

Technical Elective: Inventory Management

Spring, 2021-2022

Classroom: Room 4-204 SCUPI Building

Lectures: Wednesday 1:50-2:35 pm, 2:45-3:30 pm, 3:40-4:25 pm

Instructor: Kunpeng Wang

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Office Hours: Tue. 9:00-11:00 am, 1:00-4:00 pm, Thur. 10:00-11:00 am, 1:00-4:00 pm

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Course Description

This course promotes understanding of the content and practice of inventory management and control. Topics revolve around deterministic and stochastic inventory models for single- and multiple-item systems. The course introduces analysis and design of inventory systems. Demand forecasting via time series data analysis will also be provided.

Prerequisites

IE 1040 Engineering Economic Analysis or ECON 0100 Microeconomics

Course Objectives

This course introduces different EOQ models in inventory control and materials management.

At the completion of this course, students will be able to

1. Mathematically model, optimize, and design inventory systems.
2. Formulate and solve inventory and materials management problems faced by today's firms.
3. Take a comprehensive view of complex inventory and supply chain systems.
4. Analyze time series demand data via the R software.

Course Content

We will cover most of the material from Chapters 1-10 in the textbook.

Class Structure

Lectures.

Course Materials

Textbook: Tersine, R. J. (1994, 4th Edition), Principles of Inventory and Materials Management, Prentice Hall, Englewood Cliffs, New Jersey. (Books in other editions are also acceptable.)

Blackboard

Please regularly log on and check <https://pibb.scu.edu.cn/>. We will upload there lecture notes, assignments, announcements and your grades.

Course Assessment

Biweekly assignments, project, midterm and final exams.

Schedule of Exams, Assignments and Quizzes

Exams

Date	Time	Component
Week 09	2 hours	Midterm Exam
Final exam week	TBA	Final exam

Assignments

Homework assignments will be given out biweekly. They will be due by the following week on Wednesday at the beginning of the class at 1:50 pm. Plagiarism will not be tolerated. However, discussions of the assignment problems will be permitted. Please also note each student must submit his/her individual assignment.

Projects

Students will work in groups of 4 – 5 students on the final project. It is the responsibility of the groups to manage their own interactions and individual participation. The groups will make a professional-level presentation for the project during Weeks 17 and 18. Each student in a group will receive the same grade based on the assessment of the project written report and presentation.

Start	Due	Component
May 30,2022	July 1,2022	Final Project

Grading Policy

The final grade will be computed according to the following scheme:

Scheme: Total grade = 25 % Assignments + 30 % Midterm Exam + 15% Project + 30 % Final Exam.

Note: Both midterm and final exams will be closed-book. Assessment adjustments can be made for senior graduating students when necessary.

Conversion of Numerical Grades to Final Letter Grades Follows the SCUPI Common Grade

A [90,100]	A- [85,90)	B+ [80,85)	B [76,80)	B- [73,76)	C+ [70,73)	C [66,70)
C- [63,66)	D+ [61,63)	D [60,61)	F (60,0)			

Schedule and weekly learning goals

The schedule is tentative and subject to change. The listed objects below should be viewed as the key concepts you should grasp after each week, and also as a study guide before each exam, and at the end of the semester. The midterm exam covers Weeks 01-08, and the final exam will cover all topics taught in this semester.

Week 01, 02/21-02/25

- Cover Chapter 1, Overview.
- Basic concepts of inventory.

Week 02, 02/28-03/04

- Cover part of Chapter 2.
- The forecasting function. Time series analysis.

Week 03, 03/07-03/11

- Complete Chapter 2.
- Time series analysis.

Week 04, 03/14-03/18

- Cover part of Chapter 3.
- EOQ.

Week 05, 03/21-03/25

- Complete Chapter 3.
- EPQ.

Week 06, 03/28-04/01

- Cover part of Chapter 4.
- Statistical considerations.

Week 07, 04/04-04/08

- Complete Chapter 4.
- Known stockout costs. Service levels.

Week 08, 04/11-04/15

- Cover part of Chapter 5.
- EOI.

Week 09, 04/18-04/22 Midterm Exam

- Midterm Exam.
- Complete Chapter 5.

Week 10, 04/25-04/29

- Cover Chapter 6.
- Inventory system changes and limitations.

Week 11, 05/02-05/06

- Cover Chapter 7.
- Single order quantities.

Week 12, 05/09-05/13

- Cover part of Chapter 8.
- MRP inputs and outputs.

Week 13, 05/16-05/20

- Complete Chapter 8.
- An EOQ-MRP comparison.

Week 14, 05/23-05/27

- Cover Chapter 9.
- In-process inventory.

Week 15, 05/30-06/03

- Cover Chapter 10.
- Flow of costs.

Week 16, 06/06-06/10

- Cover Chapter 11.
- Simulation.

Week 17, 06/13-06/17

- **Presentations.**

Note: The following schedules are subject to change. Please follow the calendar to be given by the SCU.

Week 18, 06/20-06/24 Review session

Week 19, 06/26-07/02 Final Exam Week

Course Policies

There will be no special treatments for any students in this course! For example, if you have a heavy course load, you should expect a steep learning curve and be prepared for it. You will not be exempted from any assignments.

During Class

Computers may be allowed in class for the electronic recording of notes. But please refrain from using computers for any activities that are unrelated to the course. Phones are prohibited as they are rarely useful for anything in the course. Eating and drinking are allowed in class but please keep from it affecting the course.

Attendance Policy

Attendance is expected in all lectures. Valid excuses for absence will be accepted before class. In extenuating circumstances, valid excuses with proof will be accepted after class.

Policies on Late Assignments and Exams

Students should start their homework assignments immediately after the assignments are given, and DO NOT wait until the last minute to meet the deadlines. **Late assignments will be NOT accepted except for emergencies and health issues. Any other late assignments handed in will be marked but will be given 0.** At most **Two** extensions for assignments will be given in this course. All assignments will be counted in your total grade. **Late submission for previous assignments during the final exam period will NOT be accepted in any form for any excuses.**

All tests and the final exam are mandatory. There will be absolutely no makeup exam for each test. If you miss the final, a makeup exam may be given for the final exam if the student has the approval from the instructor or emergencies and health issues **with a valid proof.** I will not accept the student deceleration for absence form for the final exam.

Academic Integrity

At Sichuan University, we are guided in all of our work by the values of academic integrity: honesty, trust, fairness, responsibility and respect (The Center for Academic Integrity, Duke University, 1999). As a student, you are required to demonstrate these values in all of the work you do.

Everyone at SCUPI is expected to treat others with dignity and respect. The Code of Student Conduct allows Sichuan University to take disciplinary action if students don't follow this community expectation.