COMP 2406 A Winter 2024

COMP 2406 A&B Winter 2024 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 2023-24 Undergraduate Calendar for all prerequisites. Precludes additional credit for SYSC 4504.
Lectures and Quizzes	Official Class Times: Section A: Tue,Thu 10:30-12:0 Section B: Mon, Wed 6:00-7:30 Asynchronous course content but quizzes will be synchronous, online in brighspace, and overlap one of your official class times.
Tutorials	Tutorial help will be via the Zoom office hours for the course. Tutorial grading: tutorials are marked out of 2 marks as follows: 0 marks for no show 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	Sean Benjamin SeanBenjamin@cunet.carleton.ca (mailto:SeanBenjamin@cunet.carleton.ca)

Calendar Description:

Fundamentals Web Applications Course Description: 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.

Precludes additional credit for SYSC 4504. Prerequisite(s): (COMP 1006 or COMP 1406 or SYSC 2004) with a minimum grade of C-.

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)
- 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 (we tried using Discord previously but it did not work out very well).

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, the Discord server for some office hours and forum questions, and YouTube where you will view lectures and post your own code demonstrations. Office hours will be a combination of live and online.

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.

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:

We will attempt to keep the course as OS agnostic as possible. 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 exectuted 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 (HP4155) are running Windows but those labs will NOT be used for tutorials.

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. 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 exercises will be submitted to brightspace along with a short screen capture video 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 the tutorial sections of the course and also imposing submission rules to help ensure that marking goes smoothly. If you notice any mistakes within a tutorial, have issues with a tutorial teaching assistant, or have any other tutorial related questions, the lab coordinator should be your first point of contact. The lab coordinator is also 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

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.

 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/2406winter2024 (http://www.scs.carleton.ca/~ldnel/2406winter2024). 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 UNIVERSITY POLICIES

For information about Carleton's academic year, including registration and withdrawal dates, see Carleton's Academic Calendar (https://calendar.carleton.ca/academicyear/).

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 Equity Services (https://carleton.ca/womensstudies/resources-and-links/equity-services/).

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 https://carleton.ca/equity/focus/discrimination-harassment/religious-spiritual-observances/ (https://carleton.ca/equity/focus/discrimination-harassment/religious-spiritual-observances/).

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 (mailto: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 Centre website (http://carleton.ca/pmc).

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 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 (http://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 (https://carleton.ca/senate/wp-content/uploads/Accommodation-for-Student-Activities-1.pdf).

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. Examples of punishable offences include: plagiarism and unauthorized co-operation or collaboration. Information on this policy may be found here (https://carleton.ca/registrar/academic-integrity/).

Plagiarism. As defined by 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. Standard penalty guidelines can be found here (https://science.carleton.ca/academic-integrity/).

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.