Course Outline – last updated August 31st, 2022

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-**.

Course Information

Instructor	**Alina Shaikhet** (she/her)
Contact	alina.shaikhet@carleton.ca
Office	HP 5137
Lectures (in-person)	Tuesdays & Thursdays 14:35 – 15:55
	Room location is posted on the Public Class Schedule
Tutorials (in-person)	Check your schedule in Carleton Central
Lab/TA Co-ordinator	**Sean Benjamin** seanbenjamin@cunet.carleton.ca
Course Website	https://brightspace.carleton.ca/
Course Forum	Discord server (link is available on the course website)

Course Delivery

- This course will be delivered in-person. This means that lectures, tutorials, and office hours will be in-person on campus.
- Our course website is hosted on Brightspace. Students are required to be familiar with everything posted there. It is recommended to check our course website at least three times a week.
- The instructor and TAs will be available on campus during scheduled hours to answer questions about course content and assignments. A list of teaching assistants and their contact/office hours information together with room locations will be posted once the course starts.
- We will use Discord as our course forum. The forum is non-anonymous - students will be required to use an alias that includes their first and last name, as listed on Brightspace.

Required Textbook

There will be no required textbook purchase for this course. This course will be taught from many sources and much of the content is available freely online. A good introductory resource for the basics of the JavaScript, HTML, and CSS that we will be using in the course is https://www.w3schools.com/. Additional resources will be posted on the course website throughout the term. If you are looking for a good introductory JavaScript/Node.js book, I would recommend the most recent edition of "Eloquent JavaScript" by Marijn Haverbeke.

Necessary Equipment and Software

There will be a lot of programming throughout the course using JavaScript, HTML, and CSS. You will need to install Node.js (version 16) from https://nodejs.org/en/. This should also install the NPM (Node package manager), which we will need as well. You will need some tools to edit your code. Some popular choices are Visual Studio Code and Atom. As a web browser, it is recommended to use Google Chrome. Later in the course, we will start using MongoDB. The community edition installation resources can be downloaded from here.

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Learning Outcomes

By the end of this course, successful students will have demonstrated their ability to build modern full-stack web applications. They will be able to:

- create dynamic web pages.
- write a web server using middleware components.
- use data modeling and database technologies.
- design accessible user interface using principles of RESTful design.
- implement authentication, authorization, and sessions.

Topics Covered

Below is a summary of topics the course will cover:

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

A detailed breakdown of topics and a tentative calendar are available on the course website.

Assessment Scheme

Your performance in this course will be assessed using several components:

- There are **4 programming assignments**. The assignments should be submitted on Brightspace. Electronic submission enforces strict deadlines. No assignments will be accepted late or directly by email or in other forms. TA's are not allowed to accept assignments directly.
- **Weekly quizzes** give you high-level practice on the lecture-specific course material. They are not timed and will be open for several days. You will be given two attempts on each quiz, with your best score recorded.
- This class has 10 compulsory **tutorials** that you must attend once a week in person. The tutorials are an important part of the course and make up a substantial portion of the marks. The tutorial exercises will be posted ahead of time, and you are expected to work on them before you come to the tutorial. At the tutorial you will demonstrate your results to the supervising TA's and may be asked to make minor modifications to demonstrate your understanding. The tutorials must be completed individually.
- The final assignment is a **term project** which you will code and demonstrate by producing a YouTube video.
- There is no final exam.

The grades you achieve on these components will be weighted using the following scheme:

10 Tutorials (count best 8 out of 10)	25%
4 Programming Assignments (count best 3 out of 4)	35%
Weekly quizzes (quiz with the lowest mark will be dropped)	25%
Final Term Project	15%

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Important Dates

ASSIGNMENT 1	Wednesday	October 5	by 23:59
ASSIGNMENT 2	Wednesday	October 19	by 23:59
ASSIGNMENT 3	Wednesday	November 9	by 23:59
ASSIGNMENT 4	Wednesday	November 23	by 23:59
FINAL TERM PROJECT	Wednesday	December 7	by 23:59

Other important dates and deadlines can be found here, including class suspension for fall, winter breaks, and statutory holidays.

Lab/TA Co-ordinator

We have a lab/TA coordinator 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 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.

Important Considerations

Late assignments are never accepted for any reason. 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 submit your progress (i.e., upload partially completed assignments and tutorials),
- attempt to submit your final submission at least one hour in advance of the due date and time,
- download your submission and verify the contents after submitting

If your submission is improperly packaged, or your code is not compiling for whatever reason, you will get a mark of zero.

