CPSC-471 Syllabus

Instructor: Dr. Durell Bouchard
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Course Objectives

This course is designed as a capstone experience. Students will learn about server-side processing for Web applications and then use their programming, website design, and database systems knowledge to develop a comprehensive web application. Through this process, students will learn about designing and creating interfaces that allow users to interact meaningfully with the application and the server-side processing that supports it.

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

1. design and implement a comprehensive Web-based application (client-side for user interaction, and server-side for data storage, retrieval and processing),
2. set up the server-side to enable the Web-based application to access and modify data on the server, and
3. design and implement a database on the server, and be able to programmatically retrieve from and update the database based on Web requests from the front-end of the application.

Course Content

Prerequisites: CPSC-350

Project: This course focuses on a semester-long software development project. The project integrates all the tools and skills you have acquired throughout your college career to develop a web application. The project will have several components and milestones throughout the semester.

Proposal: Before developing a web application, we will create proposals that include competitor analysis, user stories, user interface illustrations, database design, and a timetable.

Presentation: In place of a final exam, we will give formal presentations on our web applications. In addition to demonstrating the applicationâ€™s functionality, it is an opportunity to showcase what you have learned.

Weekly Meetings: We will have weekly meetings to present completed work and upcoming plans and collaboratively discuss ongoing challenges and solutions.

Activities: In-class activities provide you with a structured experience in web application development, enhancing your ability to use and understand the available tools. 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	30%
Proposal	20%
Presentation	20%
Weekly Meetings	10%
Activities	20%

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: If you have a temperature of 100.4 or higher or other COVID symptoms, do not come to class. Call Health Services IMMEDIATELY. For your absence to be excused, you must allow Health Services to notify me that you have consulted them about COVID

symptoms. If Health Services instructs you to isolate and not attend class for multiple days, inform me so that we can devise a plan to keep you up-to-date with the course material. All absences caused by consultation with Health Services regarding coronavirus symptoms or isolation ordered by Health Services will be excused. You will still need to complete the work and graded assignments, even if we extend your deadline.

Class attendance is crucial for success in this course; the material covered during missed sessions remains the responsibility of the student. Conversations in class clarify the published class materials and are subject to evaluation in subsequent tests and quizzes. If you anticipate being unable to attend class, please email me before class to request an excusal.

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: Collaboration is a fundamental part of learning. You are encouraged to discuss and learn from one another while working on the activities. However, collaboration on the group project requires proper attribution. Copying someone elseâ€™s work or submitting someone elseâ€™s work as your own is NEVER allowed. Using someone elseâ€™s work or ideas without appropriate attribution constitutes plagiarism and is considered an academic integrity offense. Please familiarize yourself with Roanoke Collegeâ€™s standards for academic integrity. If you are unsure about how the policy applies to any assignments in this course, seek clarification from me.

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!

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 and Conseling 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: This classroom is a place where all individuals will be treated with respect, and students of all backgrounds, beliefs, ethnicities, genders, gender identities, gender expressions, national origins, religious affiliations, sexual orientations, abilities, and other visible and non-visible differences are welcomed. All members of this class are expected to contribute to creating a respectful, welcoming, and inclusive environment for each other.

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 to 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.

Week	Topic
1	Introduction
2	Navigation
3	Database
4	Streaming
5	Mutation
6	Proposal
7	Proposal
8	Project
9	Project
10	Project
11	Project
12	Project
13	Project
14	Presentations