

Course Syllabus

CP 476: Internet Computing

Department of Physics and Computer Science
Winter 2020

I acknowledge that in Kitchener, Waterloo, Cambridge and Brantford we are on the traditional territory of the Neutral, Anishnawbe, and Haudenosaunee peoples.

Instructor Information

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Hopper Server Administrator

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Course Information

An understanding of the architecture of the Internet and technologies of the web including HTTP, URLs, HTML, CSS, etc.. Full-stack application development tools including client-side software development technologies such as HTML/CSS/XML/JavaScript/DOM/Ajax, and server-side development technologies such as PHP/MySQL/JSF, as well as new web technologies such as web services are covered.

Class Schedule	MWF 1:30 p.m. - 2:20 p.m.
Class Location	Bricker Academic Building BA208
Pre-requisites	CP 363: Database I CP 372: Computer Networks CP 364/ PC 364: Data Communications and Networks
Office Hours	Wednesday and Fridays: 11:30 a.m. - 12:30 p.m.

Course Overview and Approach

The course provides a history of web applications and the underlying technologies. The students get to learn how the web applications have evolved from simple web pages to rich web applications that resemble desktop application. It also gives the student the opportunity to apply many things they have learned in other courses to real world projects.

The objectives of this course are:

- to understand the underlying principles of internet computing, in particular, the Web applications
- to learn and practice client/server programming tools and technologies
- to gain the basic skills for building and maintaining Internet applications

The students meet the objectives of the course by participating and following through the assigned tasks. The instructor presents the course topic by providing examples. Various examples are used to demonstrate the evolution of Internet and web applications, and the need for emergence of each technology.

Lecture slides will be used to present the content of the course. In select-class learning activities and quizzes will be organized by the instructor. Therefore, the students are expected to come prepared to each class. The students must be familiar with DataBases, Computer Network, and Linux operating system to be able to do good in this course.

Course Goals and Learning Outcomes

By the end of this course students should be able to:

- Understand the functionality and evolution of Internet and web applications
- Master in HTML/CSS/JS/DOM/AJAX/PHP/MySQL/Web services/API/JSP/
- Design and implement a real-world application from start to end
- Understand and implement a fully functional web service
- Read detailed specifications and adapt to new technologies
- Write well documented and organized code
- Understand a web server's functionality
- Create a database and access data (read/write/modify)
- Build responsive web applications by taking advantage of Ajax functionality

Course Tools and Learning Materials

- All the course materials, information, assignments and projects' guidelines will be posted on MyLearningSpace: Laurier's MyLearningSpace [course login page](#).
- As there is no single text book that covers all the materials covered in this course, a list of suggested text books and resources on the web will be provided. The list of references will be posted on MLS for each week as we go through the term.
- **Recommended textbooks:**
 - [Programming the World Wide Web, 8th Edition, Robert W. Sebesta, 2015, Pearson](#)
 - [Fundamentals of Web Development, 2nd Edition, Randy Connolly and Ricardo Hoar, 2018, Pearson](#)
- **Lecture slides** are provided by the instructor for each week and will be posted on MLS.

- **Server access:** Each student will be issued an account on a server named **hopper.wlu.ca**. It comes installed with all the software needed to do the course assignments. The instructor demonstrates in class how to connect to the server to work on the assignments/projects, or test them
- **hopper.wlu.ca** can be accessed only from campus, i.e., from the public labs or from a laptop connected to laurierwifi or eduroam WiFi networks. To avoid this problem, LAMP software packages such as XAMPP will be introduced that provide the student the opportunity to test their work locally and upload it on the server to test.

Student Evaluation

Assessment	Weighting
Assignments	45%
Quizzes	25%
Participation	5%
Project	25%
Total	100%

Course Passing Requirement

In order to pass the course, students should get half of the maximum point in each of final project, assignments, and quizzes.

