ISyE 3103
Introduction to Supply Chain Modeling: Logistics
Fall 2002
Syllabus

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Class Times: Monday, Wednesday, Friday 9:05-9:55am
Class Website: http://www.isye.gatech.edu/~alerera/courses/3103fal02.html

Description:
An introduction to industrial supply chain logistics systems, including
- the components of logistics systems, such as supplies, storage, materials handling, production, inventory, orders, and transportation systems;
- the interactions between these components;
- models and techniques for the analysis of logistics systems and the development of information and decision support systems.

Objectives:
- to develop a familiarity with supply chain logistics concepts;
- to understand the issues in logistics system design and operation;
- to develop the ability to formulate quantitative decision models for logistics system design and management.
Prerequisites:
Statistics: ISyE2028
Modeling: ISyE2030
Probability: ISyE2027 (not required, but helpful)

Required Reference Material:
Modeling  Class Notes  
Background  Johnson, Wood, Wardlow, and Murphy; Contemporary Logistics,  

Topics Covered:

• Supply chain management (1.5 weeks)
  – Introduction
  – Supply chain (beer) game
  – Bullwhip effect

• Forecasting, inventory, and order management (1.5 weeks)
  – Extragulation forecasting (time-series)
  – Regression models for estimation
  – Push vs. pull systems
  – Vendor-managed inventory

• Transportation (8 weeks)
  – Transportation modes
  – Costs and rates
  – Transportation and inventory cost tradeoffs
  – Transportation decision models
    * Shortest path
    * Traveling salesperson
    * Bin packing
    * Vehicle routing
    * Assignment and transportation models
    * Minimum cost network flow

• Integrated logistics modeling (1 week)

• Location modeling (2 weeks)

• Project presentations (1 week)
Lectures:
Attendance is not required in lecture. However, it is highly recommended since: (a) most material we will cover is not in the textbook, and (b) a portion of your grade will be based on class participation. The textbook will mainly be used as a reference, so the lectures are essential to learning the material.

Homework:
Homework will be assigned approximately biweekly. You should start working on each homework early, so that you will have time to ask (and understand) questions in class before the homework is due. Please feel free to seek help on homeworks from fellow students, the teaching assistant, or me. Each student must submit his/her own work, however, unless the assignment specifically indicates that you should work in groups. Late homework will not be accepted.

Project:
There will be a term project. Each student will work on a team, and a joint report will be graded. Each team will make a project presentation at the end of the semester, during the last two weeks of class. More details accompany this syllabus. Late projects will not be accepted.

Exams:
Exams will cover material discussed in class, as well as reading assignments and homework. There will be two midterm examinations scheduled during class periods. The first midterm is scheduled for Wednesday, September 25. The second midterm will likely be held during the 12th or 13th week. Each exam will be closed-book. Travel arrangements are not sufficient reason to warrant a make-up examination.

Grading:
Grades will be assigned as follows:

- Homework: 10%
- Midterm Exam 1: 20%
- Midterm Exam 2: 20%
- Term Project: 15%
- Final Exam: 35%

Students demonstrating a desire to learn via class participation will receive a bonus in their final grade calculation.

Academic Honor Code:
All course participants (myself, teaching assistant, and students) are expected and required to abide by the Georgia Tech Honor Code. Please familiarize yourself with the code, and use it to guide your conduct.
Other References:


