COMP 2406 A Winter 2025

COMP 2406 A&B Winter 2025 Fundamental of Web Applications

COURSE OUTLINE

Online, blended offering	ONLINE COMBINED SYNCHRONOUS/ASYNCHRONOUS. There will be no in-person in-term assessment and no final exam. Blended course with asynchronous online lectures and synchronous online quizzes during official class times. There will be asynchronous tutorial exercises and term assignments. Office hour help will be via online office hours conducted over Zoom. We will NOT be using the official tutorial times you registered for for any synchronous activities. Registration conflicts permitted for tutorials only. Must have prerequisite with minimum grade of C- to remain in course. See Undergraduate Calendar for all prerequisites. Precludes additional credit for SYSC 4504.
Lectures and Quizzes	Official Class Times: Section A: Tue,Thu 11:30am-1:00pm Section B: Mon, Wed 10:00am-11:30am Asynchronous course content but quizzes will be synchronous, online in Brightspace, and overlap one of your official class times.
Tutorials	Tutorial help will be via the Zoom TA office hours for the course. Tutorial grading: tutorials are marked out of 2 marks as follows: 0 marks for not attempted or no significant progress. 1 mark for partial progress. 2 marks for completing and demonstrating the exercises. Along with your code, all tutorials submissions will require a properly formatted ReadMe.txt file and a YouTube demonstration of your work.
Instructor	Louis Nel (http://www.scs.carleton.ca/~ldnel)
TA/Lab Co-ordinator	Melody Habbouche MelodyHabbouche@cunet.carleton.ca (mailto:MelodyHabbouche@cunet.carleton.ca)

Calendar Description:

Fundamentals of Web Applications 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. Includes: Experiential Learning Activity Precludes additional credit for SYSC 4504. Prerequisite(s): (COMP 1006 or COMP 1406 or SYSC 2004) with a minimum grade of C-. Lectures three hours a week, tutorial one and a half hours a week.

Course Description:

The course covers the principles involved in the design and implementation of web-based applications. Our primary programming language will be Javascript (on both client and server side). The course will examine programming concepts as they relate to building web applications and will emphasize the computer science fundamentals. Our aim is for the course to be as OS agnostic as possible so that you can choose your OS: Windows, Mac OS, or linux. The technologies in this course are intended to work on all those platforms though slight variations may occur.

Topics:

The follow are the topics we covered in previous offerings and will be adjusted and updated as the course proceeds.

- Web Concepts, HTTP, HTTPS
- Javascript
- Client and Server side coding (in javascript)
- Requirements management under strict deadlines and submission criteria
- Markup Languages (HTML, CSS, XML, Bootstrap)
- Javascript execution environments: Browser, Node.js and Express.js framework
- Javascript evolution (ES5, ES6) and modularization features (require vs. import)
- Node.js and its NPM echo-system
- Client-Sever data exchange with JSON and XML
- Functional Programming and Closures
- Synchronous vs. Asynchronous function calls.
- JSON and Relational databases (using MongoDB and SQLite)
- RESTful Web API's
- Server Side templating (using Handlebars, PUG, etc.)
- Local and Session Storage, and Cookies, AJAX, Web Sockets.

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Lectures and Textbook:

IMPORTANT: This course will be a blended course with lecture content being delivered asynchronously by posted videos and powerpoints. The official class time will be used to hold quizzes synchronously -test to be done at a scheduled time for a prescribed duration. There will also be TA office hours held synchronously over Zoom. We will use brightspace as the discussion forum for the course.

There will be four online platforms involved in this course: the course content website, the brightspace account where you will hand in assignments and do quizzes and where we will host discussion forums, Zoom for TA office hours, and YouTube where you will view lectures and post your own code demonstrations.

This course will be taught from many sources and much of the content is available freely online. Some recommended texts will be provided in the resources section of the course content website. The resources section will be updated as the course proceeds and you are encouraged to contribute to the list.

For this offering lectures will be video taped and posted online on YouTube.

Students are not required to purchase textbooks or other learning materials for this course. Your are expected to supply our own computer for the course.

Course Material Copyright Notice:

We remind you that lectures and course materials, including power point presentations, outlines, code examples, and similar materials, are protected by copyright. The professor is typically the exclusive owner of copyright and intellectual property of the course materials unless otherwise noted. You may take notes and make copies of course materials for your own private (educational) use. You may not (and may not allow others to) reproduce or distribute lecture notes and course materials publicly.

This notice has been added, in part, because course content has ended up on public sites like OneClass, Course Hero, or GitHub without permission. Many students are eager to post their work on GitHub but you must be careful not to include copyrighted material.

Software:

The course is intended to be OS agnostic and could be done on Windows, MacOS, or Linux. The primary programming language we will use is Javascript. On the server-side javascript will be executed in the Node.js environment and use the Express.js framework for some of the later assignments. Node.js runs on Windows, Linux or Mac OS. On the client-side javascript will be extected in the browsers (Chrome, Firefox, Edge, Safari). Chrome will be our official course browser. In this course you will be free to work on whichever OS you prefer. The computers in our undergrad labs are running Windows. Finally you will need an editor to write and compile code. Although you could use any editor, Microsoft's Visual Studio Code is by far the most popular.

