co-curricular: The Department of Mathematics, Computer Science, and Physics is offering a series of lectures designed to engage the campus community in discussions of ongoing research, novel applications, and other issues within these disciplines. You may submit up to two papers reflecting on a talk you attend for extra credit.

Grading: Course grades are assigned based on the following weights and scale:

Grade Weights

Category	Weight
Project	65%
Activities	35%

Grade Scale

Grade	Range	Grade	Range
A	93-100	C	73-76
A-	90-92	C-	70-72
B+	87-89	D+	67-69
B	83-86	D	63-66
B-	80-82	D-	60-62
C+	77-79	F	0-59

Course Policies

Attendance Policy: Attending class is crucial for your success in this course. If you anticipate being unable to attend class, email me before class to be excused.

Late Work: Unless specified otherwise, assignments must be submitted before the start of class on the due date. If you anticipate being unable to meet a deadline, email me before the deadline to request an extension. Unexcused late work will receive no credit.

Academic Integrity: I expect everyone to follow the Academic Integrity policy detailed in the handbook Academic Integrity at Roanoke College. Please contact me if you have questions about how these policies apply to our class. The bottom line is that all work you submit for a grade must be solely your own unless explicitly stated as group work.

Subject Tutoring: Subject Tutoring, located on the lower level of Fintel Library (Room 5), is open 4-9 PM, Sunday-Thursday. Subject Tutors are highly trained, current students who

offer free, one-on-one (and small group) tutorials in over 80 courses taught at Roanoke College, including: Business, Economics, Mathematics, INQ 240, Modern Languages, Lab Sciences, and Social Sciences. Check out all available subjects and schedule 30- or 60-minute appointments at <www.roanoke.edu/tutoring>. If you have a question, feel free to stop by, or contact us at subject_tutoring@roanoke.edu or 540-375-2590. See you soon! soon!

Accessible Education Services: Accessible Education Services (AES) is located in the Goode-Pasfield Center for Learning and Teaching in Fintel Library. AES provides reasonable accommodations to students with documented disabilities. To register for services, students must self-identify to AES, complete the registration process, and provide current documentation of a disability along with recommendations from the qualified specialist. Please contact Dustin Persinger, Assistant Director of Academic Services for Accessible Education, at 540-375-2247 or by e-mail at aes@roanoke.edu to schedule an appointment. If you have registered with AES in the past and would like to receive academic accommodations for this semester, please contact Dustin Persinger at your earliest convenience to schedule an appointment and/or obtain your accommodation letter for the current semester.

Student Health & Counseling Services: Student Health & Counseling Services supports students through in-person health appointments, in-person counseling, 24/7 telehealth (TimelyCare), Therapy Assistance Online, as well as resources related to general wellness, LGBTQ+, sexual assault, substance abuse, and suicide prevention. Unmet health needs can negatively impact your performance in this course. Student Health & Counseling Services can help. Please see https://www.roanoke.edu/shcs for more information and to access services.

Diversity: I consider this classroom to be a place where you will be treated with respect, and I welcome individuals of all ages, backgrounds, beliefs, ethnicities, genders, gender identities, gender expressions, national origins, religious affiliations, sexual orientations, ability - and other visible and nonvisible differences. All members of this class are expected to contribute to a respectful, welcoming, and inclusive environment for every other member of the class.

Preferred Name/Pronoun: I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the semester so I can make appropriate changes to my records.

Course Schedule

This course expects you to spend at least 12 hours of work each week inside and outside of class.

Date	Topic
Monday, January 13	Introduction
Wednesday, January 15	Web Page - HTML
Friday, January 17	Web Page - CSS
Wednesday, January 22	Web Page - Layouts
Friday, January 24	Web Page - Responsive Layout
Monday, January 27	JavaScript - Introduction
Wednesday, January 29	JavaScript - Continued
Friday, February 31	JavaScript - Objects
Monday, February 3	JavaScript - Async
Wednesday, February 5	JavaScript - App
Friday, February 7	React - UI
Monday, February 10	React - Interactivity
Wednesday, February 12	React - State
Friday, February 14	React Native - Introduction
Monday, February 17	React Native - Design
Wednesday, February 19	React Native - Navigation
Friday, February 21	React Native - Animation
Monday, February 24	React Native - Async
Wednesday, February 26	React Native - App
Friday, February 28	Version Control
Spring Break	
Monday, March 10	Project
Wednesday, March 12	Agile - Introduction
Friday, March 14	Agile - Philosophy
Monday, March 17	Agile - Planning
Wednesday, March 19	User Interface Design
Friday, March 21	Testing - Jest
Monday, March 24	Testing - Testing Library
Wednesday, March 26	Project
Friday, March 28	Clean Code - Introduction
Monday, March 31	Clean Code - Names
Wednesday, April 2	Project
Friday, April 4	Clean Code - Functions
Monday, April 7	Clean Code - Comments
Wednesday, April 9	Project
Friday, April 11	Clean Code - Formatting
Monday, April 14	Clean Code - Objects

Date	Topic
Wednesday, April 16	Project
Monday, April 21	Project
Tuesday, April 22	Project
Thursday, April 24 10:00 AM	Project Presentations