mount royal university
department of computer science and information systems

# COMP 3512: Web 2
## Fall 2015 course outline

**credits**

3  (3 hours  lecture + 1 hour lab per week)

**prerequisites**

COMP 1511/2511, COMP 2503, and COMP 2521 with C- grade min

**instructor**

Randy Connolly
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440-6061
http://www.randyconnolly.com
http://www.funwebdev.com

**office hours**

As posted outside the Department.  I am also available whenever I am in my office and the door is open.

**lectures**

| TR | 14:00 – 15:20 p.m. | EC-1055 |

**labs**

| W | 14:00 – 14:50 p.m. | B-215 |
| W | 15:00 – 15:50 p.m. | B-215 |

**required text**

Connolly and Hoar, *Fundamentals of Web Development* (Pearson, 2015).

**description**

This course focuses on the concepts and technologies needed to develop web-centric applications. The overall architecture of Internet applications is examined at a high level. Special emphasis is given to server-side programming, including the creation of multi-tier and multi-layer web applications and using Web Services to integrate web applications with other IT applications. Students will use both PHP and Javascript.

**Most students find the lab and assignment work in this course to be quite time consuming. The second and third assignments (which are group assignments) typically requires the investment of 50-90 hours of work. Be sure to plan your life accordingly.**

**course format**   There are four hours of scheduled instruction per week. New material will be formally presented in lectures. Labs will be used to reinforce the lectures by providing an opportunity to study examples and practice the application of concepts. Labs are not just for students who require extra help; they are an integral part of the course and attendance is expected. You will also have to do a lot of work outside of scheduled class time.

**grading**   The final grade for this course will be determined as follows:**

| | |
|---|---|
| Assignment 1 (week of Feb 9-13) | 11% |
| Assignment 2 (week of March 9-13) | 11% |
| Assignment 3 (week of April 16) | 15% |
| Lab Exercises (6-8 worth 1% or 2% each) | 10% |
| Quizzes (4 @ 2% each) | 8% |
| Midterm (October 22) | 15% |
| Final Exam | 30% |

** - assignment weightings might change

Percentage grades will be converted to letter grades as follows:

| | | | |
|---|---|---|---|
| 95-100 | A+ | 67-69 | C+ |
| 85-94 | A | 63-66 | C |
| 80-84 | A- | 60-62 | C- |
| 77-79 | B+ | 55-59 | D+ |
| 73-76 | B | 50-54 | D |
| 70-72 | B- | <50 | F |

The College's complete grading system is described in the Calendar.

**examinations**   The midterm date is specified in the marks breakdown section. If any changes to this date are necessary, students will be notified well in advance. Students will not normally be permitted to write a missed test at a later date. If alternative arrangements are possible, they must be made with the instructor prior to the date of the test.

The midterms will focus on understanding and applying the concepts taught in class. These tests will be made up of short answer style questions, as well as a limited number of larger questions to test students' abilities.

**lab work**   The lab work will be done during the labs, or will require only a few days to complete and will focus on a particular aspect of a problem. **Each week lab exercises will be assigned as homework and given a pass/half/fail grade.** You will find it very difficult to successfully complete this course without doing these lab exercises.

**technology in lectures**

Unless you are expecting a baby, communicating with a dying loved one, or some other emergency, please keep your phone off your desk and out of sight. In return, I promise to give you a short technology break half way through the class. Similarly, I would encourage you to use paper notes rather than a laptop; if you do use a laptop, please do not run videos, go to Facebook, check email, etc., except during your technology break.

**Texting and/or non-academic laptop usage during lectures is strongly correlated with lower GPAs.** There is ample research evidence for this conclusion. You might think you are different or that your occasional texting will do no harm, but this is not true. Also, there are many times in adult life (dating, family events, and business meetings come to mind) when you just need to learn how to function without technological distractions, so you might as well start practicing now.

I would encourage you to read any of the following recent articles for evidence of the deleterious effects of technological distractions on academic performance:

Carrier, L. M., Rosen, L. D., Cheever, N. A., & Lim, A. F. (2015). Causes, effects, and practicalities of everyday multitasking. *Developmental Review*, 35, 64-78.

Gaudreau, P., Miranda, D., & Gareau, A. (2014). Canadian university students in wireless classrooms: What do they do on their laptops and does it really matter?. *Computers & Education*, 70, 245-255.

