Supply Chain Modeling and Algorithms
26:799:660 Spring 2018

Instructor
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Office Hours: 30 minutes before the class, any time after the class, or by appointment

Class Website
Blackboard

Class Timing
Wednesday 10:00 AM - 12:50 PM

Location
1WP 358

Course Description
This course focuses on the application of operations research and management science techniques to model and solve the newest emerging supply chain management problems (such as supply chain disruption problems, integrated supply chain design problems, container vessel planning problems, emergency logistic problems, and supply chain contract design) to meet the changing needs of new generations of SCM Ph.D. students. The course also emphasizes the design of search algorithms and the analysis of computational performance to effectively solve practical business decision and optimization problems.

Text
There is no required textbook for the course. Selected academic journal articles to be discussed in classes are listed in Appendix. All these papers are free for Rutgers students via the link from Rutgers library. Some class notes will be gradually posted on Blackboard, under the “Course Documents” folder.

Grading

Class presentation and participation: 40%
Midterm: 30%
Final Exam: 30%

Make-up Exam Policy
There will be no make-up exams unless you have a serious reason, and, in such cases, you must notify the instructor 5 days before the exams.
## Tentative Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
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| 1/17  | Syllabus and Course Introduction  
Supply Chain Management Problems: Concepts, Literature Review, Trend, Methods and Algorithms  
A Small-scale Supply Chain Competition Problem: Model and Analysis |
| 1/24  | A Small-scale Supply Chain Competition Problem: Model and Analysis Continued  
Facility Location Problem  
Branch-Bound Algorithm |
| 1/31  | Supply Chain Disruption Problem  
Integrated Supply Chain Design Problem  
Lagrangian Relaxation |
| 2/7   | Integrated Production and Distribution Scheduling Problem  
Network Flow Modeling  
Heuristic 1 |
| 2/14  | Error Bound and Worst Case Analysis |
| 2/21  | Container Vessel Scheduling Problem  
Heuristic 2 |
| 2/28  | Exam 1 |
| 3/7   | Emergency Logistic  
Heuristics 3 |
| 3/14  | **No Class (Spring Recess)** |
| 3/21  | Supply Chain Contract and Information Sharing |
| 3/28  | Supply Chain/Marketing/Economics Interface Problem |
| 4/4   | Presentation 1 |
| 4/11  | Presentation 2 |
| 4/18  | Exam 2 |
| 4/25  | Class Wrap-up and Discussions |
Appendix: Course Materials

Lecture Materials


Presentation Materials


