Course Syllabus

Course title: Web Applications
Class section: ICS **-** 211 **-** X03A
Term: 2025F
Course credits: 3
Total hours: 75
Delivery method: In-Person

Territorial acknowledgment

Camosun College respectfully acknowledges that our campuses are situated on the territories of the Lək̓ʷəŋən (Songhees and Kosapsum) and W̱SÁNEĆ peoples. We honour their knowledge and welcome to all students who seek education here.

Instructor details

Name: Brandon Devnich
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Course description

Course Description:
Learn to unlock the power of web technologies to build dynamic, interactive web applications. You will gain expertise in both client-side and server-side techniques to create secure, data-driven applications that offer seamless, engaging user experiences. Explore web application architecture, version control,

debugging, data management, and security practices while learning to implement accessibility standards. With hands-on projects and industry-standard tools, this course prepares you to create real-world, cutting-edge applications ready for the modern web.

Prerequisites:
One of:

- C in ICS 121 (if take prior to January 2020)
- C in ICS 128

And one of:

- C in ENGR 155
- C in ICS 125

Co-requisites:
Pre or Co-requisites:
Equivalencies:

Learning outcomes

Upon successful completion of this course, the learner will be able to

1. Explain the architecture and components of modern web applications, including the client-server model and HTTP/HTTPS protocols
2. Develop and implement a web application, including integration with a back-end service
3. Utilize a modern web development front-end framework to design, implement, and maintain an efficient web application
4. Troubleshoot and debug web applications using development tools and best practices for identifying and resolving issues
5. Identify common security vulnerabilities and apply defensive programming techniques to mitigate these risks
6. Apply ethical and privacy standards in the development of web applications, ensuring data integrity and user protection.

Course materials

Materials on the D2L Course Page

- Presentation slides for lectures, lab assignment instructions for labs, etc.

Materials on the ICS 211 Course Page

- Code snippets for quick access https://211.compsci.cc

Required Textbooks

- None

Recommended Hardware

- Although not required, a personal laptop would be an asset.

Course schedule

General Schedule

The course will meet in-person, four times per week over a 14-week semester. Each week will consist of three one-hour lectures and one two-hour lab. Additional time over and above the allotted lab time may be required to complete lab assignments.

Lectures will be delivered in-person at regular times.

Labs will be assigned and then due before the next scheduled lab block. Please see lecture and lab schedule at http://my.camosun.ca for detailed information about class hours and locations. Please consult the calendar tool in D2L frequently for any updates.

Topics

Lectures will contain topics that will help you complete the weekly lab. These topics will teach you the basics of web application development using the React platform, as well as experience building a web application that interfaces with a real-world API. Please see course schedule and topics table below for more detail.

Activities

Lectures

During lectures, you will be expected to participate in in-class code practice. Successful completion of the course will hinge on your ability to implement the content that is being presented. You will submit

these up to your allocated course web space.

Quizzes

There will be weekly at-home open-book quizzes to reinforce your comprehension of course material covered during the week. You will have unlimited opportunities to complete each quiz. There is no due date on these quizzes and you may do them as many times throughout the semester, for review, as you like.

Labs

You will be expected to attend all lab blocks as you will be required to demonstrate your completed lab assignment, due the night before, during the following lab block. Prior to demonstrating your lab to the instructor, within the first 15 minutes of the lab block, you will be asked to form into small groups to reflect upon your learning of the previous week's assignment, and share your knowledge and understanding with students. This exercise reflects the ideas of the Circle of Courage indigenous learning framework that involves Belonging, Mastery, Independence, and Generosity. This exercise will work to build a sense of community and interpersonal skills, mastery through sharing of ideas, independence through reflection on failures and successes, and generosity through the sharing of experience to your classmates. Once the reflection and sharing has completed, the class will move on to one-on-one demonstrations of your lab assignment tasks and demonstration of your comprehension of the skills that would be developed during the lab assignment. Your instructor will provide you critiques and feedback which you will be required to implement before completing the next assignment. Your lab assignment will only be considered completed once those critiques have been implemented.

