

**Course: IEEM517000 Operations Research Applications**

**Semester:** Spring 2010

**Number of credit hours:** 3

Instructor: Professor Kuo-Hao Chang ([chang@ie.nthu.edu.tw](mailto:chang@ie.nthu.edu.tw))  
Room 713R. Phone (03) 5742337

Lecture time and location: Friday 2:10pm – 5:10 pm at 203 R

Office Hours: WR 11:00 am – 12:30 am or by appointment

**Prerequisites:**

IEEM301000 (Operations Research I) and IEEM302000 (Operations Research II) or equivalent courses.

**Reference book:**

*Introduction to Operations Research* by Hillier and Lieberman (9<sup>th</sup> edition)

*Operations Research-Applications and Algorithms* by Winston (4<sup>th</sup> edition)

**Course Description:**

This course will survey a variety of up-to-date techniques and applications in operations research, including deterministic OR (Linear Programming, Nonlinear Programming, and Integer Programming) and stochastic OR (stochastic processes, stochastic optimization, reliability, and Markov Decision Process). At the beginning, a sequence of paper presentations will be given by students. Students are required to team up, with a total of two team members, for the presentation. An appropriate paper from the following journal list will be chosen and fully studied for each team group. Students need to do the coding (if necessary) to repeat the results. The instructor will lead the class discussion and assure the maximum learning for the students. At the end, students will not only learn the advanced techniques in operations research but also go through the whole process of conducting the research.

**Grading Elements, Weighting and Scale:**

Grade Element	Weighting
Project presentation	20%
Project report	30%
Quiz	10%
Homework	20%
Class participation	20%

**Project:**

The goal of the project is to broaden the spectrum of the knowledge in general operations research. You need to choose a paper published in the following journals from 2000-2010:

1. *Operations Research*

2. *Management Science*
3. *Mathematical Programming*
4. *Mathematics of Operations Research*
5. *INFORMS Journal on Computing*
6. *Naval Research Logistics*
7. *Operations Research Letters*
8. *IIE transactions*
9. *Interfaces*
10. *European Journal of Operational Research*

This will be a team project (two team members at most), for which you are required to prepare a project report, written as a conference paper and submit it at the end of the semester. Note that in the final report, a complete reference list is required. The total pages of the report should be between 8-10. I will discuss more details when time comes. The report will be collected at the last week in class, and plus, each team will make a 30-minute presentation.