COURSE: **M447/477** Mathematical Models / Operations Research

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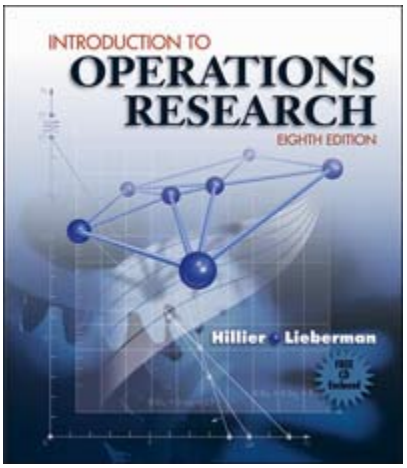

Time and location: Tuesday – Thursday 5:30 – 6:45 p.m. in **HH428**

TextBook: Hillier/Lieberman: Introduction to Operations Research (8th Ed)

OFFICE HOURS: When seeking instructor's help during office hours, it would be helpful if you would organize your questions in advance as much as possible, and be prepared to show your own homework attempts.

TUE	THU	FRI
By Appointment 11:00-12:00 2:15 – 4:00	By Appointment 11:00-12:00 2:15 – 4:00	By Appointment

Grading:	**Homework/Projects:**	**80%**
	Final Project:	**20%**

Homework and projects are the crucial part of the course. Some of the answers are provided in the back of the book. It is not the answer that is important but how you get there and the understanding and justification of each step. Homework problems will be collected and (some) will be graded; **all** problems are expected to be completed.

Nature of this class:
Formation and study of mathematical models used in the biological, social, and management sciences. Mathematical topics in this class usually include games, graphs, Markov and Poisson processes, mathematical programming, queues, and equations of growth. In Operations Research, mathematical and computational methods are used as the tools for decision-making. The broad applicability of its core topics places operations research at the heart of many important contemporary topics such as communication network management, bio-informatics, production scheduling, energy and environmental policy, transportation logistics, to name a few.
This semester we will cover chapters (as time permits):

3. and 4. Linear Programming
15. Decision Analysis
16. Markov Chains

Prerequisite: MATH M303, MATH M311 and MATH M360, or consent of instructor.

Other Class info: In case of absence check http://www.iun.edu/~mathiho/teaching.shtml for latest homework, practice tests, test scores, class announcements…

WHAT DO YOU NEED TO DO TO SUCCEED IN A MATH CLASS?

1. **Attend classes**: You are expected to be present for all class meetings. If you are absent from class, it is your responsibility to copy another student's notes and be informed of any announcements made during class.
2. **Keep notes** during class and save graded exams for later review.
3. **Ask questions during class** to make the learning process customized to your class needs. It is up to you to make sure that your instructor explains everything in detail, at a pace that suits the best the entire group.
4. **Review your notes and the textbook examples**, attempting to understand the main points of what was presented in class, before trying to solve the assigned homework problems.
5. **Work all homework problems** the same day they are assigned and check your answers in the back of the book. Homework is an essential activity for you to achieve success in a mathematics class. If you have difficulties solving some of them, consult a classmate, a math lab tutor or visit your professor during office hours. It is extremely important that you clarify all concepts before the next class meeting.
6. **Organize your time** as you should expect to spend at least ten hours per week outside the class working on this material.

THE GRADE OF INCOMPLETE: The grade 'I' indicates that the student's work in a course is satisfactory thus far but has not been completed as of the end of the semester. It may be given only when

1. the course work is substantially completed
2. the completed portion of a student's work in a course is of passing quality
3. there is **documented** proof that it is unjust to hold the student to the original time limit for course completion

It is the responsibility of the student who has incurred a grade of Incomplete to fulfill the requirements of that course within a maximum of one calendar year from the date on which the I grade is recorded. After one calendar year, a grade of Incomplete automatically changes to a grade of F on the student's record.

ACADEMIC HONESTY: It is the responsibility of the student to know of the prohibited actions such as cheating, fabrication, plagiarism, academic, and personal misconduct, and thus, to avoid them. All students are held to the standards outlined in the code. Please reference the http://dsa.indiana.edu/Code/ for a complete listing. Any violation may result in serious academic penalty, ranging from receiving a warning, to failing the assignment, to failing the course, to expulsion from the University.

STUDENTS WITH DISABILITIES: If you have a documented disability and need assistance, special arrangements can be made to accommodate most needs. Visit web page http://www.iun.edu/~supportn/contactus.shtml for more information.

This is a **tentative** schedule that may vary during the semester. Please attend the classes if you want to know about any changes to this schedule! (I will try to keep updated syllabus on the web: http://www.iun.edu/~mathiho)

TENTATIVE SYLLABUS					
Week	**Date**	**Day**	**Chapter**	**Sections Covered / Homework Projects**	**Due**
1	Aug 27	Tuesday	**1 & 2**		
	Aug 29	Thursday		**P1**: 3.1-1, 3.1-5, 3.1-12, 3.2-3, 3.2-4, 3.3-2, 3.4-4, 3.4-5	
2	Sep 4	Tuesday	**3**		
	Sep 6	Thursday	**Final Project: Case 3.1**	**P2**: 3.4-12, 3.6-1, 3.6-3, 3.6-5	**1**
3	Sep 11	Tuesday			
	Sep 13	Thursday			
4	Sep 18	Tuesday		**P3**: 4.1-2, 4.1-3, 4.1-4, 4.2-1	**2**
	Sep 20	Thursday			
5	Sep 25	Tuesday	**4**	**P4**: 4.3-3, 4.3-5, 4.4-3, 4.4-6	**3**
	Sep 27	Thursday			
6	Oct 2	Tuesday	**Final Project: Case 4.1**		
	Oct 4	Thursday		**P5**: 4.5-1, 4.5-8, 4.6-1, 4.6-2, 4.6-7, 4.6-16	**4**
7	Oct 9	Tuesday			
	Oct 11	Thursday			
8	Oct 16	Tuesday		**P6**: Read 15.1, 15.2-2, 15.2-3, 15.2-5, 15.2-6	**5**
	Oct 18	Thursday		**P6**: 15.3-1, 15.3-8, 15.3-12	
9	Oct 23	Tuesday			
	Oct 25	Thursday	**15**		
10	Oct 30	Tuesday			
	Nov 1	Thursday	**Final Project: Case 15.1**	**P7**: 15.4-1, 15.4-3, 15.4-4, 15.4-10, 15.5-6	**6**
	Nov 2	Friday		**Automatic 'W' Deadline**	
11	Nov 6	Tuesday			
	Nov 8	Thursday		**P8**: 15.6-1, 15.6-3, 15.6-4, 15.6-7	**7**
12	Nov 13	Tuesday			
	Nov 15	Thursday			
13	Nov 20	Tuesday		**P9**: Read 16.1, 16.2-1, 16.2-2, 16.2-3	**8**
	Nov 22	Thursday		**Thanksgiving Recess**	
14	Nov 27	Tuesday	**16**		
	Nov 29	Thursday		**P10**: 16.3-2, 16.3-3, 16.4-1, 16.4-3, 16.5-5, 16.5-7, 16.5-9	**9**
15	Dec 4	Tuesday			
	Dec 6	Thursday			
Finals Week	Dec 13	Thursday	**FINAL PROJECT DUE**		**10**