ISyE 7203
Logistics Systems Engineering
Fall 2008
Syllabus

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Class Location: 111 Instructional Center
Class Times: Monday, Wednesday, Friday 11:05–11:55
Course Website: http://t-square.gatech.edu

Course Objectives:
This course seeks to familiarize students with problems in the design and control of modern logistics systems, and quantitative methods for modeling, analyzing, and developing solutions to these problems. The course will focus on these systems using rigorous analysis, and will provide research-level treatment of problems in the following three areas:

• local (short-haul) vehicle routing and scheduling;
• long-haul transportation resource management and service network design; and
• supply chain network planning and design.

Analytical techniques and methods to be used will include

• linear and integer programming;
• local search heuristics and meta-heuristics; and
• dynamic programming and approximate dynamic programming

By the end of the course, it is expected that students will develop

• an in-depth understanding of the primary problems in logistics systems engineering, including emerging research areas; and
• the ability to develop appropriate advanced quantitative techniques for the planning and analysis of such systems;

As a technical elective, this course may be appropriate for Masters students with appropriate background in both operations research tools and logistics application problems.
Prerequisites:

- Linear and discrete (network and integer) optimization (ISyE 6661 and 6662, or equivalents);
- Stochastic modeling (ISyE 6761, or equivalent);
- Some programming experience

Required Texts:

- Course scribe notes

Reference Texts:


Course Format:

Our study will be guided primarily by important research papers and monographs, and will be augmented with material in the Simchi-Levi text. Some material covered may also be sourced from the reference texts.

Student responsibilities in the course will include: (1) a course computational project; (2) an in-class final examination, and (3) one week of scribe lecture note-taking in $\LaTeX$. Homework problems may also be assigned periodically. Each of these responsibilities is designed to help students prepare for Ph.D. study. The computational project will provide experience in implementing operations research techniques to solve logistics engineering problems, a key component of virtually all Ph.D. research in this area. The final examination will allow practice on questions similar to those to be found on the comprehensive examination. Scribe note-taking will help the student develop the ability to distill the key ideas in a lecture, and explain those ideas to fellow students.

Additional information on the detailed schedule of course topics will be distributed at the first lecture.

Grading: Grades will be assigned according to the following formula:

- Class Participation, Scribing, and Homework: 1/3
- Course Project: 1/3
- Final Examination: 1/3
Academic Honor Code:
It is your responsibility to familiarize yourself with the Georgia Tech Honor Code. Specifically, you must do your own work in all homeworks, projects, and exams; when homework or projects are specifically assigned to groups, you may and should work with the other members of your group.