The assignments and tutorials all involve programming.

Tutorials:

We will be using electronic submission of tutorials using Carleton's Brightspace (https://brightspace.carleton.ca) system and YouTube for demonstrations. Electronic submission enforces strict deadlines. Only tutorials submitted through brightspace will be graded. No tutorials will be accepted late or directly by email or in other forms. TA's are not allowed to accept submitted work directly.

This class has compulsory tutorial exercises that you must do each week. The tutorials are an important part of the course and make up a substantial portion of the marks and learning experience. Tutorials will be made available one each week and be due the following week. During the week there will be TA office hours conducted over Zoom where you can aks questions about tutorials. There will also be a brightspace discussion forum with sections and topics devoted to the tutorials. Completed tutorial code will be submitted to brightspace along with a short screen capture video posted to YouTube demonstrating your work. You will post your video on YouTube and provide a link in your brightspace submission's ReadMe.txt file.

Assignments:

We will be using electronic submission of assignments using Carleton's Brightspace (https://brightspace.carleton.ca) system. Electronic submission enforces strict deadlines. Only assignments submitted through brightspace will be graded. No assignments will be accepted late or directly by email or in other forms. TA's are not allowed to accept submitted work directly.

Lab/TA Co-ordinator:

We have a lab/TA co-ordinator assigned to this course offering.

The lab coordinator is responsible for organizing and overseeing TA office hours and assignment grading and also imposing submission rules to help ensure that marking goes smoothly. The lab coordinator is responsible for distributing assignments to teaching assistants for marking. If you are missing an assignment grade or are unsure about the status of your assignment, you can contact the lab coordinator.

Undergraduate Academic Advisor
The Undergraduate Advisor for the School of Computer Science is available in Room 5302C HP; or by email at scs.ug.advisor@cunet.carleton.ca (mailto:scs.ug.advisor@cunet.carleton.ca). The undergraduate advisors can assist with information about prerequisites and preclusions, course substitutions/equivalencies, understanding your academic audit and the remaining requirements for graduation. The undergraduate advisors will also refer students to appropriate resources such as the Science Student Success Centre, Learning Support Services and Writing Tutorial Services.

SCS Computer Laboratory
SCS students can access one of the designated labs for your course. The lab schedule can be found at: https://carleton.ca/scs/tech-support/computer-laboratories/ (https://carleton.ca/scs/tech-support/computer-laboratories/). All SCS computer lab and technical support information can be found at: https://carleton.ca/scs/technical-support/ (https://carleton.ca/scs/technical-support/). Technical support is available in room HP5161 Monday to Friday from 9:00 until 17:00 or by emailing SCS.Tech.Support@cunet.carleton.ca (mailto:SCS.Tech.Support@cunet.carleton.ca).

Teaching Assistants:

A schedule for TAs will be posted in the course brightspace account.

Marking Scheme:

deliverable	value	comment
Tutorials 0-10	30%	11 tutorials (tutorial 0 plus tutorials 1-10). Count best 9/11 (completed individually)
Assignments	30%	4 assignments equally weighted individual assignments Count BEST 3/4assignments.

Quizzes	25%	There will be 5 quizzes - one every other week. There is no final exam. The quizzes will be accessed synchronously in brightspace during the official class times. (count best 4/5 tests)
Final Term Project	15%	Final assignment (Assignment 5) is a term project which you will code and demonstrate by producing a YouTube video. You do not need to pass the final project to pass the course (i.e. there is no "double pass" rule).
No Final Exam	0%	THERE IS NO FINAL EXAM IN THE COURSE

Late Work and Missed Work Policy

Missed assignments: You may miss up to 2 tutorials, 1 assignment and 1 quiz for medical, compassionate, or other reasons without penalty. If you miss more than that a mark of 0 will be used for the missed items when the final grade is computed. We will NOT collect doctor's notes, or medical assessments for missed work; if you miss more than the allowed number a mark of 0 will be used for the missed work.

Assignments in this course are based on itemized requirements that must be prioritized and managed under strick deadlines and submission formats. Extentions and deferrals will not be granted instead you are allowed to miss a certain number of deliverables as explained above.

 IMPORTANT: If you want to appeal a mark (assignment, tutorial or quiz) you must make the appeal within the appeal deadline imposed by our lab co-ordinator (typically around 7 days from the mark being posted on brightspace). After that we will not be obliged to accept appeals or change marks.

Collaboration is encouraged but cheating, or copying the work of others, is not allowed. You may work together and consult but any work you hand in must be your own and judged to be unique. Any two assignments judged to be too similar will both receive a grade of 0, and will be handled as a formal academic offence -see calendar for details.

Course Content Web Sites:

Coures annoucements will appear either on brightspace or on the course content website at http://www.scs.carleton.ca/~ldnel/2406winter2025 (http://www.scs.carleton.ca/~ldnel/2406winter2025). It is your responsibility to check these locations frequently for new information and announcements. We will likey send a weekly mass email to everyone summarizing the tasks and deliverables for the week and reminding you of important things.

