

INVENTORY & SUPPLY CHAIN SYSTEMS

EIN4343 Section: 8052

Class Periods: M W F 2nd Period (8:30 am-9:20 am)

Location: FAB 103

Academic Term: Spring 2017

Instructor:

- Abdullah Ozgun Uzer
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Office Hours: TBA

Teaching Assistants:

- Tong Zhang
Office Hours: TBA

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

Please check Undergraduate Catalog

<https://catalog.ufl.edu/ugrad/current/engineering/majors/industrial-and-systems-engineering.aspx>

Course Objectives

This course develops student's 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.

Relation to Program Educational Objectives (PEOs)

This course contributes to the following PEOs:

1. Can become successful professionals in industrial and systems engineering or other disciplines
2. Can acquire advanced knowledge through continuing education or advanced degree programs.

Relation to ABET Student Outcomes

This course contributes to the following ABET Student Outcomes:

- a. Apply knowledge of mathematics, science, and engineering
- b. Design and conduct experiments, as well as analyze and interpret data
- c. Design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability
- d. Identify, formulate and solve engineering problems
- e. Understand the impact of engineering solutions in a global, economic, environmental and societal context
- f. Recognize the need for, and have an ability to engage in life-long learning
- g. Know contemporary issues k. Use the techniques, skills, and modern engineering tools necessary for engineering practice

Recommended Textbooks and Software

- Production and Operations Analysis 7th Edition
- 7th Edition
- Steven Nahmias and Tava Lennon Olsen
- ISBN: 9781478623069

Course Outline

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

- Week 1: Introduction: Syllabus and Motivation, Inventory Management: ABC Analysis
- Week 2: Inventory Management: Deterministic Models: Economic Order Quantity (EOQ) Model, Extensions I & II
- Week 3: Inventory Management: Deterministic Models EOQ Extensions III, Deterministic Models Wagner-Whitin Model and Heuristics
- Week 4: Inventory Management: Stochastic Models Periodic Review: Single-period model
- Week 5: Inventory Management: Stochastic Models Periodic Review: Multi-period with Backlogging, Multi-period with Lost Sales
- Week 6: Inventory Management: Stochastic Models Continuous Review: Multi-period with Backlogging
EXAM 1 (February 8th 2017)
- Week 7: Inventory Management: Stochastic Models Continuous Review: Multi-period with Lost Sales
Inventory Management: Stochastic Models Continuous Review: Service Levels
- Week 8: Logistics Management Preliminaries, Logistics Management Shipment Size Selection
- Week 9: Logistics Management Shipment Mode Selection, Logistics Management Consolidation I & II
EXAM 2 (March 3rd 2017)
- Week 10: Spring Break
- Week 11: Supply Chain Management Definition and Fundamental Issues, The Bullwhip Effect, Supply Chain Management Contemporary Issues: Disruptions, Omnichannels, etc.
- Week 12: Supply Chain Management: Retailer-Supplier Coordination, Supply Chain Management Contracting: Buy back
- Week 13: Supply Chain Management Contracting: Revenue sharing, Supply Chain Management Contracting: Buy back
EXAM 3 (March 31st 2017)

Week 14: Demand Forecasting Preliminaries and Methods for Stationary Series, Demand Forecasting Methods for Linear Trend Series

Week 15: Demand Forecasting Methods for Linear Trend Series, Demand Forecasting Methods for Seasonal Series.

Week 16: Demand Forecasting. Practical Considerations
FINAL EXAM (April 28th 2017 Between 10 am- 12 pm)

Class Policies

Throughout the semester, following policies will be followed:

Flipped Class. Students will be asked to study the derivations of the analytical tools on their own using lecture notes prior to coming to a classroom meeting. Classroom meetings will be used to (i) assess student self-study skills; (ii) highlight distinguishing features of the tools; (iii) work through example problems to enhance student learning; and (iv) discuss issues related to the use of these tools for analysis in practice.

In-Class Activity Policy. To assess student learning, students will be given two types of in-class activity assignments: Probes and Reflections. *Probes* will be group activities, where students will be invited to work in groups to reflect on what they might already know about a particular course topic. *Reflections* will be individual activities, where students will be invited to watch a short video in class and answer short-essay questions that relate the presentation in the video to one or more of the course topics.

Exam Policy. To assess student learning, students will be given three Term Exams (around Weeks 6, 9 and 13 of the semester) and a comprehensive Final Exam. *Due to the size of the class, evening exams might be given. Evening exam times have been requested and the information will be relayed to students as soon as they become available.* Formula sheets that can be used during the exams will be provided by the instructor. These formula sheets will be posted on the course web-site in advance. Prior to each exam a study guide will also be provided by the instructor that lists the topics that will be covered in the exam. The exams are scheduled in advance, please plan accordingly. Make-up tests will be given for unanticipated absences ONLY (e.g., illness/death in family with appropriate documentation, but NOT for job interviews). Exam Policy is non-negotiable.

Regrade Requests. Requests for regrading of exams will be considered only with a written explanation and only within a one-week period 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 make it the cover sheet of the exam booklet, and return it to the instructor or the TA. 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 a one-week period 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. You will not be allowed to use tablets to take notes.

Professional Conduct. Please remember to turn off cellular telephones before you come to class. You will not be allowed to check e-mail, send text messages, and/or play game. You will not be allowed to use computers or

tablets in this class to take notes. Please come to class in time. Late arrivals as well as walking out and in during the lectures disrupt the flow of the class.

Grading. Your final grade for the class will be calculated as follows: Probes 5%, Reflections 5%, Term Exam 1 20%, Term Exam 2 20%, Term Exam 3 20%, Final Exam 30%. Final grade averages will be rounded off to the nearest integer, and assigned on the standard scale as follows:

A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E
100-93	92-90	89-87	86-83	82-80	79-77	76-73	72-70	69-67	66-63	62-60	59-0

More information on UF grading policy may be found at:

<http://gradcatalog.ufl.edu/content.php?catoid=10&navoid=2020#grades>

Students Requiring Accommodations

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, <https://www.dso.ufl.edu/drc>) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Course Evaluation

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu/evals>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

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://www.dso.ufl.edu/sccr/process/student-conduct-honor-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.

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: <http://registrar.ufl.edu/catalog0910/policies/regulationferpa.html>

Campus Resources:

Health and Wellness

U Matter, We Care:

If you or a friend is in distress, please contact umatter@ufl.edu or 352 392-1575 so that a team member can reach out to the student.

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

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 Resource Center, Reitz Union, 392-1601. Career assistance and counseling. <https://www.crc.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://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf.

On-Line Students Complaints: <http://www.distance.ufl.edu/student-complaint-process>.