

# ISyE 3103

## Introduction to Supply Chain Modeling: Logistics

Fall 2026

### Syllabus

#### Course Information:

- **Instructor:** Alan Erera (alan.erera@isye.gatech.edu)
- **Course Prefix and Number:** ISYE 3103 A
- **Term:** Fall 2026

**Instructor:** Alan Erera

#### Course Description:

An introduction to industrial supply chain logistics systems, including

- the components of logistics systems, such as suppliers, production facilities, storage and distribution facilities, freight transportation systems, and associated information and decision technologies;
- interactions between logistics systems components and the composition of supply chain logistics systems;
- key performance metrics for logistics systems and their components; and
- quantitative models and techniques for the analysis, design, planning, and control of logistics systems and their components.

#### Course Learning Outcomes:

By enrolling in this course, students will:

- develop an understanding of supply chain logistics concepts, and key issues and tradeoffs in logistics system design and operation;
- develop the ability to formulate and solve quantitative decision models for logistics system design, planning and control, including models for:
  - selection of freight transportation mode and shipment size;
  - managing inventory across a supply chain;
  - goods flow management and logistics network design; and
  - transportation routing and scheduling.
- develop the ability to design, plan, and control logistics systems using insights from analytic models.

**Prerequisites:**

- Statistics and applied probability: ISYE 3030 and 2027
- Optimization: ISYE 3133

**Course Materials:**

- Course Modules on ISYE 3103 Canvas site (required)
- Ghiani, Laporte, Musmanno. *Introduction to Logistics Systems Management*, 3rd Edition, Wiley, 2022. (optional)

**Topics Covered:**

- Supply chain concepts, components, and configurations  
*What are the key objectives in supply chain design, what are the components, and how are supply chains commonly configured?*
- Supply chain inventory management  
*The role of inventory in supply chains. Key inventory costs, and role of inventory costs in transportation mode selection and shipment consolidation. How should we manage inventory and decide on shipment quantities and frequencies?*
- Last-mile freight transportation  
*A large fraction of supply chain costs occur during “last-mile” transportation. How do we design and operate effective local transportation systems?*
- Long-haul transportation  
*Cost-effective freight systems allow modern supply chains to span immense geography. Which key freight transportation modes enable global supply chains? What key decisions are made in the operation of freight transportation systems? How are transportation networks designed?*
- Supply chain network design  
*Coordination and optimization of shipment flows across a supply chain network, over geography and time. How should supply chain networks be designed?*

**Attendance Policy:**

Lectures will be the primary source for information in this course and are essential for learning the material. Lecture notes and supplementary material will be provided throughout the semester via Canvas in the *Modules* section for this course.

I strongly encourage you to ask questions during lecture. We will cover quite a bit of material, and many techniques will build upon those presented in prior lectures, so it is important that you ask questions if you don't understand. Don't be shy, I like answering your questions and hearing your thoughts!

**Homework:**

There will be approximately 6 homework assignments during the course of the semester. You should start working on each homework early, that way you will have time to ask (and understand)

questions before the homework is due. Late homework will not be accepted. You are encouraged to discuss homework with your classmates and learn from each other, but each person must submit his/her own assignment, unless the assignment specifically indicates that you should submit one assignment per group. Note that an assignment submitted as your own work cannot be a copy (or near copy) of someone else's assignment.

**Exams:**

There will be one midterm exam, and one final exam in this course. Exams will cover material discussed in class, as well as reading assignments, homeworks and cases. The exams will be comprehensive and closed book.

**Makeups:** In general, there will be no makeup exams given. Travel arrangements are not sufficient reason to warrant a make-up exam or an incomplete grade. Please let me know in advance if you will miss an exam for a GT-approved reason.

**Grading:**

Your final course numeric grade will be computed from 0-100 points using the following weighted average formula:

- Homework/Cases: 30%
- Midterm exam: 25%
- Final exam: 45%

The final examination will be comprehensive and based on the cumulative material for the semester. If a student has completed all work (homework and midterm) for the course and received a passing grade on each (50% and above), the final course grade will be determined by the maximum of the grade calculated by the above formula and the final examination grade.

**Grading Scale:**

Your final grade will be assigned as a letter grade according to the following scale. At the discretion of the instructor, the letter grade breakpoints may be adjusted *downward*:

- A 90-100%
- B 80-89%
- C 70-79%
- D 60-69%
- F 0-59%

**Academic Integrity and Mutual Expectations:**

All course participants (myself, teaching assistants, and students) are expected and required to abide by the Georgia Tech Honor Code. Please review the Honor Code and the student Code of Conduct, and use them to guide your conduct. Specifically, you must do your own work in all homeworks and exams. You can also review the Georgia Tech Student-Faculty Expectations document to see what to expect from me and what I expect from you.

**Accommodations for Students with Learning Differences:**

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services (404-894-2563) as soon as possible to make an appointment to discuss your

special needs and to obtain an accommodations letter. I would be happy to discuss your learning needs one-on-one, so contact me if you would like an appointment.