

ECONOMICS 172A: Introduction to Operations Research (Part A)

Winter 2009

Lectures: MWF 8:00 – 8:50am

Solis 107

Prof: Herb Newhouse

email: hnewhouse@ucsd.edu

Office Hours: Tuesday 10:00 – 11:30 am (beginning week 2)

Office: Econ 108

Webpage: <https://webctweb.ucsd.edu/webct/logon/3035273987001>

TAs: Xun Lu (xunlu@ucsd.edu)

Office Hours: TBA

Ben Horne (bhorne@ucsd.edu)

Jacob LaRiviere (jlalriviere@ucsd.edu)

Economics 172A is the first course in the two-quarter Operations Research sequence. It covers linear and integer programming. Linear and integer programs are types of mathematical optimization problems. The class will introduce you to the problem, teach you how to formulate economic problems as linear programming problems, teach you how to solve these problems, and teach you how to interpret the solutions to these problems.

Prerequisites:

ECON 100A or 170A; and ECON 120A or ECE 109 or Math 180A or Math 183 or Math 186; and Math 20F. Note that credit is not allowed for both ECON 172A and MATH 171A.

Lectures and Problem Sessions:

You are responsible for all the material in the lectures and problem sets. Partial notes will be available on the class webpage before each lecture. I recommend that you print these out before hand and fill in the missing information. I'll do my best to avoid typos but you're responsible for the correct material. I want you to understand the material instead of simply memorizing it. If you miss a lecture, borrow someone's notes. Problem Sessions are optional but recommended.

Exams:

Your grade will be determined on the basis of two Midterm Exams (25% each) and the Final Exam (50%). Alternatively your lower midterm will count for 15%; your higher midterm will count for 25% and your final will count for 60%. If you miss a midterm for a documented, university approved reason (ie., illness, official university trip) the weight for that exam will be placed on the final. If you miss a midterm for another reason (ie., oversleep) you will receive a zero for that exam. No one will be allowed to start an exam after the first person leaves it.

Midterm 1 will be held in class on Monday, January 25th. Midterm 2 will be held in class on Wednesday, February 24th. The final exam will be held on Monday, March 15th from 8:00am – 11:00am. If you know in advance that you cannot make an exam, please let me know as soon as possible.

You are only permitted to use pens and pencils, a calculator, a straight edge and a note card during the exams. The note card can be any size up to 8" by 5" for the midterms and up to 8.5" by 11" for the final. It may have handwritten notes on both sides. Typed or mechanically reproduced notes are not permitted. Do **not** tape or staple anything to your note card.

Academic dishonesty:

I take academic dishonesty seriously. Any student found guilty of academic dishonesty will earn a failing grade for the course. In addition to this sanction, the Council of Deans of Student Affairs will also impose a disciplinary penalty. For a review of UCSD policy, please see <http://www-senate.ucsd.edu/manual/appendices/app2.htm>.

Regrade requests:

Regrade requests must be made through a written statement **before** the start of class one week after the exam was first passed back. Extensions will only be permitted if you have a documented, university approved reason for missing the entire week after the exam was first passed back. If you request a regrade I may regrade your entire exam and your score could go up, down or stay the same.

Text:

Introduction to Operations Research, 9th Edition, Hillier and Lieberman, McGraw-Hill. I will give references for the 9th edition but other recent editions should also be fine. The material for this course is fairly standard; other Operations Research texts are also likely to be helpful.

Practice Questions:

Practice questions will be available online. We will go over these questions in office hours and in the problem sessions. Your best practice for the exams is to try these questions yourself first.

Preliminary Course Outline:

1. Introduction/Problem Formulation (Ch 1 – 3)
2. Duality Theory and Sensitivity Analysis (Ch 6)
3. Integer Programming (Ch 11)
4. The Transportation and Assignment Problems (Ch 8)
5. Network Optimization Models (Ch 9)

(Note: A more detailed list of the readings is available on WebCT. It contains the relevant sections and section headings. I hope it will enable you to follow the readings if you use a different version of the textbook.)