



Syllabus ISE-410

Planning and Scheduling for Production and Supply Chains

Spring 2024

Units: 4

Day: Tues/Thu 2:00 P.M.-3:50 P.M.

Location: [WPH](#) 103

Instructor: Niloufar Izadnia

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Office Hours: TBD

Teaching Assistant:

Email:

Office Hours: TBD

USC Catalogue Description

Production, resources and services planning, forecasting, scheduling, vendor and location selection, inventory; Integrated decision systems for the control of production, services and supply chains.

Course Description

This course is intended to familiarize the students with the details of designing, executing, and monitoring all aspect of supply chains in providing products and services. This includes methods of providing forecasts of demand, planning the delivery of those, assessing the costs, scheduling detailed activities, selecting sources and locations, pricing of products and services and understanding the computer tools for all of those.

Learning Objectives

Upon completion of this course the student is expected to have demonstrated the ability to know and properly:

1. Perform pricing, forecasting, inventory control, planning, scheduling and quantitative and stochastic methods in managing supply chains and operations
2. Simulate outcomes of various strategies in planning, forecasting and inventory control
3. Use the main features of Enterprise Resource Planning
4. Optimize the solution of inventory and planning problems
5. Use software tools such as Excel and Solver to solve production planning problems associated with the class.

Prerequisite: ISE 330

Co-Requisites: None

Concurrent Enrollment: None

Recommended Preparation: Familiarity with statistics, optimization methods, returns on investment and the time value of money.

Course Notes

All material required for the course will be posted on Blackboard. This includes quizzes, examinations, homework, reading assignments and solutions to all of those. Grading for the course is by letter grade.

Technological Proficiency and Hardware/Software Required

Introductory knowledge of Microsoft office tools.

Required Text

Edward A. Silver, David F. Pyke, Douglas J. Thomas "Inventory and Production Management in Supply Chains ", 4th Edition, CRC Press, 2016, ISBN-978-1466558618

References

Pinedo, Michael L. "Scheduling". 5th Edition. New York: Springer, 2016, ISBN-978-3-319-79973-5

Grading Breakdown

Homework	20%
Participation	20%
Quizzes	15%
Midterm 1	15%
Midterm 2	15%
Final exam	15%

Homework Assignments

- Assignments are assigned on the second period of the week and are due at midnight of Friday of the following week, submitted through the assignment manager on Blackboard and will be returned electronically. Solutions will be posted after the assignment is due.
- Late homework submissions are not accepted under any circumstances.** However, **two lowest scores will be dropped (a missed homework is a zero).**
- It's OK to work on individual homework assignments 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.

Participation:

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

Students are expected to be on time and participate actively in the discussions and activities in the class. You should be prepared to devote the time necessary to take the course. The course material is cumulative, and you need to keep up as we go along.

In-class exercises and challenges:

There will be several in-class exercises and challenges that you should do during the class time. Laptops, desktops, or iPads are required to do and submit these exercises. The students can either do them individually or in teams of at most three.

Quizzes:

- There will be a take home quiz in the indicated weeks assigned during the first class in the week and due online at midnight prior to the second class of the same week.
- The purpose of these quizzes is to encourage you to keep up with the class material. I anticipate that you will have little difficulty in answering the questions if you are up to date on the class materials.
- The quiz each week will be based primarily upon the material from the previous week. The quizzes are open notes, book and laptop or desktop and are to be submitted to Blackboard when due.
- Some of the quizzes may be in class (rather than take home). However, the instructor will let you know the week before, if there will be an in-class quiz the following week.
- There are **no make-up quizzes**. However, **two lowest scores will be dropped (a missed quiz is a zero)**.

Examinations:

- The midterms and final will be based on homework assignments, quizzes, and the discussions, notes and in-class exercises. 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.
- The midterms and final exams are closed book and close notes and taken in class.
- Calculators are OK but laptops or desktops are required¹.
- Students can bring a **two-sided letter size handwritten cheat sheet** for midterm 1. Two of such cheat sheets for midterm 2, and three for final exam.
- Exam problems will be both numerical and essay, with occasional true/false, fill in the blank, or multiple choice and are to be done on Blackboard.

Test Schedule:

Midterm 1	Thursday, February 15, 2024	2:00 P.M. – 3:50 P.M.
Midterm 2	Tuesday, March 26, 2024	2:00 P.M. – 3:50 P.M.
Final	Thursday, May 2, 2024	2:00 P.M. – 4:00 P.M.

