

INTERNET APPLICATION DEVELOPMENT

(Revised: January 13, 2009 © Billy Lin)

Course description:

This course aims to explore the design and deployment of web-based internet applications, oriented around group projects that solve attainable and marketable problems. This is a unique and exciting platform for Computer Science students to not only practice software design concepts from CPSC211, database design and integration skills from CPSC304, project management and program life cycle from CPSC310, among other concepts throughout the CS major, but also learn about the missing link from writing great programs to showing them off to the world.

PHP, JSP, MySQL, HTML, and CSS are some useful tools to put programs onto the World Wide Web, which students of the seminar will be introduced to by experienced users and incorporate into their group projects. **Maintainability, updatability, and extendibility are of key importance when developing a cross-language project such as these. Concurrency, security, and efficiency issues are also very important to web projects and will be addressed.** Students are also invited to bring forth other technologies that will help their projects to be discussed in the seminar. Upon completion of the technical aspects of the project, the business knowledge required for a successful launch, which may include customer services, distribution method, and commercialization, may also be discussed.

Targeted student:

Students who are interested in learning applicable computer skills for an internet application or the business potential of web-based computer projects. To ensure an adequate level of understanding of the computer system and programming skill, CPSC211, CPSC213, and CPSC221 or equivalent would be required. One of CPSC304, CPSC310, and CPSC 317 would also be required. In the event of over-registration, an expression of interest and description of some relevant experiences would help the coordinator and faculty sponsor determine whether this seminar would be useful and fun for the students. This selection process would be conducted under the supervision of the course supervisor to ensure fair and ethical procedure.

Expectations of students:

- respond to emails within 24 hours
- be respectful of other students
- regular attendance to seminars
- spend 5-10 hours on the internet application project per week

Course structure

This course will meet at 3:30 to 5pm on Tuesday and Thursday, starting on January 6th, 2009 to April 9th, 2009.

These sessions would include technical workshops facilitated by guests or participants of the course, aimed at practicing technical computer skills. The format for non-technical sessions would depend on the presenters, but we may suggest a brief presentation followed by an extended period of discussion.

The course coordinator will identify several topics of interest with the supervisor for the first half of the course. The coordinator and participants will discuss which topics to cover in the second half of the course, under the faculty supervision. Both coordinators and participants will have the opportunity to organize a session, invite a speaker, or facilitate workshop.

Reading material

Required Text :

Programming the World Wide Web (4nd Edition)
Robert W. Sebesta
Addison Wesley, 2007
(\$104.15 from Amazon.ca)

Recommended reading from UBC Library (online)

[Software engineering for Internet applications](#)

Andersson, Eve Astrid
Cambridge, Mass. : MIT Press, 2006

[Professional Web 2.0 programming](#)

Van der Vlist, Eric.
Indianapolis, Ind. : Wiley, c2007

[Professional Rich Internet applications: Ajax and beyond](#)

Moore, Dana
Indianapolis, Ind. : Wiley Pub., c2007

(limited number in library stack)

[Web technologies : a computer science perspective](#)

Jackson, Jeffrey C.
Upper Saddle River, NJ : Pearson/Prentice Hall, c2007.

