IOE 202: Operations Modeling, Fall 2009

Syllabus and Course Policies

GENERAL INFORMATION

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Office hours (and, for GSIs, locations) will be posted on the course site on CTools; they may change in future weeks to accommodate activities of the course; each change will be announced through email.

Lectures:  10/28/09 – 12/14/09, Mondays and Wednesdays, 10:00 – noon, 1610 IOE
Exams: EXAM I on Thursday, 11/19/09, 7:00 – 9:00 PM; EXAM II during the University assigned final time, Friday, 12/18/09, 1:30 – 3:30 PM.

Readings: excerpts from several textbooks and additional course materials distributed through the course CTools webpage. Make sure you have access to this course’s site.
The above web page will list all announcements and updates posted on the front. Follow the “schedule” link on the menu bar to access lecture topics, handouts, etc.

COURSE DESCRIPTION

Catalog description: Process of mathematically modeling operational decisions including the role of uncertainty in decision-making. Basic tools for solving the resulting models, particularly mathematical programs, statistical models and queueing models. Cases may come from manufacturing and service operations and ergonomics.

Course outcomes: The main goal of this course is to expose you to a range of contemporary IOE methods and their application to the real world decision problems. You will learn to:

- appreciate role of operations in a firm,
- appreciate complexities of optimal decisions under constraints,
- appreciate complexities of design and analysis of operations under uncertainty,
- appreciate complexities of integrating various levels of operations,
- appreciate complexities of collection and analysis of data and its role in decision problems,
- appreciate role of uncertainty in operations decisions.

Prerequisites: Engr 100, Engr 101, basic knowledge of Microsoft Excel (Mac users, please carefully read the Excel version information in the announcement dated 9/16/09 on the course webpage).

Components of the course:
Lectures: two-hour lectures with a 5–10-minute break approximately in the middle.
Homework: four homework assignments to be done individually. Total worth 30% of the grade
Group project: due at the end of the term, worth 10% of the grade
Exams: two exams, worth 30% of the grade each.

COURSE RULES AND USEFUL INFO
Before we begin: the flu! This semester, due to an unusually severe flu epidemic, we are modifying some of the course rules in the face of the possibility that a larger than typical number of students and instructors will be sick and contagious to others at some point during the course. All the rules are detailed below, but from the point of view of keeping yourself and those around you well, while keeping up with the workload and expectations of the class, keep in mind the following:

- If you think you have the flu, stay home and avoid contact with others. In particular, instead of coming to class, rely as much as you can on the electronic resources and tools. (And be prepared to the instructors doing the same if they fall ill.)

- Notify instructors right away if you are ill. We will try our best to accommodate you so that you can keep up with the course, but we cannot give you special consideration after the fact (for example, if your illness prevents you from working on a homework for most of the week, notify the instructors and discuss you options before you miss the deadline).

Lectures: Attendance in all lectures and class meetings is expected and assumed. Neither office hours nor email questions are suitable substitutes for attending lectures. For those of you who might need to miss classes due to illness, we will try to provide video capture of lectures. Each lecture will have a 5 to 10 minute break roughly halfway through, but its exact timing and duration will be determined by the flow of the material during the lecture.

Homework: Homework assignments (some will be due on Mondays, some on Wednesdays) will typically consist of two components: an Excel spreadsheet, to be submitted electronically through CTools, and a written portion, to be submitted in person in class. Homework assignment will include instructions on which aspects of the homework solution must be contained in the spreadsheet, and which — in the written portion. We STRONGLY encourage you to type up, rather than handwrite, the written solutions in a text editor, such as, for example, MS Word, and submit a printout. Remember that your score depends in part on the clarity of your presentation of your ideas, and a typed solution is easy to edit and revise to improve it. Also, you must type up your written solutions if you need to submit them electronically (see below).

The Excel spreadsheet is due at 10 am on the due date, and the written portion is due in class before the lecture, or during the break in the middle of the lecture (see above). Do not attempt to turn in your homework while the lecture is in progress — this is disrupting to the instructor and the students. After the break has ended, homework is considered to be late. It will be accepted until 5 PM on the due date, but only 75% of the grade will be awarded. After 5 PM on the due date it will not be accepted. Occasional extensions of the deadlines may be allowed on a case-by-case basis due to an extended personal illness or illness in your immediate family, or similar situations, resulting in your inability to work on the homework for most of the week. You must discuss your situation with the professor prior to the deadline to request an extension, and the decision to grant it is entirely at the professor’s discretion. Do not submit any assignments by putting them in our mailboxes or sliding them under office doors unless explicitly OK’ed by us; doing so can result in your assignment being lost or incorrectly recorded as late.

Occasionally, we might allow some students to submit their written solutions electronically via CTools — for example, if a student cannot attend class due to illness. However, in each such instance the student needs to obtain prior permission from the instructors. (The logistics of collecting, grading and returning entire homeworks electronically in such a large class are prohibitive at this point. Therefore, we will only accept electronic submissions as justified exceptions to the rule.) Your written solutions must be typed up to be submitted electronically, and are due at 10 am on the due date.
Homework assignments in this class rely on understanding of the material; most of them will require some computer computation – in short, they are fairly complex. You should start working on the assignments as soon as they are posted!