Term Project

There will be a term project in the last third of the course that will satisfy the primary course objective to "design, implement, and test a web application". This project may be completed alone or in teams of 2-3. If in a team, the project scope will be increased and there will be a peer review piece that will be completed by each team member about each team member's involvement. This project will have a self-assessment component to it.

Final Exam

The final exam will be a restricted open-book practical exam – this means that you will have access to course material (your own labs, lecture slides, handouts) only. There will be a separate self-assessment piece that will be to be completed at home after the final exam has completed.

Expected Workload

For highest results, you should expect to spend, outside of scheduled lecture and lab times, an additional 20-25 minutes daily (or 2-3 hours weekly) to complete lab assignments, practice examples, review material, and complete quizzes.

Evaluation

You will self-evaluate your progress regularly through the at-home quizzes, and completion of the weekly labs. Throughout the term, you will have regular opportunities to offer critical self reflection on your progress to the instructor. The instructor will also be providing feedback on your progress on a weekly basis, as you moved towards mastery of the content. Building towards the final exam, you will complete the term project which will further give you practice applying the knowledge you acquire through the course. At the end of the course, you will complete a practical exam and a self reflection and self assessment.

To address concerns that focus on grades, I will shift the focus of this course to your learning experience, not the grading experience. As such I will provide assessment in the form of feedback which will allow you to work towards mastery instead of the form of a letter grade or percentage. As the College requires each Learner to receive a graded assessment for their course completion, this grade will be determined with YOU. This is your learning experience.

Assigning the Final Grade

There will be weekly check-ins with the instructor during lab time, as well as optional appointments during instructor office hours. The final grading assessment will be a combination of self-assessment and self-assessment. If your self-assessment is not in alignment with my own assessment, I reserve the right to change this final grade – higher or lower – based upon my own observations, feedback, and assessment of your work.

If, at any time, you are concerned about this process, please contact me.

Schedule of Sessions and Topics

The following schedule and course components are subject to change with reasonable advance notice, as deemed appropriate by the instructor.

Week	Start	Topics	Labs
1	Sept 1	MO: Labour Day TH: Course Outline	Lab 01: Setting Up Your Development Environment

		FR: Introduction to Web Apps	
2	Sept 9	MO: Intro to React TH: Intro to JSX FR: Comparing Modern React Frameworks	Lab 02: Create React App, Node.JS, JSX
3	Sept 15	MO: Intro to React Components TH: Arrow Functions & Destructuring FR: Styling React Components	Lab 03: NextJS App / React Components (ES6izing)
4	Sept 22	MO: Tailwind CSS TH: Intro to Jest FR: Using Map()	Lab 04: Styling React Components
5	Sept 28	MO: React Hooks, Component Lifecycle TH: Data Interchange & JSON FR: Async Programming, ES6 Promises	Lab 05: Map() and Testing
6	Oct 6	MO: Midterm #1 TH: Fetching Data FR: The Effect Hook & React DOM Events	Lab 06: Fetching Data From a JSON-based API
7	Oct 13	MO: Thanksgiving TH: Forms in React FR: Material UI	Lab 07: Adding a Form to Your Application
8	Oct 20	MO: Form Submission & Conditional Rendering TH: Client-Side Security FR: Client-Side URL Routing	Lab 08: Submitting the Form
9	Oct 27	MO: State Management TH: Redux Client-Side State Management FR: API Endpoints	Lab 09: Client Side State Management & Security
10	Nov 3	MO: Server-Side Data Security TH: Mongoose Database Connectivity FR: Review	Lab 10: Middleware
11	Nov 10	MO: Midterm #2 TH: Project Introduction FR: Project Work Period	Project: Chatbot Milestone 1 – Login & Security
12	Nov 17	MO: Project Work Period TH: Project Work Period FR: Project Work Period	Project: Chatbot Milestone 2 – Send & Receive
13	Nov 24	MO: Project Work Period TH: Project Work Period FR: Project Work Period	Project: Chatbot Milestone 3 -- Store & Fetch

