



## IEEM Linear Programming, Fall 2018, Syllabus

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### Textbook:

*Introduction to Linear Optimization,*

Dimitris Bertsimas and John N. Tsitsiklis, Athena Scientific, 1997

*Linear Programming and Network Flows,*

Mokhtar S. Bazaraa, John J. Jarvis, Hanif D. Sherali, Wiley, 4th Edition, 2009

### Reference:

- *Large Scale Linear and Integer Optimization: A Unified Approach*  
Richard Kipp Martin, Springer, 1999
- Selected journal papers

**Credit:** 3 Hours, Graduate level

**Course Objective:** Linear programming is the fundamental form of the mathematical programming methodology. Central to the mathematical programming is the mathematical derivation, by which the properties and the algorithms of a mathematical optimization model were developed. This course is aimed to train students define and formulate an optimization problem by a mathematical programming model. A broader technique of the optimization models formulation will be introduced. Next, classical linear programming theorems and the derivations are discussed. Students are expected to do simplex method and sensitivity analysis by hand. Duality theorem, complexity, and decomposition are also must-know.

**Meeting Time and Location:** Mondays, Wednesdays, Fridays 13:20-14:10; Engineering Building I

**Instructor:** Yu-Ching Lee, [ycllee@ie.nthu.edu.tw](mailto:ycllee@ie.nthu.edu.tw), 714 Engineering Building I; Office Hour: By Appointment.

**Teaching Assistants:** 劉定瑜 王俊涵 許愷宸 李軍毅

**Course Format:** The lectures are expected to be a combination of handouts delivering, blackboard writing, and slides displaying. Taking (some) classroom notes should be helpful.

**Homework:**

5 problem sets. Plagiarism is prohibited.

**Group Exercises and Discussion: (New in 2018 Fall)**

We will schedule several times of in-class exercises and discussions. Students from groups and each group work on the assigned exercise together. It is an open book exercise, yet solution manual is prohibited. Because time is limited in class, you should study before the in-class exercises to ensure familiarity with the materials.

**Grading Weights:**

Homework 15%    Group Exercises and Discussion 25%    Midterm 30%    Final 30%

**Academic Integrity and Student Responsibilities:**

Cheating in any format is prohibited. Plagiarism is prohibited.

**Course Website:**

<https://sites.google.com/site/leeyuchingwebpage/courses/lp>