## MATH137 • CALCULUS I • SPRING 2015

Time: 09:30-10:20am MWF Location: MC1056

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**Course Objective**: To deepen your knowledge of calculus that you began in high-school. An emphasis will be placed on understanding concepts and proving results.

**Prerequisites**: You should be familiar with basic functions including polynomial, rational, trigonometric, and exponential. You need some skill at sketching graphs of simple functions and with algebraic manipulations and inequalities. If you have forgotten some of your high-school mathematics, then you should review Appendixes A, B, C, and D of the textbook.

Textbook: Calculus 7th Edition by James Stewart.

| Week | Dates            | Topics                                                   |
|------|------------------|----------------------------------------------------------|
| 1    | May 4 - 8        | Inequalities, Functions                                  |
| 2    | May 11 - 15      | Exponential, Logarithmic, Trig, and Inverse Functions    |
| 3    | May 18 - 22      | Hyperbolic Functions, Limits                             |
| 4    | May 25 - 29      | Limits and Continuity                                    |
| 5    | June 1 - 5       | Derivative, Differentiation Rules                        |
| 6    | June 8 - 12      | Chain Rule, Derivatives of Trig and Hyperbolic Functions |
| 7    | June 15 - 19     | Implicit Dierentiation, Applications                     |
| 8    | June 22 - 26     | Linearization, Optimization I, Mean Value Theorem        |
| 9    | June 29 - July 3 | Concavity, Indeterminate Forms, Curve Sketching          |
| 10   | July 6 - 10      | Optimization II, Newtons Method, Sigma Notation          |
| 11   | July 13 - 17     | Antiderivatives, Integration, FTC                        |
| 12   | July 20 - 24     | Indefinite Integrals, Substitution, Areas Between Curves |
| 13   | July 27          | Areas Between Curves                                     |

Course Schedule

Grades: Final Exam: 40%; Midterm: 30%; Assignments 20%; Quizzes 10%.

**Tests**: Midterm: Monday, June 15, 7:00pm - 8:50pm, Location: MC2065 Final Exam : Friday, August 7, 9:00am - 11:30am, Location: MC2034

Quizzes: There will be four quizzes. Each quiz covers three weeks.

Assignments: There will one assignment per week, due on each Friday by 4:30pm in the designated drop box #3 outside MC 4066/4067.

| Slot # | Division |
|--------|----------|
| 1      | A-M      |
| 2      | N-Z      |

It is your responsibility to hand your assignment into the correct drop box. Your solutions should be legible and well-organized. Note that the assignments will reflect our expectations as to the tests and final exam. However, it is strongly recommended that you do additional problems to ensure a solid understanding of the material. There will be no make-up tests, assignments, or quizzes.

Course Website: http://www.math.uwaterloo.ca/~y325xu/uwMath137/

Tutorials: 4:30 – 5:20pm, MC1056

Academic Integrity: In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility.

[Check www.uwaterloo.ca/academicintegrity/ for more information.]

**Grievance**: A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70, Student Petitions and Grievances, Section 4,

[Check www.adm.uwaterloo.ca/infosec/Policies/policy70.htm.]

When in doubt please be certain to contact the department's administrative assistant who will provide further assistance.