Because assignments are posted well in advance of their due dates, **illness does not excuse a student from completing an assignment**. No provision is made for missed assignments, and no extra credit assignments will be available.

A student may miss up to 1 assignment, 2 tutorials, and 1 quiz for medical, compassionate, or other reasons without penalty. If you miss more than that, a mark of zero will be used for the missed items when the final grade is computed.

If you wish to appeal a mark (assignment, quiz, or tutorial) you must make the appeal within 10 days of the mark being posted on Brightspace. After that we will not be obliged to accept appeals or change marks.

Students are asked to pose all questions related to course content using the official Discord forum; students should avoid emailing the instructor directly unless the question contains confidential information or is of a personal nature.

Course Copyright

All materials created for this course (i.e., video recordings, course notes, coding examples, PowerPoint slides, assignments, quizzes, tutorials, and code bases) remain the intellectual property of the instructor and are protected by copyright. They are intended for the personal and non-transferable use of students registered in the course. Reproducing, reposting, and/or redistributing any course materials, in part or in whole, without the written consent

of the instructor, is a copyright violation and is strictly prohibited. Many students are eager to post their work on GitHub but you must be careful not to include copyrighted material.

Academic Integrity

Everything you submit for marks in this course (i.e., assignments, quizzes, examinations, etc.) must be the result of your own work and must be completed **individually**. Collaborating on any course work is strictly disallowed and will be reported as an academic integrity offence. You are never permitted to copy (or copy and modify) solutions (even if incomplete) from anyone or from the Internet. It is also a serious offense to help someone else commit plagiarism. You are never permitted to provide another person access to the rough work, assignment specifications, or source code that you or anyone else has written. If you suspect that someone has been able to acquire a copy of your work, then you must inform the instructor of the course immediately. Please also note that electronic tools may be used to analyze and compare submissions to ensure that no instances of academic misconduct have been committed.

If you are unsure of the expectations regarding academic integrity (how to use and cite references, how much collaboration with classmates is appropriate), ask your instructor. Sharing assignment, tutorial, or quiz specifications or posting them online (to sites like Chegg, CourseHero, OneClass, etc.) is considered academic misconduct. You are never permitted to post, share, or upload course materials (including lecture slides and recordings) without explicit permission from your instructor. Academic integrity offences are reported to the office of the Dean of Science. Penalties for such offences can be found on the ODS webpage: https://science.carleton.ca/academic-integrity/.

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/. All SCS computer lab and technical support information can be found at: 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.

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. 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.

COVID-19 policies

It is important to remember that COVID is still present in Ottawa. The situation can change at any time and the risks of new variants and outbreaks are very real. There are number of actions you can take to lower your risk and the risk you pose to those around you including being vaccinated, wearing a mask, staying home when you're sick, washing your hands and maintaining proper respiratory and cough etiquette.
Feeling sick? Remaining vigilant and not attending work or school when sick or with symptoms is critically important. If you feel ill or exhibit COVID-19 symptoms do not come to class or campus. If you feel ill or exhibit symptoms while on campus or in class, please leave campus immediately. In all situations, you must follow Carleton's symptom reporting protocols.
Masks: Carleton has paused the COVID-19 Mask policy, but continues to strongly recommend masking when indoors, particularly if physical distancing cannot be maintained. It may become necessary to quickly reinstate the mask requirement if pandemic circumstances were to change.

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Vaccines: While proof of vaccination is no longer required as of May 1 to attend campus or in-person activity, it may become necessary for the University to bring back proof of vaccination requirements on short notice if the situation and public health advice changes. Students are strongly encouraged to get a full course of vaccination, including booster doses as soon as they are eligible, and submit their booster dose information in cuScreen as soon as possible. Please note that Carleton cannot guarantee that it will be able to offer virtual or hybrid learning options for those who are unable to attend the campus.

All members of the Carleton community are required to follow requirements and guidelines regarding health and safety which may change from time to time. For the most recent information about Carleton's COVID-19 website and review the Frequently Asked Questions (FAQs). Should you have additional questions after reviewing, please contact covidinfo@carleton.ca.

University Policies

Academic Calendar. For information about Carleton's academic year, including registration and withdrawal dates, see Carleton's Academic Calendar.

Notice the important changes to the academic calendar:

- **New withdrawal date**: The academic withdrawal date has been moved up from the last day of term to earlier in the term; this Fall it is November 15, 2022.
- **Compassionate Grading Policy**: The compassionate grading policy from the previous two years (SAT/UNS) is **no longer in effect**.

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.

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/.

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 Centre 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 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.

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](#).

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](#).

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.

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