

ESI6314- Deterministic Methods in Operations Research, Fall 2016

Catalog Description: (4 credit hours) Introduction to basic models and their solution with modern computer packages. Emphasis on modeling, computer solution, and sensitivity analysis with minimal reference to model theory and development of algorithmic methods.

Pre-requisites: Multi-variable calculus; Linear algebra or matrix theory.

Course objectives: This course introduces students to models commonly used in the analysis of complex decision-making problems. We will explore deterministic models and related solution techniques. Specifically, we will cover the formulation and solution of linear programming, network flow, and integer programming problems, with applications to production, design, and management scenarios.

Course Schedule:

Week	Class Subject	Chapter	Tuesday		Thursday	
			Date	Task	Date	Task
1	Introduction to LP	3	23-Aug		25-Aug	
2	Introduction to LP	3	30-Aug		1-Sep	
3	The Simplex Algorithm	4	6-Sep	Homework 1 Due	8-Sep	
4	The Simplex Algorithm	4	13-Sep		15-Sep	
5	Sensitivity Analysis	5	20-Sep		22-Sep	
6	Duality	6	27-Sep	Homework 2 Due	29-Sep	
7	Using LINDO and Excel		4-Oct		6-Oct	Exam 1
8	Transportation problems	7	11-Oct	Homework 3 Due	13-Oct	
9	Assignment problem	7	18-Oct		20-Oct	
10	Network Models	8	25-Oct	Homework 4 Due	27-Oct	
11	Using LINDO and Excel	8	1-Nov		3-Nov	Exam 2
12	Network Models	8	8-Nov		10-Nov	
13	Integer Programming	9	15-Nov	Homework 5 Due	17-Nov	
14	Integer Programming	9	22-Nov		24-Nov	No Class
15	Nonlinear Programming	12	29-Nov	Homework 6 Due	1-Dec	
16	Review for final exam		6-Dec			No Class
17			13-Dec	Final Exam		

Required textbook: Introduction to Mathematical Programming (4th ed.): Wayne L. Winston and Munirpallam Venkataramanan.

Recommended book to read: Operations Research: Applications and Algorithms by Wayne L. Winston

Instructor: Nahid Jafari

Office hours: Wednesday 11:00 – 12:00 am, or by appointment

Class Meeting Time/Place: Periods 6 – 7 (12:50-1:40 pm; 1:55-2:45), CSE E118

Office: 474 Weil Hall

Email: nahid.jafari@ufl.edu is the best way to contact me.

Teaching Assistant

Name: Xiaojie Wang

Office location: 406 Weil Hall

Telephone: N/A

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Office hours: Thursday 4:00-5:00 pm, or by appointment

Grading: Your performance in the course will be evaluated based on homework and two tests, as follows:

Homework: **25%**,

Mid-term exam 1: **25%**,

Mid-term exam 2: **25%**,

Final exam **25%**

Each exam is not cumulative.

The students must submit homework on or before the specified due date. Late submissions will be penalized by 25% of the grade for each day after the due date.

Standard Grading Scale:

Grade	Range
A	90-100
B+	85-89
B	80-84
C+	75-79
C	70-74

In order to graduate, graduate students must have an overall GPA and an upper-division GPA of 3.0 or better (B or better). Note: a B- average is equivalent to a GPA of 2.67, and therefore, it does not satisfy this graduation requirement.

Attendance and Expectations

Attendance is very strongly encouraged. Please do not try to rely solely on the book if you miss class, obtain and review the notes before coming to the next class.

Homework must never be copied. You may certainly ask others for conceptual advice on problems, but copying homework or turning in homework answers that you do not completely understand is strictly prohibited, and will result in a grade of zero for the assignment.

Make-up Exam Policy: Make-up exams can be granted only if a student provides a documented acceptable reason for not being able to attend a regularly scheduled exam. All make-up requests must be submitted to the instructor BEFORE the scheduled exam date. Tentative exam dates: midterm exams – **Thursday Oct 6** and **Thursday Nov 3** (in class), final exam – **Tuesday Dec 13 ET**. EDGE students will take the exams according to the standard procedure: the exam will be sent to your proctors on the exam date, and you will have *at least two business days* to complete the exam and have your proctor send it back to the instructor.

Honesty Policy: All students admitted to the University of Florida have signed a statement of academic honesty committing themselves to be honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action. This statement is a reminder to uphold your obligation as a UF student and to be honest in all work submitted and exams taken in this course and all others.

Software use: All faculty, staff, and students of the University of Florida are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of integrity.

Course evaluations: Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu> (Links to an external site.). Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>. (Links to an external site.)

Accommodation for students with disabilities: Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc/) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

UF counseling services: Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:

- University Counseling Center: 301 Peabody Hall, 392-1575, Personal and Career Counseling.
- SHCC Mental Health, Student Health Care Center, 392-1171, Personal Counseling.
- Center for Sexual Assault/Abuse Recovery Education (CARE), Student Health Care Center, 392-1161, Sexual Assault Counseling