14	Dec 1	MO: Project Work Period TH: Project Demonstration Day FR: Self Assessment Day	

Assessment and evaluation

Type	Description	Weight
Assignment	Lab Assignments (10) - Must complete all labs with a minimum of 65% average.	25
Exams (Midterms and finals)	Midterm Exams (2) - Two practical midterm exams.	20
Quizzes and tests	Quizzes (10) - At-home open book, unlimited opportunities to complete each quiz.	5
Projects / Research	Term Project (1) - Can be individual or a group project.	15
Participation	Lecture Participation (20) - Completion of 20 lecture in-class examples	5
Practical Assessment	Final Exam - Restricted Open-Book Practical (access to course material only, no internet access). Minimum achievement of 65% required to pass the course.	25
Conduct Assessment	Final Reflection / Self Assessment - Upon completion of the course work, you will be asked to write a reflection on what was learned.	5

Course guidelines and expectations

Late assignments and/or labs will not be accepted, except by the instructor's prior written permission or in the presence of a dire and documented short-term medical or family emergency. Student must complete **all** labs.

Students **must** achieve all of the following in order to pass the course *****:

- a minimum 65% average on all labs
- all labs must be completed
- a minimum of 65% on the term project, and
- a minimum 65% on the final exam

*** if there is failure to meet any of these requirements, regardless of the course average, the final course mark will be reduced to an F.**

Students must achieve a C (60%) in the course to use as a pre-requisite.

School or departmental information

Supplemental Department Policies

Grade Review: You have 7 days after marks are posted to review with your instructor.

Academic Integrity Violations:

- 1st violation: minus the weight of the deliverable and a note on your departmental file.
- 2nd violation: F in the course
- 3rd violation: Student Conduct Policy E-2.5 is applied

Missed Examinations/Quizzes: If a student misses a quiz, project or an exam, a mark of zero will be assigned unless there are extenuating circumstances. In such cases, the proportion of grade assigned to the missed quiz or exam will be added to the proportion assigned to the final exam.

Electronic Devices: The school's policy regarding electronic devices is that any student who has a cell phone or other unauthorized electronic device (ie. ipad, laptop, playbook, etc.) on their person or around their desk during a closed-book exam will be guilty of cheating and will receive a grade of "F" for the course.

Academic integrity acknowledgement

When you registered you acknowledged the following:

> As a Camosun student, I understand that I am responsible for upholding the standards outlined in the Academic Integrity Policy, and commit to completing my coursework honestly, without cheating, plagiarizing, or getting unauthorized assistance.
> I will also follow my instructors' guidelines regarding the use of artificial intelligence (AI) tools in my academic work.

I acknowledge that the Academic Integrity Policy explains the consequences of academic misconduct. These may include loss of marks, failing grades, or, in serious or repeated cases, suspension. If I violate the policy, my instructor may require me to complete a short online course on academic integrity.
Camosun College offers resources to help me understand and uphold academic integrity. The Academic Integrity Online Guide provides real-life examples, tips for avoiding misconduct, and strategies for completing work with integrity.
If I'm ever unsure about what constitutes plagiarism, cheating, or other forms of academic misconduct, I will ask my instructor for clarification.

It is your responsibility to uphold these academic integrity standards.

College policies and student responsibilities

The college expects students to be responsible, respectful members of the college community. Responsible students meet expectations about attendance, assignments, deadlines, and appointments. They become familiar with academic policies and regulations, and their rights and responsibilities.

College polices are available online at the Policies and Directives page. Academic regulations are detailed on the Academic Policies and Procedures for Students page.

Policies all students should be familiar with include the Academic Integrity Policy. This policy expects students to be honest and ethical in all aspects of their studies. It defines plagiarism, cheating, and other forms of academic dishonesty. Infractions of this policy can result in loss of marks or a failing grade. To learn more about plagiarism and cheating, including the use of artificial intelligence, review the Academic Integrity Guide.

