

DETERMINISTIC OPERATIONS RESEARCH
OR/MATH 441 – SPRING 2017

<http://mason.gmu.edu/~helamine/OR441>

Class time: Fridays 10:30am-1:10pm

Classroom: Planetary Hall 206

Final exam date: Friday May 12th, 10:30am-1:15pm

INSTRUCTOR

Dr. Hadi El-Amine (helamine@gmu.edu)

Office: Engineering Building 2240

Office hours: Tuesdays 10:00am-12:00pm

COURSE OBJECTIVES

The course introduces the basic mathematical ideas and method of Deterministic Operations Research. We will discuss modeling real life problems, and show how to develop, solve, and interpret a variety of deterministic optimization models. Students will gain experience in converting a variety of applied problems to optimization models, representing these models in a sophisticated modeling language, solving these models with a variety of algorithms and software, and interpreting the results using sensitivity analysis and other approaches.

TENTATIVE COURSE TOPICS

Date	Topic	Reading assignment
Jan 27	Introduction; Linear Programming	1, 3.1-3.2
Feb 3	Linear Programming	3.3-3.9
Feb 10	The Simplex method	4.1-4.5
Feb 17	The Simplex method	4.6-4.8
Feb 24	Duality and sensitivity analysis	6.1-6.3
Mar 3	Duality and sensitivity analysis	6.4-6.10
Mar 10	MPL; midterm review	
Mar 17	Spring Break	
Mar 24	Midterm	
Mar 31	Networks	8.1-8.7
Apr 7	Integer programming	9.1-9.3
Apr 14	Integer programming	9.5-9.7
Apr 21	Nonlinear optimization	11.1-11.6
Apr 28	Nonlinear optimization	11.1-11.6
May 5	Final exam review	
May 12	Final exam	

TEXTBOOK

Operations Research Applications and Algorithms, Wayne L. Winston (4th edition)

GRADING

MIDTERM	30%
HOMEWORKS	15%
PROJECT	20%
FINAL EXAM	35%

Letter grades will be decided as follows:

$\geq 97\%$	A+	86-89%	B+	76-79%	C+	66-69%	D+	$\leq 59\%$	F
94-96%	A	83-85%	B	73-75%	C	63-65%	D		
90-93%	A-	80-82%	B-	70-72%	C-	60-62%	D-		

CLASS RULES

- Please turn off your cell phone before class and never use it during lecture. Feel free to walk out without distracting the class when needed.
- Attendance in class is very important. Some material, not necessarily from the book, will be covered in class and will show up on the midterm and final.
- In order to help you learn the course material, weekly homework exercises (over 10 points) will be assigned throughout the semester. **You will lose one point for each day late and late means after 10:30am but you only have until Wednesday to hand it in! That way, I can post solution sets before the next homework is due.**
- Exams will only be given at the predetermined dates. Early or late exam taking will not be allowed, except for **very special** cases.

Make sure you check Blackboard and the course webpage (<http://mason.gmu.edu/~helamine/OR441>) regularly for class announcements, grades, notes, and homework related material.

HONOR CODE

All students must adhere to the Honor Code policies of George Mason University. The Honor Code will be strictly enforced in this course. All work for the course shall be considered graded individual work, unless otherwise noted. All aspects of your coursework are covered by the honor system. Any suspected violations of the Honor Code will be reported to the honor court.

Honesty in your academic work will develop into professional integrity. The faculty and students of George Mason University will not tolerate any form of academic dishonesty. The Honor Code is posted on the George Mason University's web page <http://oai.gmu.edu/the-mason-honor-code-2/>

ACCOMMODATIONS

If you have a documented learning disability or other condition that may affect academic performance, you should:
1) make sure this documentation is on file with Office of Disability Services (<http://ods.gmu.edu>) to determine the accommodations you need; and 2) talk to me and discuss your accommodation needs.