IMPORTANT SCS and UNIVERSITY POLICIES

School of Computer Science Laptop Requirement (only applies to on-campus courses)
Every student that has been enrolled in a 1000-level (i.e., first year) course offered by the School of Computer Science after the 2020/2021 school year is required to have a laptop. This includes COMP1001, COMP1005, and COMP1006. For more information, please visit https://carleton.ca/scs/scs-laptop-requirement/ (https://carleton.ca/scs/scs-laptop-requirement/) and then review the requirements at https://carleton.ca/scs/scs-laptop-requirement/laptop-specs/ (https://carleton.ca/scs/scs-laptop-requirement/laptop-specs/).

Undergraduate Academic Advisors (only for UG course)

The Undergraduate Advisors for the School of Computer Science are available in Room 5302HP; or by email at scs.ug.advisor@cunet.carleton.ca (mailto:scs.ug.advisor@cunet.carleton.ca). The undergraduate advisors can assist with information about prerequisites and preclusions, course substitutions/equivalencies, understanding your academic audit and the remaining requirements for graduation. The undergraduate advisors will also refer students to appropriate resources such as the Science Student Success Centre, Learning Support Services and Writing Tutorial Services.

Graduate Academic Advisors (only for Grad course)

The Graduate Advisors for the School of Computer Science are available in Room 5302 HP; or by email at grad.scs@carleton.ca (mailto:grad.scs@carleton.ca). The graduate advisors can assist with understanding your academic audit and the remaining courses required to meet graduation requirements.

SCS Computer Laboratory

Students taking a COMP course can access the SCS computer labs. The lab schedule and location can be found at: https://carleton.ca/scs/tech-support/computer-laboratories/ (https://carleton.ca/scs/tech-support/computer-laboratories/). All SCS computer lab and technical support information can be found at: https://carleton.ca/scs/tech-support/ (https://carleton.ca/scs/tech-support/). Technical support staff may be contacted in-person or virtually, see this page for details: https://carleton.ca/scs/tech-support/contact-it-support/ (https://carleton.ca/scs/tech-support/contact-it-support/).

Mental Health and Wellness

The Carleton Wellness Website (https://wellness.carleton.ca/) is a wonderful resource link to include in the course outline for students.

Academic Accommodations and Regulations

Academic Accommodation

Carleton is committed to providing academic accessibility for all individuals. You may need special arrangements to meet your academic obligations during the term. The accommodation request processes are outlined on the Academic Accommodations website (https://students.carleton.ca/course-outline/ (https://students.carleton.ca/course-outline/)).

Chat GPT/Generative AI Usage

(See the Sample Syllabus Statements for AI use in Courses document (https://carleton.ca/tls/teachingresources/sample-syllabus-statements-for-ai-use-in-courses/) for examples, other sample texts are available below)

As our understanding of the uses of AI and its relationship to student work and academic Integrity continue to evolve, students are required to discuss their use of AI in any circumstance not described here with the course instructor to ensure it supports the learning goals for the course.

Academic Integrity*(additional sample text available at the end of the template)*

Students are expected to uphold the values of academic Integrity, which include fairness, honesty, trust, and responsibility. Examples of actions that compromise these values include but are not limited to plagiarism, accessing unauthorized sites for assignments or tests, unauthorized collaboration on assignments or exams, and using artificial intelligence tools such as ChatGPT when your assessment instructions say it is not permitted. Misconduct in scholarly activity will not be tolerated and will result in consequences as outlined in Carleton University's Academic Integrity Policy (https://carleton.ca/secretariat/wp-content/uploads/Academic-Integrity-Policy-2021.pdf). A list of standard sanctions in the Faculty of Science can be found here (https://science.carleton.ca/academic-integrity/).

Additional details about this process can be found on the Faculty of Science Academic Integrity website. (https://science.carleton.ca/academic-integrity/)

Students are expected to familiarize themselves with and abide by Carleton University's Academic Integrity Policy (https://carleton.ca/secretariat/wp-content/uploads/Academic-Integrity-Policy-2021.pdf).

Student Rights & Responsibilities

Students are expected to act responsibly and engage respectfully with other students and members of the Carleton and the broader community. See the 7 Rights and Responsibilities Policy (https://carleton.ca/studentaffairs/student-rights-and-responsibilities/#sect1.1) for details regarding the expectations of non-academic behaviour of students. Those who participate with another student in the commission of an infraction of this Policy will also be held liable for their actions.

Student Concerns

If you have any concerns regarding this course, your first point of contact is me. Please email me or visit during my student hours, and I will do my best to address your concerns. If I cannot resolve the issue, the next point of contact is the School of Computer Science at studentconcerns@scs.carleton.ca (mailto:studentconcerns@scs.carleton.ca). If the concern remains unresolved, the final point of contact is the Office of the Dean of Science at ODScience@carleton.ca (mailto:ODScience@carleton.ca). Please follow this order of contact.

Note: You can also bring your concerns to Ombuds services (https://carleton.ca/ombuds/).