¹ <https://itservices.usc.edu/spaces/laptoploaner/>

Course Schedule:

Week	Topics	Reading	Deliverables
Week 1	Introduction Costing and pricing, Segmentation	Ch. 1, 2	
Week 2	Consultation, Forecasting (I)	Ch. 2, 3	HW1 (Ch 1,2)
Week 3	Forecasting (II)	Ch. 3	
Week 4	Inventory Models (Level demand)	Ch. 4	HW2 (Ch 3)
Week 5	Inventory Models (Probabilistic Demand)	Ch. 6	HW3 (Ch4)
Week 6	Review session -Midterm 1(Ch 1,2,3,4)	-	-
Week 7	Inventory Models (Probabilistic Demand) -Inventory policies	Ch. 6,7	
Week 8	Lot Sizing – Time-Varying Demand	Ch. 5	HW4 (Ch 6,7)
Week 9	Newsvendor problem	Ch. 9	HW5 (Ch 5)
Week 10	Multi-echelon Inventory Management - Review session	Ch. 11	HW6 (Ch 9)
Week 11	Midterm 2 (Ch 5,6,7,9) – C-items - multiple items replenishment	Ch 8,10	-
Week 12	Production planning problems - Scheduling and optimization	Ch. 13 ,14	HW7 (Ch 11,8)
Week 13	Scheduling and optimization	Ch. 14,16	HW8 (Ch10,14)
Week 14	Enterprise Resource Planning	Ch. 15	HW9 (Ch 13,16)
Week 15	Vendor selection and performance, Just in Time and Lean concepts (time permitting), Review session	Ch. 12 Ch. 16	
FINAL	(Thursday, May 2, 2024) Refer to the final exam schedule in the USC Schedule of Classes at classes.usc.edu .		

Important Notes:

- The syllabus may get updated during the semester.
- In all your emails to the instructor, copy the TA as well to make sure you get the response as soon as possible.
- Include “ISE 410”** at the beginning of all your email titles to get the response as soon as possible.
- 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.**
- Grading Scale Course final grades will be determined using the following scale
 - A [94, 100]
 - A- [90, 94)
 - B+ [87, 90)
 - B [84, 87)
 - B- [80, 84)
 - C+ [77, 80)
 - C [74, 77)
 - C- [70, 74)
 - D+ [67, 70)
 - D [64, 67)
 - D- [60, 64)
 - F < 60

Statement on Academic Conduct and Support Systems

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” policy.usc.edu/scampus-part-b. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on [Research and Scholarship Misconduct](#).

Students and Disability Accommodations:

USC welcomes students with disabilities into all of the University’s educational programs. The Office of Student Accessibility Services (OSAS) is responsible for the determination of appropriate accommodations for students who encounter disability-related barriers. Once a student has completed the OSAS process (registration, initial appointment, and submitted documentation) and accommodations are determined to be reasonable and appropriate, a Letter of Accommodation (LOA) will be available to generate for each course. The LOA must be given to each course instructor by the student and followed up with a discussion. This should be done as early in the semester as possible as accommodations are not retroactive. More information can be found at osas.usc.edu. You may contact OSAS at (213) 740-0776 or via email at osasfrontdesk@usc.edu.

Support Systems:

Counseling and Mental Health - (213) 740-9355 – 24/7 on call
studenthealth.usc.edu/counseling

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call
suicidepreventionlifeline.org

Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-9355(WELL), press “0” after hours – 24/7 on call

studenthealth.usc.edu/sexual-assault

Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

Office for Equity, Equal Opportunity, and Title IX (EEO-TIX) - (213) 740-5086
eeotix.usc.edu

Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

Reporting Incidents of Bias or Harassment - (213) 740-5086 or (213) 821-8298
usc-advocate.symplcity.com/care_report

Avenue to report incidents of bias, hate crimes, and microaggressions to the Office for Equity, Equal Opportunity, and Title for appropriate investigation, supportive measures, and response.

The Office of Student Accessibility Services (OSAS) - (213) 740-0776

osas.usc.edu

OSAS ensures equal access for students with disabilities through providing academic accommodations and auxiliary aids in accordance with federal laws and university policy.

USC Campus Support and Intervention - (213) 821-4710

campussupport.usc.edu

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

Diversity, Equity and Inclusion - (213) 740-2101

diversity.usc.edu

Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call

dps.usc.edu, emergency.usc.edu

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call

dps.usc.edu

Non-emergency assistance or information.

Office of the Ombuds - (213) 821-9556 (UPC) / (323-442-0382 (HSC)

ombuds.usc.edu

A safe and confidential place to share your USC-related issues with a University Ombuds who will work with you to explore options or paths to manage your concern.

Occupational Therapy Faculty Practice - (323) 442-3340 or otfp@med.usc.edu

chan.usc.edu/otfp

Confidential Lifestyle Redesign services for USC students to support health promoting habits and routines that enhance quality of life and academic performance.