

Inventory and Supply Chain Systems

EIN4343 Section 8231

Class Periods: M | Period 3 - 4 (9:35 AM - 11:30 AM); F | Period 3 (9:35 AM - 10:25 AM).

Location: M | TUR 2353; F | WEIM 1084

Academic Term: Fall 2023

Instructor

Dr. Mengyu Li

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Office Hours: Fridays, 10:30 am – 12: 30pm, Weil 379.

Teaching Assistant

N/A

Course Description

Deterministic and stochastic inventory models for single- and multiple-item systems. Analysis and design of logistics systems. Supply chain management and coordination. Demand forecasting.

Course Pre-Requisites / Co-Requisites

ESI3312 (Operations Research 1) and ESI4313 (Operations Research 2) with minimum grades of C.

Course Objectives

This course develops students' analytic abilities to formulate and solve inventory, logistics, and supply chain problems faced by today's firms. Students learn to take a comprehensive view of complex inventory and supply chain systems. Additionally, the students develop abilities to model, optimize, and design such systems.

Materials and Supply Fees

N/A

Relation to Program Outcomes (ABET)

Outcome	Coverage*
1. An ability to identify, formulate, and solve engineering problems by applying principles of engineering, science, and mathematics.	High
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	Medium
3. An ability to communicate effectively with a range of audiences.	
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	Low
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	Low
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.	Medium

*Coverage is given as high, medium, or low. An empty box indicates that this outcome is not covered or assessed in the course.

Required Textbooks and Software

- Textbooks
 - N/A
- Lecture Notes
 - Available at Canvas course site

Recommended Materials

N/A

Course Schedule

This is a *tentative* outline. The instructor reserves the right to make changes as she sees necessary.

Week	Date	Topic	Activity
1	25-Aug	Course Overview & Syllabus	
2	28-Aug	ABC Analysis & Inventory Introduction	
	1-Sep	Economic Order Quantity (EOQ) Model & Extensions I	
3	4-Sep	Holiday - No class	
	8-Sep	EOQ Extensions II	Quiz 1
4	11-Sep	EOQ Extensions III	
	15-Sep	Tutorial 1 - EOQ	Quiz 2
5	18-Sep	LSP Model (Exact & Heuristics)	
	22-Sep	LSP Model (Heuristics)	Price Research
6	25-Sep	Tutorial 2 - LSP	Quiz 3
	29-Sep	Newsvendor Model (Single)	
7	2-Oct	Newsvendor Model (Single & Multi)	
	6-Oct	Holiday - No class	
8	9-Oct	Tutorial 3 - Newsvendor & (q,r) Policy Model (DDLT)	Quiz 4
	13-Oct	(q,r) Policy Model (Backlogging & Lost Sale)	
9	16-Oct	Midterm Exam	
	20-Oct	(q,r) Policy Service Level	
10	23-Oct	Tutorial 4 - (q,r) policy	Quiz 5
	27-Oct	Review - Midterm Exam	
11	30-Oct	Supply Chain Introduction & Transportation Systems	
	3-Nov	Logistics Decisions & Consolidations	
12	6-Nov	The Bullwhip Effect	Wood Supply Game
	10-Nov	Holiday - No class	
13	13-Nov	Demand Forecasting: Stationary & Linear Trend Series	
	17-Nov	Demand Forecasting: Seasonal Series	
14	20-Nov	Tutorial 5 - Logistics	
	24-Nov	Holiday - No class	
15	27-Nov	Demand Forecasting: Seasonal Series	
	1-Dec	Tutorial 6 - Forecasting	Quiz 6
16	4-Dec	Final Exam	

Attendance Policy, Class Expectations, and Make-Up Policy

Throughout the semester, the following policies will be followed:

- **Class.** Students will be provided with detailed lecture notes. Attendance is not required. However, make sure you attend the classes when the quizzes/term exams are given (see detailed Course Schedule). Cell Phones MUST be turned off or placed on silent mode before you come to class. You will not be allowed to check e-mail, send text messages, and/or play games during classes. Please come to class in time. Late arrivals as well as walking out and in during the lectures disrupt the flow of the class. *Persistent disruptive behavior will not be tolerated and might result in grade deductions (half a letter grade).*

