

ISyE 4803

Advanced Supply Chain Logistics

Fall 2009

Administrative Info

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Class Room: IC 217
Class Times: Tuesday, Thursday 3:05–4:25

Description:

The course is a continuation of the course ISyE3103 Introduction to Supply Chain Modeling: Logistics. The course covers some topics that have already been encountered in ISyE3103 in more depth, with a more intensive use of the tools acquired in courses in statistics, optimization, and probability models. In the course we also study various cases in which these tools were used to solve logistics problems in practice. In these case studies it will be shown how complicated, messy logistics problems were addressed in various industries.

Objectives of the course are

1. to develop a deeper understanding of logistics problems, including design and operational problems;
2. to develop skill in the use of the tools acquired in other courses such as statistics, optimization, and probability models to address logistics problems;
3. to become familiar with some of the complicated nature of practical logistics problems, and to learn how these problems can be attacked with industrial engineering tools.

Prerequisites:

ISyE3103 Introduction to Supply Chain Modeling: Logistics, ISyE3133 Engineering Optimization, ISyE3232 Stochastic Manufacturing and Service Systems

Textbook:

Ghiani, G., Laporte, G., and Musmanno, R., *Introduction to Logistics Systems Planning and Control*, Wiley, 2004.

Topics:

We will not cover all the topics below. Some are core topics in logistics, and will be covered. Others are optional, and will be chosen based on interest expressed by the students.

1. Less-than-truckload transportation
 - (a) Traveling salesman
 - (b) Node routing
 - (c) Arc routing
 - (d) Inventory routing
 - (e) Terminal design and operations
2. Truckload transportation
3. Network flow applications
4. Logistics network design
5. Water transportation
6. Rail transportation
7. Air Transportation
8. Forecasting
9. Military logistics
10. Security in logistics
11. Humanitarian logistics
12. Disaster management logistics
13. International logistics
14. Regulation and other legal issues
15. Closed-loop supply chains
16. Outsourcing
17. Procurement and auctions
18. Revenue management

Grading:

Grades will be assigned as follows:

1. Homework: 20%
2. Case studies and class participation: 20%
3. Midterm exam: 25%
4. Final exam: 35%

Homework:

Late homework will be accepted only in case of unavoidable occurrences, such as illness or death in the family. You are encouraged to discuss homework and learn from each other, but each person must submit his/her own work, unless the homework specifically indicates that you should work in groups. Any queries on homework grades must be submitted in writing to the instructor, together with the homework in question.

Case Studies:

Preparation as well as attendance in class are necessary for the case study discussions. Grades will be assigned for participation in class. The instructor will attempt to give each person in class approximately the same opportunity to participate. At the end of the semester the participation grade for each student will be the average of the student's participation grades, thus a smaller number of such grades does not penalize the student. However, absence from class leads to a grade of 0 for the case study. Only unavoidable emergencies such as hospitalization of the student or death in the family qualify as an excuse to miss a case study discussion. No excuses are given for absence from case study discussions and no opportunities are given for make-up work for job interviews, senior design meetings, athletics, or similar activities.

Exams:

Exams will cover material discussed in class, as well as reading assignments and homeworks. The exams will be comprehensive. The midterm exam is scheduled for Thursday October 22, 2009 in class. Both exams will be closed book. Any queries on exam grades must be submitted in writing to the instructor, together with the exam in question. Missing an exam will be accommodated only in case of unavoidable emergencies, and the instructor must be notified of the emergency as soon as possible. If you cannot take an exam at the designated time or in the designated way, you should make alternative arrangements with the instructor as soon as possible.

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 homework and exams; when homework is specifically assigned as group homework you may and should work with the other members of your group.