Course Syllabus

	Seminar topics	Project progress	
January	Week 1	<ul style="list-style-type: none"> * SDS starts on January 6th. Course description, syllabus input from participants Project brainstorming, project team formation <i>Workshop 1</i>: team management tools (SubVersion) <i>Assignment</i>: brainstorm web technologies for projects 	<ul style="list-style-type: none"> Form project teams Select project topic
	Week 2	<ul style="list-style-type: none"> Review stages of Software Engineering Life cycles (CPSC 310) <i>Workshop 2</i>: web server and the Server-Client model (Apache Tomcat) <i>Assignment</i>: first team meeting to start project 	<ul style="list-style-type: none"> Develop project detail and get feedback from faculty sponsor
	Week 3	<ul style="list-style-type: none"> <i>Workshop 3</i>: web publishing systems (eg. XHTML + JS + CSS) Paul <i>Workshop 4</i>: server side programming (eg. PHP, Ruby, Java, ASP, C++?) David T. <i>Assignment</i>: 2nd team meeting 	<ul style="list-style-type: none"> High level software design User interface
	Week 4	<ul style="list-style-type: none"> <i>Workshop 5</i>: database management and integration (eg. MySQL) + Object relational mapping: Hibernate and Domain Objects Kevin, Hau, Arneh Project discussion: where people are, what challenges arised Team programming session 	<ul style="list-style-type: none"> Prepare for first project presentation (see presentation criteria for details)
February	Week 5	<ul style="list-style-type: none"> First project presentation followed by group discussion: what other web technologies are required? <i>Workshop 6</i>: User-interface design Matt <i>Workshop 7</i>: handling user input Eugene 	<ul style="list-style-type: none"> Collect feedback from peer evaluation Continue development
	Week 6	<ul style="list-style-type: none"> <i>Workshop 8</i>: Team programming session 	<ul style="list-style-type: none">
	Week 7	<ul style="list-style-type: none"> Reading week: school not in session 	<ul style="list-style-type: none"> Complete project components
	Week 8	<ul style="list-style-type: none"> Team programming sessions 	<ul style="list-style-type: none"> Integration of project for 2nd presentation
March/April	Week 9	<ul style="list-style-type: none"> Second project presentation followed by discussion: ready to launch project? <i>Workshop 9</i>: security issues on the internet David B 	<ul style="list-style-type: none"> Collect feedback
	Week 10	<ul style="list-style-type: none"> <i>Workshop 10</i>: business of web application – A big person from company Eugene, and everyone can brainstorm Team programming 	<ul style="list-style-type: none"> Complete functionality
	Week 11	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Improve visual design and user friendliness
	Week 12	<ul style="list-style-type: none"> <i>Workshop 11</i>: [topic of student's choice] Team programming 	<ul style="list-style-type: none">
	Week 13	<ul style="list-style-type: none"> <i>Workshop 12</i>: [topic of student's choice] Team programming 	<ul style="list-style-type: none"> Develop a launch plan Final touches
	Week 14	<ul style="list-style-type: none"> Team programming Final presentation 	<ul style="list-style-type: none"> Celebrate!

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| | <ul style="list-style-type: none">• * SDS ends on April 9th | |
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Possible projects:

- Timetable Builder (provide students with a tool to build timetables easily with UBC courses)
- Internet Course Database (similar to IMDb, but provide information for UBC courses)

Assignments

A number of internet application projects would be developed by the coordinator and supervisor, and the participants will work in groups to implement and launch these projects. Students may also choose to design their own project at the start of the course for the supervisor's approval.

These projects will require a multi-dimensional understanding of the internet application development process. Evidence of applying what is covered in the workshops and seminars in these projects would be evaluated. There would be phased presentations of these projects to demonstrate the use of internet technology acquired in the course.

These projects would be peer-evaluated throughout the course, and the supervisor will be invited to evaluate the final presentation with the rest of the class. Facilitation and organizing a session would also be part of the mark distribution. Active participation such as asking good questions and contributing to the discussions would also be encouraged by peer evaluations.

The proposed mark break-down is as follows, but may change after the student facilitator takes the TAG sessions or after the class discusses the evaluation criteria in the first class session:

- 15% February presentation
- 15% March presentation
- 30% April presentation
- 25% Group evaluation of project work
- 10% active participation (attendance + peer evaluation)
- 5% facilitation or organizing a session

Rationale

This SDS would satisfy students' desire to learn applicable computer skills, particularly in the area of internet application. With the rise in popularity of applications written for the internet (such as Twitter, Facebook apps, and blogging software), there is a considerable interest in the Department of Computer Science for a discussion on internet application development. This seminar addresses this interest in a student-directed fashion by a combination of workshops, guest speakers, and interesting, attainable team projects. It also offers a kind of hand-on experience that is different from co-op or the software project that is CPSC319, because the projects in this SDS are small, team-based and team-owned. This

will enable students to solve real-world problems with their own computing skills, and give them the opportunity to deploy and distribute their own projects.