

ESI 4312 – Operations Research I

Spring 2009

SYLLABUS

Instructor: Steffen Rebennack, 401 Weil Hall, steffen@ufl.edu, 352 505 8091.

Class: Tuesdays 5:10 – 6:00 PM and Thursday 4:05 – 6:00 PM in FLG 270.

Discussions (optional): Mondays 7:00 – 8:30 PM, FLG 245 (starting from January 26th).

Office hours: Mondays 2:00 PM - 3:00 PM (408B Weil Hall) and by appointment. For grading issues and other questions, please first see the TA.

Teaching assistant and office hours: Ingrida Radziukyniene, Wednesday 12:15 - 2:15 PM (408B Weil Hall), ingridar@ufl.edu.

Webpage: The webpage is hosted on E-Learning System (<http://lss.at.ufl.edu>).

Course material: Winston, W. and Venkataramanan, M., Introduction to Mathematical Programming, 4th edition, Duxbury.

Catalog description: Introduction to the use of linear decision models, particularly linear programming and related decision-analysis optimization software, to aid in the analysis and solution of complex, large-scale decision problems. Consideration of related network modeling concepts.

Prerequisites: C++ Computer Programming, Matrix and Numerical Methods.

Course objectives: This course is the first in a sequence of two courses to introduce students to some models commonly used in the analysis of decision-making problems. We will emphasize basic deterministic models and related solution techniques. The form of the models we consider will be mathematical. We will study formulation and solution methods of linear programs. We will have a basic introduction to the modeling language GAMS (www.gams.com). Some time will also be devoted to an introduction to network optimization.

Contribution to meeting the professional component (required for ABET): Students will enhance their preparation for professional careers in Industrial and Systems Engineering by learning to take a comprehensive view of complex decision systems. Students will develop skills in system modeling and improvement, analytic problem solving, process improvement, and economic analysis.

Relationship to program objectives: Students will gain an ability to

- Apply knowledge of mathematics, science, and engineering.
- Design a system, component, or process to meet desired needs. Identify, formulate, and solve engineering problems.
- Use the techniques, skills, and modern engineering tools necessary for engineering practice.

Homeworks: There will be 10 homeworks, usually due on a Thursday. I will drop the lowest score while deciding the final grade. You must follow the UF honor code.

Grade evaluation: The homework assignments count collectively for 25% of the grade. We will have a midterm exam counting for 30% of the grade, plus a final exam that will count for 40% of the grade. The final exam will be comprehensive and will cover all the material.

Class attendance and participation will count for 5% of the grade. Your participation in the classroom will also be rewarded. You can participate by asking questions, by answering questions that I ask or by commenting in any other meaningful manner.

The final (letter) grade will be determined by considering absolute scores. Specifically, the final grades will be given according to the following table.

90-100%	A
85-89%	At least B+
80-84 %	At least B
75-79 %	At least C+
70-74 %	At least C
below 70 %	D+,D, F

Exam dates (tentative:) Midterm - February 19 (in class);
Final Exam - April 21 (7:20pm to 9:10pm in room NPB 1002)