David, P., Kim, J. H., Brickman, J. S., Ran, W., & Curtis, C. M. (2014). Mobile phone distraction while studying. *New Media & Society*, 1461444814531692.

Dietz, S., & Henrich, C. (2014). Texting as a distraction to learning in college students. *Computers in Human Behavior*, 36, 163-167.

Gupta, N., & Irwin, J. D. (2014). In-class distractions: The role of Facebook and the primary learning task. *Computers in Human Behavior*.

Gingerich, A. C., & Lineweaver, T. T. (2014). OMG! Texting in class= u fail :(empirical evidence that text messaging during class disrupts comprehension. *Teaching of psychology*, 41(1), 44-51.

Junco, R. (2012). Too much face and not enough books: The relationship between multiple indices of Facebook use and academic performance. *Computers in Human Behavior*, 28(1), 187-198.

Junco, R., & Cotten, S. R. (2012). No A 4 U: The relationship between multitasking and academic performance. *Computers & Education*, 59(2), 505-514.

Jacobsen, W. C., & Forste, R. (2011). The wired generation: Academic and social outcomes of electronic media use among university students. *Cyberpsychology, Behavior, and Social Networking*, 14(5), 275-280.

Fried, C. B. (2008). In-class laptop use and its effects on student learning. *Computers & Education*, 50(3), 906-914.

**assignments**

Assignments will consist of larger applications of the topics covered in lectures. The assignments will normally require several weeks of work and may be broken down into more than one component, e.g. an interface, client scripts, and server scripts.

**NOTE:** In order to obtain a grade of C or better in the course, you must obtain a minimum of 50% in the overall mark for assignments. Failure to pass the assignment portion of the course will result in a D+ grade or lower for the course, regardless of the marks in the other components.

Problem solving techniques and skills can only be acquired through practice and through the study of increasingly more difficult problems. The assignments all involve problem solving. It is very important that you understand how you solved the problem, and not just be happy with handing in an assignment that produces the requested results.

Assignments will be considered late if submitted after the time specified on the assignments. Unless an assignment states otherwise, it will be accepted up to two days late; however, 10% will be deducted for being late (even for part of a day late). Assignments will not be accepted more than two days late. This includes weekends, so if an assignment is due Friday at 12:00 p.m. then Sunday at 12:00 p.m. is the latest it can be handed in. Start your work early and schedule adequate time for completion.

**computer facilities**

Assignments will be created using PHP and Javascript. The computers are located in B215.

You are responsible for the security of your computer account. Choose a password that cannot be easily guessed by others and keep it confidential.

The course library will be used for distributing assignments, solutions and supplementary material as necessary. As well, class and lab material may be available at the course website: http://www.randyconnolly.com

**cheating**    It is expected that all work handed in by a student will be original work that has been done by the individual. If it is not, then this act of intellectual dishonesty will be dealt with severely. An *Academic Dishonesty Incident Report* will be filed with the Office of Student Conduct. If a record of previous academic dishonesty is established, the case will be forwarded to the Academic Integrity Board. The complete process is described in Mount Royal's *Code of Student Conduct.*

Normally, the sanction for any student accused of cheating will be zero on the assignment (in the case of one student giving part of his/her assignment to another student, both students are considered to be cheating). Sanctions for further incidents of cheating by the same student will be reviewed by the Academic Integrity Board and may ultimately result in expulsion from the College.

While students are expected to work reasonably independently, we do not expect you to work in isolation. Often you learn best when working with others on an assignment. So what degree of collaboration is expected and, indeed, encouraged, and what is deemed to be cheating?

In general, we encourage things like bouncing ideas off one another, discussing which of two alternate solutions might be better (and why), and getting another's ideas on how to resolve a difficulty that you have already spent time on. You should not be working so closely together that someone else's solution becomes incorporated into your product. These general guidelines apply to **any type** of assignment. Some more detailed guidelines for programming assignments follow.

When you get to the point of writing the actual program, you must work independently. It is **NOT** acceptable to be coding with others. Write your program by taking your design, possibly fleshing out some details, and writing the code in the appropriate programming language. If you have difficulty with a certain statement, check your notes or your text. If you are still having problems with the code, then you can ask others for help. However, you must master the language as quickly as possible, and not rely on others. When testing the program, if you are having problems with a section and have spent some time trying to find the problem yourself, it is a good idea to ask others if they can help you. Other people will often see errors that you cannot see because you are too close to your solution – that is, you no longer see it clearly. Don't forget that if you need help at any time, the Instructional Assistant and your Instructor are available.