Assignments:

By doing all the assignments and exercises throughout the semester, the students get the ability to design and build a fully-functional web application. To learn the concepts taught throughout the course, the students have to do all the assignments and exercises.

- **Submitting assignments:** Each assignment should be prepared and submitted according to the instructions provided by the instructor. The assignments are posted on MLS along with the instructions.
- **No assignment could be missed/skipped:** Some of the assignments are gradual which means it must be built upon the previous assignments. It means even if you do not meet a deadline, you still need to complete the assignment. So, better to start early to get the mark for the work you do.
- **Late Assignment Policy:** All the assignments are due on the date and time specified by the instructor. A sliding penalty policy for assignment submission is used in this course. Late assignments are accepted but with a 5% per day penalty. **An assignment submitted more than one week late will not be accepted** (a grade of zero will be recorded for that assignment).
- If you have any question or concern regarding the grading of your assignment you must contact the course instructor **within two weeks** after the graded assignment is made available to you (not at the end of the term).
- Assignments should be done individually. Refer to university policy on plagiarism mentioned in the rest of this document.

Class Participation and quizzes

- Attendance are not checked in each session. However, you are responsible for all the material covered in class.
- Few quizzes will be done throughout the semester on select classes. A student who misses a quiz receives a zero. No make-up quizzes are done.
- In-class learning activities may be done on select classes throughout the semester.

Final Project

Project is an important part of this course. The students get to propose, design, implement, and document an Internet Computing application of their choice. By doing the project, the students get to design and build a fully-functional web application. Students are required to work as a team, unless they have reasonable justification. A team of three is recommended.

- Maximum number of people allowed in a team is three
- Projects should be prepared and submitted as specified by the instructor
- Projects are done and submitted in multiple phases. The instructor specifies the requirements for each phase.
- Members of a team get to evaluate themselves and their teammates using a rubric provided by the instructor. This rubric will contribute to the grade of each individual's grade.
- The student must use a versioning system (<https://github.com/>) to update their project work throughout the term. The instructor will use the system to monitor the activities of each team and provide feedback. The details will be provided.
- It is okay (actually encouraged) to develop the project using technologies not covered in the course as long as the team/individual follows the guidelines provided by the instructor. Such a decision must be brought up to the attention of instructor well ahead of time.

Tentative Weekly Schedule

Week #	Day	Date	Topic/ Unit of Study	Resources	Due dates
Week 1	Mon	Jan. 6	Introduction Internet Architecture		
	Wed.	Jan. 8	TCP/IP Classic applications and protocol WWW		
	Friday	Jan. 10	Software and Tools Environmental Setup		
Week 2	Mon	Jan. 13	HTTP, Browser, Web server		Assignment 0 due
	Wed	Jan. 15	HTML		
	Fri	Jan. 17	CSS		
Week 3	Mon	Jan. 20	JavaScript		

	Wed	Jan. 22	JavaScript		Assignment 1 due (HTML/CSS)
	Fri	Jan. 24	DOM		Quiz 1
Week 4	Mon	Jan. 27	DOM		
	Wed	Jan. 29	PHP		Project Phase I due
	Fri	Jan. 31	PHP		Assignment 2 due (JavaScript/DOM)
Week 5	Mon	Feb. 3	PHP/ MySQL		Quiz 2
	Wed	Feb. 5	PHP/ MySQL		
	Fri	Feb. 7	Managing States		
Week 6	Mon	Feb. 10	Managing States		
	Wed	Feb. 12	Ajax		
	Fri	Feb. 14	jQuery		Assignment 3 PHP/MySQL
Week 7 Reading Week	Mon.	Feb. 17	No Class		
	Wed.	Feb. 19			
	Fri.	Feb. 21			
Week 8	Mon.	Feb. 24	jquery, client side technologies		
	Wed.	Feb. 26	Client-side technologies		Quiz3
	Fri.	Feb. 28	XML		Project Phase II due
Week 9	Mon.	Mar. 2	XML, DTD, XSL, Schema, JSON		
	Wed.	Mar. 4	Web services, API		Assignment 5 due cookies, Ajax/Jquery Assignment 5 due cookies, Ajax/Jquery
	Fri.	Mar. 6	Web services, API		
Week 10	Mon.	Mar. 9	Web Security		Quiz4
	Wed.	Mar. 11	Web Security		
	Fri.	Mar. 13	Introduction to Enterprise Internet Computing		Assignment 6 due Webservices/ API
Week 11	Mon.	Mar. 16	Enterprise Internet Computing: Java Solutions		
	Wed.	Mar. 18	Java Solutions		
	Fri.	Mar. 20	Java Solutions		
Week 12	Mon.	Mar. 23	Distributed Computing		
	Wed.	Mar. 25	Big data problem, MapReduce and Hadoop		Assignment 7 due Java Solutions/ Security
	Fri.	Mar. 27	P2P computing		Quiz 5
Week 13	Mon.	Mar. 30	Project Presentation		

