School of Engineering
University of Guelph

ENGG*3700 Optimization

Course Description & Outline - Fall 2012

CALENDER DESCRIPTION

This course serves as an introduction to combinatorics and optimization and discusses classical direct search-for-optimum methods for constrained optimization, including linear and quadratic programming, and others. Topics to be covered include: complexity theory, linear integer programming technique, constrained/unconstrained optimization and heuristic search techniques such as tabu search, genetic algorithms, particle swarm optimization, simulated annealing and GRASP.

PREREQUISITES

CIS 1500 – Introduction to Programming**, Math 2130** – Numerical Methods**, Math 2270** – Applied Differential Equations

INSTRUCTOR

Prof. Soha Eid Moussa
Room 1341, Thornborough Building
E-Mail: smoussa@uoguelph.ca
Office Hours: Open Door Policy

CLASS TIME & LOCATION

Lecture MW 8:30-9:50 MCLN 107

TEXT BOOK

Taha, Hamdy, Operations Research An Introduction, Ninth Edition, Pearson Canada Inc., 2011.

COURSE OBJECTIVES

The main goal of this course is to help you learn how to determine the best choice among a set of alternatives.

METHOD OF EVALUATION

Mid-term Examination 1	25%
Mid-term Examination 2	25%
Final Examination	50%

Disclaimer: *The instructor reserves the right to change any or all of the above in the event of appropriate circumstances, subject to University of Guelph Academic Regulations*

MID-TERM and FINAL EXAMINATION

MID-TERM 1	Date:	October 4, 2012
	Time:	in class
	Location:	MCLN 107
MID-TERM 2	Date:	November 8, 2012
	Time:	in class
	Location:	MCLN 107
FINAL	Date:	December 7, 2012
	Time:	8:30 - 10:30 am
	Location:	TBA

Disclaimer: *The instructor reserves the right to change any of the above mid-term dates in the event of appropriate circumstances, subject to University of Guelph Academic Regulations*

COMMUNICATION

All communication for the course will be done through the Courselink website. This includes the distribution of weekly assignments and lecture notes. Courselink can be found at: http://courselink.uoguelph.ca
All students are expected to consult with the course site regularly and will be responsible for the material posted on this site.

COURSE ORGANIZATION

The proposed schedule of topics is shown below.

- What is Operations Research?
- Modeling with Linear Programming
- The Simplex Method and Sensitivity Analysis
- Duality and Post-Optimal Analysis
- Integer Linear Programming
- Heuristic Programming
- Dynamic Programming
- Advanced topics

UNIVERSITY POLICY ON ACADEMIC MISCONDUCT

Academic misconduct, such as plagiarism, is a serious offence at the University of Guelph. Please consult the current undergraduate calendar and School of Engineering programs guide, for offences, penalties and procedures relating to academic misconduct.
http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml