

MATH 3040U: OPTIMIZATION

Fall 2011, W, 7:10pm-8:30pm, UL 11, F, 5:40pm-7:00pm, UL 11

Instructor: Dr. C. Sean Bohun.

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Office Hours: Monday, 12:00pm-2:00pm or by appointment.

Text: Introduction to Optimization by Pablo Pedregal.

Title: MATH 3040U Optimization (3), Section 001.

Description: This course introduces linear and nonlinear optimization problems and offers the concepts and techniques required for their solution. Students study: linear programming (simplex method, duality, integer programming), nonlinear programming (Lagrange multipliers, KKT optimality conditions), approximation techniques (line search methods, gradient methods, conjugate gradient methods), variational problems (Euler-Lagrange equation), dynamic programming, and optimal control.

Prerequisite: MATH 2010U, MATH 1850U or MATH 2050U.

Examination: Term work will consist of **1** midterm exam, **4** assignments and **1** final exam.

Assignment 1	Wednesday, September 28	10%
Assignment 2	Friday, October 14	10%
Assignment 3	Friday, October 28	10%
Assignment 4	Friday, December 2	10%
Midterm	Wednesday, November 2	30%
Final	TBA	30%

The midterm and final exams will be administered in class. If the student requires special arrangements to be made with the learning centre, the learning centre and the instructor must be notified at least one week prior to the exam date. The final exam will be cumulative.

Grading Policy: The final grades will be assigned as follows:

A+	90% - 100%	B-	70% - 72%
A	85% - 89%	C+	67% - 69%
A-	80% - 84%	C	60% - 66%
B+	77% - 79%	D	50% - 59%
B	73% - 76%	F	49% and below

Academic Honesty: Except for exams and tests, it is assumed that you can discuss problems and assignments among yourselves and with tutors and the professor, so long as what you turn in is your own work. In other words, the discussions are part of the learning process; once you learn how to approach a problem, you are expected to solve it yourself, write up your own submission, and that is what you turn in. It is dishonest to turn in as your own any work which has been copied from the work of someone else.

It is expected that each student enrolled at UOIT will become familiar with this policy and appreciate that academic dishonesty of any form will not be tolerated at UOIT. You are encouraged to carefully read the material in this section and to seek clarification from the appropriate Academic Advisor if necessary. Acts of academic dishonesty include, but are not limited to:

CHEATING: Copying answers to exam/quiz questions from another student's exam/quiz paper; copying an out-of-class assignment from another person and submitting it as part of an academic assignment.

FACILITATING ACADEMIC DISHONESTY: Helping or attempting to help another to commit an act of academic dishonesty.

PLAGIARISM: Taking and passing off as one's own the ideas or words of another in any academic assignment.

A student charged with academic misconduct may face academic/or disciplinary sanctions. Read the University Policy on Academic Honesty which is located in Section 5.15 of the UOIT academic calendar <http://www.uoit.ca/calendar>

Term Work: The normal policy in the Faculty of Science for missed term work (tests and assignments) is to re-weight the remaining work to account for the missing grade. There are no make-up exams. If you miss a Science term test or major assignment due to illness or a death in the family you must obtain the appropriate documentation (UOIT Medical Certificate, death certificate), and submit it to the Science Academic Advisor within 5 days of missing the test or assignment. If you cannot write a test for any other reason, you must discuss this with the Science Academic Advisor and the instructor of the course at least 2 days before you are scheduled to write it. Exceptions to this rule include Varsity Athletics and test conflicts which have different deadlines. If you miss any exam for an invalid reason, you will receive zero for the exam.

IMPORTANT: It is possible that unforeseen circumstances may cause me to alter some of the information in this document. Any such alterations will be announced in class and followed up with a WebCT email message to the students of the class. If you miss any announcement because of inattention or absence from class, then you must accept the consequences of missing it.

COURSE SCHEDULE			
Date	Material covered	Date	Material covered
September 9	2.1 & 2.2	October 26	5.1 & 5.2 & 5.3 & 5.4
September 14	2.2	October 28	5.4 & 5.5
September 16	2.2 & 2.4	November 2	Midterm
September 21	2.3	November 4	5.6
September 23	2.3 & 2.5 & 3.1 & 3.2	November 9	5.7 & 5.8
September 28	3.2 & 3.3	November 11	5.8
September 30	NO CLASS	November 16	5.9
October 5	3.3 & 3.4	November 18	6.1 & 6.2
October 7	3.4 & 3.5	November 23	6.2
October 12	3.5 & 4.1	November 25	6.2 & 6.3
October 14	4.2 & 4.3	November 30	6.3
October 19	4.3 & 4.4	December 2	Leeway
October 21	4.4 & 4.5	December 7	Leeway