When complete, two students' programs should be essentially independent of one another. Each student should have attempted each step of the problem solving method alone before discussing it with others. In this way you can develop your own skills, while still learning from (and helping) others.

**general department policy**

Students are responsible for attendance at all lectures and labs, for completion of assignments in open lab time, and for requesting assistance from their instructor or from the instructional assistant when they are having difficulty with the course material.

If this course is a prerequisite for other courses, the minimum grade required in order to take the subsequent course is stated elsewhere in this course outline.

The midterm test dates are indicated in the Assessment section. Should changes become necessary, students will be notified well in advance. Students will not normally be permitted to write a missed test at a later date. If alternative arrangements are possible, they must be made with the instructor prior to the date of the test.

The final examinations will be scheduled by the Registrar during the period from December 12 - December 22, 2015. Do not make any plans for that period until the final examination schedule has been posted.

Programs will be graded for documentation and style, as well as for correctness. All files must be left in the student's directory until the marked program has been returned.

As a rule, the deadline for assignments will not be extended for computer downtime of less than 24 hours; however, this will be at the instructor's discretion. Any exception will be communicated to the class as quickly as possible.

In general, assignments are due at midnight and will be considered late if submitted after that time. Assignments will be accepted up to two days late; however, a penalty of 10% will be deducted, even for a partial day late. Assignments will not be accepted more than two days late. This includes weekends!

Students should familiarize themselves with the College policy on the integrity of student work as described in the Calendar and with the departmental policy on cheating detailed on the attached sheet. Cheating of any form is a serious matter and will be dealt with severely.

The last day for withdrawal from this course is November 20, 2015.

Students should familiarize themselves with the Statement of Student Rights and Responsibilities contained in the College Calendar.

**educational outcomes**

Mount Royal College had identified six college-wide learning outcomes that it believes are critical in order to prepare its graduates for workplace success and a life of continuous learning. Generally speaking, "outcomes" are goals, results, objectives that you should derive from the College, from a program of study, and from a particular course. This course will emphasize the following outcomes:

**College-Wide Learning Outcomes**

Computer Literacy

♦ Knowledge of basic computer concepts and terminology (lectures, exams).

♦ Competence in basic computer operations and hardware (labs).

Thinking Skills

♦ Problem-solving (labs, assignments, exams).

♦ Analytic thinking appropriate to discipline of information systems (labs).

Communication

♦ Convey ideas and information through writing and images (labs, assignments).

♦ Use available technology as an aid to effective written, verbal, and visual communication (labs, assignments).

**Course and Discipline Outcomes**

• How server-side technology works.

• Developing with server-side technology.

• Developing with Javascript and JQuery.

• Using databases in web applications.

• Common data models used in blogs, forums, and content management systems.

• Software design in web applications. This includes layered software architectures as well as tiered designs for scalability and reliability.

• Mechanisms for maintaining state in web applications. This is one the most topics in the course since it is the principal difference between web application development and non-web application development.

• Consuming REST and SOAP web services.

• Designing and implementing web security.

# 3512 TENTATIVE SCHEDULE

| Week | Lectures | Work |
|------|----------|------|
| Sep 10 | Course Intro + How the Internet Works [Review] | |
| Sep 15-17 | PHP Architecture and review<br><br>PHP Architecture and review | |
| Sep 22-24 | PHP Arrays<br><br>PHP Classes and Objects | |
| Sep 29-Oct 1 | Working with databases<br><br>**Class Cancelled** | |
| Oct 6-8 | Working with databases<br><br>Working with databases | |
| Oct 13-15 | State Management<br><br>State Management | *Assign #1 due*<br>date might change |
| Oct 20-22 | Review<br><br>**Midterm** | |
| Oct 27-29 | Introduction to Javascript<br><br>Introduction to Javascript | |
| Nov 3-5 | Introduction to Javascript<br><br>Introduction to Javascript | |
| Nov 10-12 | JQuery<br><br>**Reading Day** | *Assign #2 due*<br>date might change |
| Nov 17-19 | JQuery<br><br>JQuery | |
| Nov 24-26 | Web Services<br><br>Web Services | |
| Dec 1-3 | Security<br><br>Security | |
| Dec 8 | Review | *Assign #3 due*<br>date might change |