
Course Outline

Introduction to Internet application development; emphasis on computer science fundamentals of technologies underlying web applications. Topics include: scripting and functional languages, language-based virtual machines, database query languages, remote procedure calls over the Internet, and performance and security concerns in modern distributed applications.

Course Information

Instructor Name

Dave McKenney

Instructor Email

david.mckenney@carleton.ca

Lecture Hours

Tuesday and Thursday

8:35-9:55 AM

Online

Course Webpage

<https://culearn.carleton.ca>

Course Discord Server

Link will be posted on cuLearn

Course Delivery

This course will be delivered using a mix of asynchronous and synchronous delivery methods (i.e., using a blended approach). Pre-recorded lectures will be shared online to deliver primary lecture content. Scheduled lectures on Tuesdays/Thursdays will involve more of a discussion driven approach between the instructor, a TA, and the students in attendance. These scheduled lectures will also be recorded and shared online. The instructor and TAs will be available via Discord during scheduled hours to answer questions and clarify topics. Students will be expected to use an alias that includes their first and last name, as listed on cuLearn, in the course Discord and in any other course meetings or activities (Zoom, etc.).

Required Textbook

There will be no required textbook purchase for this course. Readings for the course will be assigned from resources available freely on the internet.

Assessment Scheme

Your performance in this course will be assessed using several components. These include **ten tutorials, one course project check-in, and a final course project submission**. The grades you achieve on these components will be weighted using the following scheme:

Tutorials (10 × 4% each)	40%
Course Project Check-In (due March 14 th)	20%
Course Project (due April 14 th)	40%

Course Project

The course project will be a term-long assignment that will involve all of the key concepts and tools learned throughout the course. The project specification will be made available in the first few weeks of the course. Projects can be completed individually or in pairs (tutorials may also be completed individually or in pairs). There will be one check-in for the project due March 14th. The goal of the check-in will be to review your current progress on the project and provide feedback on your design as you move toward completing the final project submission.

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Topics Covered

Below is a summary of topics the course will cover:

- Web Concepts, HTTP
- Javascript
- Functional Programming and Closures
- Markup Languages (e.g., HTML, CSS, XML, Bootstrap)
- Synchronous vs Asynchronous function calls
- Client- and Server-side coding in Javascript
- Javascript execution environments: Browsers and Node.js
- Node.js and the NPM system
- JSON databases (using MongoDB), and possibly SQL databases (using SQLite)
- Server-side templating (using Pug, etc.)
- Sessions and Cookies, AJAX, Web Sockets
- Cloud deployment and hosting (e.g., OpenStack, Heroku)

Assignment Submission and Late Policy

Upon request, each student will be granted one 72-hour extension during the term. This extension can be used for any tutorial, the project check-in, or the final project submission. In order to receive the extension, the student must email the instructor before the official deadline that they wish to receive the extension for. Outside of this one-time exception, no late submissions or accommodations will be allowed.

Technical problems do not exempt you from this requirement, so if you wait until the last minute and then have issues with your connection, you will still receive a mark of zero. Consequently, you are advised to:

- periodically upload your progress (i.e., upload partially completed submissions)
- attempt to submit your final submission at least 30 minutes in advance of the due date and time
- **download your submission and verify the contents after submitting**

University Policies

Student Academic Integrity Policy

Every student should be familiar with the Carleton University student academic integrity policy. A student found in violation of academic integrity standards may be awarded penalties, which range from a reprimand to receiving a grade of F in the course or even being expelled from the program or University. Some examples of offences are plagiarism and unauthorized co-operation or collaboration. Information on this policy may be found in the Undergraduate Calendar. For more information, including the Standard Penalty Guideline, see <https://science.carleton.ca/academic-integrity/>.

Plagiarism

As defined by the Senate, "plagiarism is presenting, whether intentional or not, the ideas, expression of ideas or work of others as one's own". Such reported offences will be reviewed by the office of the Dean of Science.

Unauthorized Co-operation or Collaboration

Senate policy states that "to ensure fairness and equity in assessment of term work, students shall not co-operate or collaborate in the completion of an academic assignment, in whole or in part, when the instructor has indicated that the assignment is to be completed on an individual basis". Please refer to the course outline statement or the instructor concerning this issue.

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Academic Accommodations for Students with Disabilities

If you have a documented disability requiring academic accommodations in this course, please contact the Paul Menton Centre for Students with Disabilities (PMC) at 613-520-6608 or pmc@carleton.ca for a formal evaluation or contact your PMC coordinator to send your instructor your Letter of Accommodation at the beginning of the term. You must also contact the PMC no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). After requesting accommodation from PMC, meet with your instructor as soon as possible to ensure accommodation arrangements are made. For more details, visit the [Paul Menton Center website](#).

Religious Obligation

Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit [the Equity Services website](#).

Pregnancy Obligation

Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit [the Equity Services website](#).

Survivors of Sexual Violence

As a community, Carleton University is committed to maintaining a positive learning, working and living environment where sexual violence will not be tolerated, and where survivors are supported through academic accommodations as per Carleton's Sexual Violence Policy. For more information about the services available at the university and to obtain information about sexual violence and/or support, visit: carleton.ca/sexual-violence-support

Accommodation for Student Activities

Carleton University recognizes the substantial benefits, both to the individual student and for the university, that result from a student participating in activities beyond the classroom experience. Reasonable accommodation must be provided to students who compete or perform at the national or international level. Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, [see the policy](#).

Medical Certificate

The following is a link to the official medical certificate accepted by Carleton University for the deferral of final examinations, midterms, or assignments in undergraduate courses. To access the form, please go to <https://carleton.ca/registrar/wp-content/uploads/Medical-Certificate-Form.pdf>. For more information on academic accommodation, please contact the departmental administrator or visit: students.carleton.ca/course-outline

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Undergraduate Academic Advisor

The Undergraduate Advisor for the School of Computer Science is available in Room 5302C HP, by telephone at 520-2600, ext. 4364 or by email at undergraduate_advisor@scs.carleton.ca. The undergraduate advisor can assist with information about prerequisites and preclusions, course substitutions or equivalencies, understanding your academic audit and the remaining requirements for graduation. The undergraduate advisor will also refer students to appropriate resources such as the Science Student Success Centre, Learning Support Services and the Writing Tutorial Services.

You must also read: <http://calendar.carleton.ca/undergrad/regulations/academicregulationsoftheuniversity/>

Additional Notes

Including the time spent viewing lectures, completing tutorials, and working on other course material, **students can expect to spend at least ten (10) hours per week on this course**. Students are asked to pose all questions related to course content using the official course Discord server. Students should not email the instructor directly unless the question contains confidential information or is of a personal nature.

The instructor will attempt to answer every student email received within 48 hours of the time the message was received, unless the email requests information that has already been addressed in the course Discord server or in the course outline. All emails regarding the course should be sent from your Carleton email account. To ensure that all announcements are received, **students are expected to check their Carleton email on a daily basis**.

All materials created for this course (including, but not limited to, lecture notes, in-class examples, tutorial exercises, assignments, examinations, and posted solutions) remain the intellectual property of the instructor. These materials are intended for the personal and non-transferable use of students registered in the current offering of the course. **Reposting, reproducing, or redistributing any course materials, in part or in whole, without the written consent of the instructor, is strictly prohibited.**

Students are invited to discuss any concerns with the Instructor at the earliest opportunity.