	Wed.	Apr. 1	Project Presentation		
	Fri.	Apr. 3	Project Presentation		Project Phase II due

University and Course Policies

- 1. Academic Calendars:** Students are encouraged to review the [Academic Calendar](#) for information regarding all important dates, deadlines, and services available on campus.
- 2. Special Needs:** Students with disabilities or special needs are advised to contact Laurier's Accessible Learning Centre for information regarding its services and resources.
- 3. Classroom Use of Electronic Devices:** Cell phones must be turned off /silent mode (buzzer is off) during class time – see [Policy 9.3](#) (Approved by Senate March 8, 2012).
- 4. Final Examinations:** There is no final exam in this course
- 5.** In every email correspondence with the instructor, put the class number **CP 467** and a brief summary of your message in your email subject: e.g., Subject: CS467 A question on HTML
- 6. Plagiarism:** Wilfrid Laurier University uses software that can check for plagiarism. If requested to do so by the instructor, students are required to submit their written work in electronic form and have it checked for plagiarism. (Approved by Senate May 14, 2002) .

Academic Integrity: Laurier is committed to a culture of integrity within and beyond the classroom. This culture values trustworthiness (i.e., honesty, integrity, reliability), fairness, caring, respect, responsibility and citizenship. Together, we have a shared responsibility to uphold this culture in our academic and nonacademic behaviour. The University has a defined policy with respect to academic misconduct. As a Laurier student you are responsible for familiarizing yourself with this policy and the accompanying penalty guidelines, some of which may appear on your transcript if there is a finding of misconduct. The relevant policy can be found at Laurier's [academic integrity](#) website along with resources to educate and support you in upholding a culture of integrity. Ignorance is not a defense.

University Resources:

- Good2Talk is a postsecondary school helpline that provides free, professional and confidential counselling support for students in Ontario. Call 1-866-925-5454 or through 2-1-1. Available 24-7.
- [Waterloo Student Food Bank](#): All students are eligible to use this service to ensure they're eating healthy when overwhelmed, stressed or financially strained. Anonymously request a package online 24-7. All dietary restrictions accommodated.
- [Waterloo Foot Patrol](#): 519.886.FOOT (3668). A volunteer operated safe-walk program, available Fall and Winter daily from 6:30 pm to 3 am. Teams of two are assigned to escort students to and from campus by foot or by van.
- [Waterloo Student Wellness Centre](#): 519-884-0710, x3146. The Centre supports the physical, emotional, and mental health needs of students. Located on the 2nd floor of the Student Services Building, booked and same-day appointments are available Mondays and Wednesdays from 8:30 am to 7:30 pm, and Tuesdays, Thursdays and Fridays from 8:30 am to 4:15 pm. Contact the Centre at x3146, wellness@wlu.ca or @LaurierWellness. After hours crisis support available 24/7. Call 1-844-437-3247 (HERE247).