

ISyE 3833
Engineering Optimization
Fall 2016
T, Th. 1:35-2:25, KLAUS 1443

Lecturer

Professor Natasha Boland (natashia.boland@isye.gatech.edu)
Office hours: T, Th 2:45-3:45pm
Office: Groseclose 408 (in Suite 406)

Recitation sections

The first recitation section meetings will take place on Wednesday August 24 and Thursday August 25. The Wednesday and Thursday hours of the recitation sessions will nearly all be class meetings. Attendance is required and will be included in the final grade. Generally, the Monday and Tuesday times are office hours held by the recitation instructors in their offices or in the recitation room. There are exceptions, such as for quizzes, which will be announced.

Instructors

Dr. Dawn Strickland, Dr. Iman Dayarian, Ms. Erin Garcia, Dr. Murat Yildirim

Dawn Strickland (dawn.strickland@gatech.edu):

MW4 M, W 9:05-10:25am (ISYE Annex 341)

Office: Groseclose 203F

Iman Dayarian (iman.dayarian@isye.gatech.edu):

MW3 M, W 10:35-11:55am (ISYE Annex 228)

TR3 T, Th 9:35-10:55am (Howey (Physics) S107)

Office: Groseclose 336

Erin Garcia (egarcia3@gatech.edu):

TR1 T, Th 3:05-4:25pm (ESM 201, on Cherry Street)

TR2 T, Th 4:35-5:55pm (ESM 201, on Cherry Street)

Office: Main 409

Murat Yildirim (murat@gatech.edu):

MW1 M, W 3:05-4:25pm (ISYE Annex 341)

MW2 M, W 4:35-5:55pm (ISYE Annex 341)

Office: Main 415

Prerequisites

Math 2602 or 2603(C or better), CS 2316 or CS 1322, ISyE 2027, or equivalent
We may cover some of these topics briefly, but too briefly and quickly for you to learn them for the first time.

Textbook

Introduction to Mathematical Programming by W. Winston and M. Venkataramann, 4th edition

We will cover all or parts of the first 9 chapters and possibly some material from Chapters 10, 12, 13 and 14. The book is out of print, but the campus bookstore (in Tech square) has been

able to secure some copies for you to buy. You can also buy or rent a used copy and the book may also be on the web. The same material is in Chapters 1-9 of *Operations Research: Algorithms and Applications* by Winston. It is a larger and more expensive book, but covers many topics of relevance to IE.

Course description

This course provides an introduction to optimization methods used to solve decision-making problems that arise in industrial engineering, operations research, and other fields of engineering, business and management.

Topics

Operations Research and Optimization; Optimization Models: Linear, Integer

- Introduction to Operations Research and Optimization
- Formulating Models: examples, applications and computer modeling languages
- Linear Optimization: simplex algorithm, sensitivity analysis, duality
- Discrete Optimization: graph and network algorithms, branch-and-bound, integer programming methods

Grading

Recitation	total 40%	Four quizzes, 5% each Modeling and computational team project 5% Attendance and participation 10% Homework (four), total of 5% You can discuss homework assignments with classmates but the written work must be your own.
Midterm	25%	One (likely Thursday October 20 th)
Final Exam	35%	Thursday December 15 th , 2:50-5:00pm

All exams are in class, closed book.

Academic Integrity

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. For information on Georgia Tech's Academic Honor Code, please visit <http://www.catalog.gatech.edu/policies/honor-code/> or <http://www.catalog.gatech.edu/rules/18/>. Any student suspected of cheating or plagiarizing will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

Accommodations for Individuals with Disabilities

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services at (404)894-2563 or <http://disabilityservices.gatech.edu/>, as soon as possible, to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.