- **Exam Policy.** To assess student learning, students will be given six Quizzes (see detailed Course Schedule), one Midterm Exam (see detailed Course Schedule), and a comprehensive Final Exam (see detailed Course Schedule). One A4 size Formula sheet can be used during the exams. The exams are scheduled in advance, please plan accordingly.
Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies. Click here to read the university attendance policies: <https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>
- **Regrade Requests.** Requests for the regrading of exams will be considered only with a written explanation and only within one week from the time graded work is returned in class. Specifically, you need to prepare a typed-up or legibly written memo explaining why you believe your work needs to be regraded, attach it to the cover sheet of the exam booklet, and return it to the instructor. Grades will be posted on the course page on Canvas. Throughout the semester, you have to ensure that your grades are entered correctly. Corrections will be considered only within one week after the grades have been posted on Canvas.
- **Announcements and Course Materials.** You are responsible for all announcements made in class as well as some additional material that might be covered. You are responsible for printing the lecture notes posted on Canvas. Paper copies of the lecture notes will not be distributed in class.
- **Assignments:** A late submission penalty of 25% per day (3 days maximum allowance) will be applied to late submissions.
 - **Price Comparison.** You will be asked to choose a product and create a table that depicts the price of the product for at least three online stores and at least three different physical stores in Gainesville. More information will be provided via Canvas.
 - **Wood Supply Game.** You will be assigned to complete this assignment in groups. More information about the submission guidelines will be provided via Canvas.

Evaluation of Grades

Your final grade for the class will be calculated as shown in the table below:

Quizzes (5 out of 6)	25%
Price Research	5%
Wood Supply Game	5%
Midterm Exam	30%
Final Exam	35%

Grading Policy

Final grade averages will be rounded off to the nearest integer, and assigned on the standard scale as follows:

Percent	Grade	Grade Points
93 - 100	A	4.00
90.0 – 92.9	A-	3.67
86 - 89.9	B+	3.33
83 – 85.9	B	3.00
80.0 – 82.9	B-	2.67
76 - 79.9	C+	2.33
73 – 75.9	C	2.00
70.0 – 72.9	C-	1.67
67 - 69.9	D+	1.33
63 – 66.9	D	1.00
60.0 – 62.9	D-	0.67
0 - 59.9	E	0.00

More information on UF grading policy may be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Students Requiring Accommodations

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the Disability Resource Center by visiting <https://disability.ufl.edu/students/get-started/>. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

Course Evaluation

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.a.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.a.ufl.edu/public-results/>.

In-Class Recording

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

University Honesty Policy

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor Code (<https://sccr.dso.ufl.edu/process/student-conduct-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Commitment to a Safe and Inclusive Learning Environment

The Herbert Wertheim College of Engineering values varied perspectives and lived experiences within our community and is committed to supporting the University’s core values, including the elimination of discrimination. It is expected that every person in this class will treat one another with dignity and respect regardless of race, creed, color, religion, age, disability, sex, sexual orientation, gender identity and expression, marital status, national origin, political opinions or affiliations, genetic information, and veteran status.

If you feel like your performance in class is being impacted by discrimination or harassment of any kind, please contact your instructor or any of the following:

- Your academic advisor or Graduate Program Coordinator
- HWCOE Human Resources, 352-392-0904, student-support-hr@eng.ufl.edu
- Curtis Taylor, Associate Dean of Student Affairs, 352-392-2177, taylor@eng.ufl.edu
- Toshikazu Nishida, Associate Dean of Academic Affairs, 352-392-0943, nishida@eng.ufl.edu

Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: <https://registrar.ufl.edu/ferpa.html>

Campus Resources:

Health and Wellness

U Matter, We Care:

Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

Counseling and Wellness Center: <https://counseling.ufl.edu>, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Discrimination, Harassment, Assault, or Violence

If you or a friend has been subjected to sexual discrimination, sexual harassment, sexual assault, or violence contact the **Office of Title IX Compliance**, located at Yon Hall Room 427, 1908 Stadium Road, (352) 273-1094, title-ix@ufl.edu

Sexual Assault Recovery Services (SARS)

Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or <http://www.police.ufl.edu/>.

Academic Resources

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu.
<https://lss.at.ufl.edu/help.shtml>.

Career Connections Center, Reitz Union, 392-1601. Career assistance and counseling; <https://career.ufl.edu>.

Library Support, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring.

<https://teachingcenter.ufl.edu/>.

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers.

<https://writing.ufl.edu/writing-studio/>.

Student Complaints Campus: <https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>; <https://care.dso.ufl.edu>.

On-Line Students Complaints: <https://distance.ufl.edu/getting-help/>; <https://distance.ufl.edu/state-authorization-status/#student-complaint>.