

ISE 513
INVENTORY SYSTEMS
Spring 2023

Lecture: 11:00 A.M. – 12:20 P.M. on Tuesdays and Thursdays [OHE 100B]
Instructor: Niloufar Izadina
Email: izadina@usc.edu
Office Hours: Tuesdays, 12:30 P.M. – 1:15 P.M [GER202]
Thursdays, 3:30 P.M. – 4:15 P.M [GER202]

Teaching Assistant: Raghav Thirumurugan
Email: thirumur@usc.edu
Office Hours: TBD

Prerequisites: None

Recommended Text:

Inventory and Production Management in Supply Chains by E. Silver, D. Pyke, and D. Thomas, Fourth Edition, Taylor & Francis, 2017. (ISBN-978-1466558618)

References:

Sheldon M. Ross “Probability and Statistics for Engineers and Scientists”, 4th Editions, Academic Press, 2009, ISBN 13:978-0-12-370483-2

Sven Axsater, “Inventory Control”, 3rd edition, Springer 2015, ISBN 978-3-319-15728-3

Andrie de Vries and Joris Meys, “R for Dummies”, 2nd Ed. John Wiley and Sons, 2015

Grading Policy:

Homework Assignments	15%
Midterm Exam 1	15%
Midterm Exam 2	15%
Final Exam	35%
Participation (Attendance, discussion, preparedness for class)	5%
Quizzes	15%

Test Schedule:

Midterm 1	Tuesday, February 14, 2023	11:00 A.M. – 12:20 P.M.
Midterm 2	Thursday, March 30, 2023	11:00 A.M. – 12:20 P.M.
Final	Tuesday, May 9, 2023	11:00 A.M. – 1:00 P.M.

Course Objectives:

The course covers forecasting and inventory systems. The emphasis of the course is in implementing effective inventory systems to industrial applications and in conducting research in the area.

The specific course objectives include enabling the student to:

- Understand the importance of inventory management in operations.
- Understand the connection of managing inventory to planning and scheduling.
- Understand the basics of forecasting.
- Become familiar with and use the tools of inventory management.

Exams:

The midterms and final will be based on homework assignments, quizzes, and the discussions in class. Students are expected to apply what they should have learned up to that point to analyzing situations, identifying the problems and applying the appropriate techniques to solve them or interpreting computer solutions.

Assignments:

The assignments are assigned on Thursdays and are due on the following **Thursdays at midnight on Blackboard.**

Late homework submissions **are not accepted** unless **prior** arrangements have been made.

It's OK to work on individual homework together but finish it by yourself and indicate whom you worked with. Each student must turn in a separate homework. Do not give your files to others, and do not use others' files. Do not copy solutions from people you have worked with or from anyone else. Generated data and essay questions must be unique to each student. If you use solutions from prior semesters, indicate that. **If the answer is given in a book, don't just copy it, explain how you got it.**

The assignments should be as professional in appearance as if you were preparing reports at work or for publication.

Attendance Requirements:

This is intended to be an interactive class and your participation should increase as the semester progresses. Attendance at **all** classes for the **whole** class is expected of everyone. Frequent absences will result in a reduction in grade. Punctuality is expected.

Quizzes:

We will have about 9 quizzes during the semester. These are short, usually with one or two problems or about 10 True and False or fill in the blank. There are no make-up quizzes.

Course Topics:

- Introduction to Inventory Management (Chapters 1 and 2)
- Forecasting (Chapter 3)

- Constant Demand Models (Chapter 4)
- Time Varying Demand Models (Chapter 5)
- Materials Requirements Planning (Chapter 15)
- Probabilistic Demand Models (Chapter 6)
- Decision Rules for A items (Chapters 7 and 8)
- Decision Rules for C items (Chapter 8)
- Decision Rules for Style Goods and Perishable Items (Chapter 9)
- Coordinated Replenishments (Chapter 10)
- Multi-Echelon Inventory Systems (Chapter 11)

Academic Conduct:

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Part B, Section 11, “Behavior Violating University Standards” <https://policy.usc.edu/scampus-part-b/>. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, <http://policy.usc.edu/scientific-misconduct>.

ALWAYS BE SURE TO GIVE THE SOURCE OF ALL YOUR INFORMATION. ANYTHING TAKEN VERBATIM FROM SOMEONE ELSE MUST BE IN QUOTATION MARKS AND REFERENCED. THIS INCLUDES PARTIAL SENTENCES.

Support Systems:

Student Counseling Services (SCS) - (213) 740-7711 – 24/7 on call

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention. <https://engemannshc.usc.edu/counseling/>

National Suicide Prevention Lifeline - 1-800-273-8255

Provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week. <http://www.suicidepreventionlifeline.org>

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-4900 - 24/7 on call

Free and confidential therapy services, workshops, and training for situations related to gender-based harm. <https://engemannshc.usc.edu/rsvp/>

Sexual Assault Resource Center

For more information about how to get help or help a survivor, rights, reporting options, and additional resources, visit the website: <http://sarc.usc.edu/>

Office of Equity and Diversity (OED)/Title IX Compliance – (213) 740-5086

Works with faculty, staff, visitors, applicants, and students around issues of protected class. <https://equity.usc.edu/>

Bias Assessment Response and Support

Incidents of bias, hate crimes and microaggressions need to be reported allowing for appropriate investigation and response. <https://studentaffairs.usc.edu/bias-assessment-response-support/>

The Office of Disability Services and Programs

Provides certification for students with disabilities and helps arrange relevant accommodations.
<http://dsp.usc.edu>

Student Support and Advocacy – (213) 821-4710

Assists students and families in resolving complex issues adversely affecting their success as a student. EX: personal, financial, and academic. <https://studentaffairs.usc.edu/ssa/>

Diversity at USC

Information on events, programs and training, the Diversity Task Force (including representatives for each school), chronology, participation, and various resources for students. <https://diversity.usc.edu/>

USC Emergency Information

Provides safety and other updates, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible, <http://emergency.usc.edu>

USC Department of Public Safety – 213-740-4321 (UPC) and 323-442-1000 (HSC) provides overall safety to USC community with 24-hour emergency assistance or to report a crime. <http://dps.usc.edu>