CALENDER DESCRIPTION

This course serves as a graduate introduction into combinatorics and optimization. Optimization is the main pillar of Engineering and the performance of most systems can be improved through intelligent use of optimization algorithms. Topics to be covered: Complexity theory, Linear/Integer Programming techniques, Constrained/Unconstrained optimization and Nonlinear programming, Heuristic Search Techniques such as Tabu Search, Genetic Algorithms, Simulated Annealing and GRASP.

INSTRUCTOR

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

CLASS TIME & LOCATION

Lecture  T  16:00 – 19:00 (4 – 7 pm)  THRN 1006

TEXT BOOK


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

Examination 50%
In-depth literature review/project 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

Examination Date: TBA
Time: in class
Location: in class

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
- Dynamic Programming (Deterministic and Probabilistic)
- Transportation Models
- Markov Chains
- Heuristic 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