The Academic Accommodations for Students with Disabilities Policy defines how Camosun provides appropriate and reasonable academic accommodations. The Centre for Accessible Learning (CAL) coordinates academic accommodations. Students requiring academic accommodations should request and arrange accommodations through CAL. Contact CAL at least one month before classes start to ensure accommodations can be put in place in time. Accommodations for quizzes, tests, and exams must follow CAL's booking procedures and deadlines. More information is available on the CAL website.

Students must meet the grading and promotion standards to progress academically. More information is available in the Grading Policy.

The college uses two grading systems. A course will either use the standard letter grade system (A+ to F) or a competency-based approach with grades of complete, completed with distinction or not completed. Visit the Grades/GPA page for more information.

Students must meet the college's academic progress standards to continue their studies. A student is not meeting the standards of progress when a GPA falls below 2.0. The college offers academic supports for students at risk of not progressing. The Academic Progress Policy provides more details.

If you have a concern about a grade, contact your instructor as soon as possible. The process to request a review of grades is outlined in the Grade Review and Appeals Policy.

The Course Withdrawals Policy outlines the college's requirements for withdrawing from a course. Consult the current schedule of deadlines for fees, course drop dates, and tuition refunds.

If students experience a serious health or personal issue, they may be eligible for a medical or compassionate withdrawal. The Medical/Compassionate Withdrawal Request Form outlines what is required.

The Acceptable Technology Use policy ensures the use of the college network and computers contribute to a safe learning environment. This policy also applies to the use of personal devices with the college network.

Students experiencing sexual violence can get support from the Office of Student Support. This Office of Student support is a safe and private place to discuss supports and options. More information is available on the sexual violence support and education site. Students can email oss@camosun.ca or phone 250-370-3046 or 250-370-3841.

The Student Misconduct Policy outlines the college's expectations of conduct. Students should behave to contribute to a positive, supportive, and safe learning environment.

The Ombudsperson provides an impartial, independent service to help students understand college policies.

Services for students

Successful students seek help and access college services. These services are recommended to make the most of your time at college.

Services for Academic Success

- Career Lab: Connects students with work-integrated learning experiences, including co-op placements and career fairs.
- English, Math, and Science Help Centres: Get one-on-one help with homework.
- Library: Get help with research, borrow materials, and access e-journals and e-books. Libraries at both campuses provide computers, individual and group study spaces.

- Makerspace: A place to innovate, collaborate, and learn new skills and technology in a fun, dynamic, inclusive environment.
- Writing Centre & Learning Skills: Get assistance with academic writing or meet with a learning skills specialist for help with time management, preparing for exams, and study skills.

Enrolment, Registration, and Records

- Academic Advising: Talk to an academic advisor for help with program planning.
- Financial Aid and Awards: Learn about student loans, bursaries, awards, and scholarships.
- Registration: Get information about Camosun systems, including myCamosun, and college policies and procedures.
- Student Records: Get verification of enrolment to access funding, request a transcript, or credential.

Wellness and Cultural Supports

- Counselling: It's normal to feel overwhelmed or unsure of how to deal with life's challenges. The college's team of professional counsellors are available to support you to stay healthy. Counselling is free and available on both campuses. If you need urgent support after-hours, contact the Vancouver Island Crisis Line at 1-888-494-3888 or call 911.
- Centre for Indigenous Education and Community Connections: Provides cultural and academic supports for Indigenous students.
- Camosun International: Provides cultural and academic supports for international students.
- Fitness and Recreation: Free fitness centres are located at both campuses.

For a complete list of college services, see the Student Services page.

Changes to this syllabus

Every effort has been made to ensure that information in this syllabus is accurate at the time of publication. The College reserves the right to change the course content or schedule. When changes are necessary the instructor will give clear and timely notice.