Homework assignments develop your ability to use the course material effectively when solving problems. You are encouraged to work together in groups when conceptualizing and analyzing homework problems. However, you are required to prepare your own solutions and perform the computer calculations yourself, and turn in (for grading) your own spreadsheet and write-up of the solutions. Copying, or rephrasing, of someone else’s work is unacceptable. Past experience clearly shows that students who discuss the material with other students are better able to express their understanding of the course materials during exams. However, there is a vast gap between being able to read and understand a solution and being able to create and write one.

**Project:** There will be one group project in the course, due on the last day of classes (12/14). The project will consist of 4 problems, requiring building mathematical models for real (or realistic) decision making situations, and interpreting and explaining the models and the results. Although conceptually project problems will be similar to the homeworks, project problems will be more complex and extensive than a typical homework problem. Get your group together and start working on the project, meeting regularly, as soon as it is announced.

**Exams:** There will be two exams, both closed book. Room assignments will be posted on the web. Valid reasons for requesting an alternative time for an exam are observance of a religious holiday or a legitimate scheduling conflict with another exam or a university-required event (in which case, you should notify us in advance), or personal illness or illness in your immediate family. If you require special exam conditions, such as extended time and/or smaller exam rooms, please let us know right away (and provide us with appropriate documents).

**Re-grade Policy:** If you think that there has been an error in the grading of your assignment or exam, you have one week from the day it was returned to the class to submit it for a re-grade. (Note: one week is counted from the day the graded homework became available, usually in class.) When you resubmit the assignment, it must be accompanied by a written explanation of the suspected grading mistake. Re-grading entails re-grading the entire assignment or exam; so you may, in fact, get a lower score after all the problems have been reconsidered.

**Email:** Email is sometimes a convenient way to get in touch with the instructors to get an answer to a short question. However, be aware that the professor and the GSIs have many other work obligations and possibly keep different schedules from you. Therefore, although we do answer all emails we receive, a good rule of thumb is not to expect an answer to an email question for 24 hours. Although many emails will be answered sooner, following this rule ensures you leave enough time to receive an answer. (Also, some more technical questions in this class may be hard to answer over email, and may require a visit to office hours for a one-on-one discussion.) The most reliable way to get your questions and concerns answered in a timely manner is to keep up with lectures and readings and get started on assignments early, to be prepared to pose questions in office hours.

**Online materials:** All materials in this course are made available to you online through CTools. You can print out and/or save these files for your personal use. However, you should not distribute these materials to others (e.g., by uploading them on other web sites) without obtaining permission of copyright holders.
HONOR CODE

All students are expected to be familiar with the Engineering Honor Code (see http://www.engin.umich.edu/students/honorcode/code/index.html) and are bound by its requirements. You must observe the Honor Code with respect to examinations, assignments, and all other aspects of this course. In particular:

Exams: Both exams will be closed book. You will be allowed to bring two pages of your own notes and a calculator to perform simple arithmetic operations; details to follow.

Homeworks: Homeworks are individual assignments. Although discussions with your classmates during the conceptualization of the problems are encouraged, each student must solve all the problems herself or himself (including creating all computer files and performing all computer calculations), and submit an individual write-up of the homework. Copying, or rephrasing, of someone else’s written work or computer work is unacceptable. (Also, see “resources” section below.)

Project: The project will be done in assigned groups; each group will submit one writeup of the project. All members of the group will receive the same score, therefore it is the responsibility of the members of the group to distribute the workload fairly among themselves. Collaborations for the project are subject to the same restrictions as for the homeworks above, except that members of the same group can collaborate with each other as closely as they wish. (The description of the project will elaborate on how you will divide responsibilities for solving the problems and editing the writing of your report.) Copying, or rephrasing, of the written work or computer work of someone who is not a member of your group is unacceptable. (Also, see “resources” section below.)

Resources: In working on the homeworks and the projects, you can rely on information in any materials provided as part if this class (i.e., the Fall 2009 offering of IOE 202). If in your work you rely on information obtained from other allowed resources (textbooks, books, journal articles, lecture notes for other courses made available with permission of instructors), you need to cite the source of this information in your solutions. If you are in doubt whether a particular resource or reference is allowed, ask the instructors. Sample exams and solutions from some prior offerings of IOE 202 will be provided to you by Prof. Epelman approximately 10 days before each exam; she will also occasionally provide for your reference writeups of solutions of sample problems in the style expected in homework assignments.

You are not allowed to obtain, look at, use, or in any way attempt to derive advantage from the existence of solutions of homework or exam problems from other classes or prior offering of IOE 202. This includes, but is not limited to, solutions produced by former students, solutions made available by previous or current instructors, problem solutions produced by textbook publishers, or solutions published by or uploaded to websites. The general rule is, if a resource containing homework or exam problem solutions is not provided by the instructors of the Fall 09 offering of IOE 202 to all the students through the CTools webpage for IOE 202 F09, you should not use it.

Justification for special considerations: All students are required to meet deadlines and comply with all course policies specified in the course syllabus. The course policies also specify situations in which one-time special considerations (e.g., extension of a deadline or re-scheduling of an exam) may be granted, as well as procedures a student must follow to justify a request for a special consideration. Misrepresentation of information in such requests is an Honor Code violation.

If any of the above policies, or other aspects of the Honor Code are unclear to you now or in the future, please ask the instructor to clarify them as soon as the issue arises.

Suspected cases of Honor Code violation will be investigated by the Engineering Honor Council without exception.