

## EIN 4343 INVENTORY & SUPPLY CHAIN SYSTEMS Spring 2012

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

**Prerequisites and Co-requisites.** ESI 4312 Operations Research I, STA 4322 Mathematical Statistics I are the pre-requisites. ESI 4313 Operations Research II is a co-requisite that may be waived upon instructor's approval.

**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.

**Instructor.** Prof. Elif Akçali, Office: WEIL 472, Email: akcali@ufl.edu, URL: <http://www.ise.ufl.edu/akcali>, Office Hours: W 5–6.

**Teaching Assistant.** Ms. Ayşe Nur Arslan, Email: nur.arslan@ufl.edu, Office Hours: TBD.

**Class Meeting Times and Locations.** AND 134 T 2–3 R 3.

**Recommended Text.** S. Nahmias. 2008. *Production and Operations Analysis*. 6th Edition. McGraw-Hill, Irwin.

### Class Policies.

- To get to know the students, the instructor will schedule a 15 minute one-on-one meeting with each student within the first two weeks of classes. Sign-up sheets will be distributed.
- To introduce a new topic, the students will be given 6 background knowledge probes with 2–3 questions, the answers to which will be provided by the students individually or in small study groups formed in an ad-hoc manner in class.
- To supplement the classroom instruction throughout the semester, the students will be assigned 6 study sets with 4–6 problems, the solutions to which will also be provided.
- To assess student learning throughout the semester, the students will be given 7 Quizzes (on January 19, February 14, February 21, March 15, March 22, March 29 and April 12) during class periods. *The quizzes are scheduled in advance, please plan accordingly. There will be no make-up opportunity for quizzes.* Quiz policy is non-negotiable.
- To further assess student learning, the students will be given 3 term exams (on February 9, March 1, and April 5) and a *comprehensive* final exam (on May 3). Term exams will be given during class periods. 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 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 with a doctor's report, death in family, but **NOT** for job interviews).* Exam policy is non-negotiable.

- 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. The written explanation should be prepared neatly in the form of a memo, attached as a cover sheet to the graded work, and returned to the instructor or the teaching assistant. probe, quiz, and exam grades will be posted on the web. 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 the web.
- The students are responsible for all announcements made in class.
- The students are responsible for printing the lecture notes, study sets and their solutions from the class web page. Paper copies of lecture notes and/or study sets will *not be distributed* in class except for the first week of the classes.
- The students are reminded to turn off cellular/smart telephones before they come to the classes. The students are not allowed to turn on laptop computers during classes. Also, the students are not allowed to check e-mail, send text messages, and/or play games with on their cellular/smart telephones.
- The students are expected to come to class in time. Late arrivals as well as walking out of and back into the classroom disrupt the flow of the lecture.

**Grading.** Grades averages for the class will be based on the following course components and the associated percentages: meeting with the instructor 1%; Probes 3%; Quizzes 14%; Term Exam 1 18%, Term Exam 2 18%, Term Exam 3 18%; and Final Exam 28%

Final grade averages will be rounded off to the nearest one-tenth point, and assigned on the standard scale as follows: 90.0 and above A; 88.0 to 89.9 B+; 80.0 to 87.9 B; 78.0 to 79.9 C+; 70.0 to 77.9 C; 68.0 to 69.9 D+; 60.0 to 67.9 D; and Below 60.0 E.

**Detailed Course Outline.** This is a tentative outline and the instructor reserves the right to make changes as she sees necessary.

Week	Date	Topic	Supplemental Work	In-Class Activity
1	Jan 10	Introduction Operations Management	1.1–1.4, 1.9	Probe #1
	Jan 12	Forecasting: Single Exponential Smoothing	2.1–2.7 Study Set # 1	Probe #2
2	Jan 17	Forecasting: Regression and Double Exponential Smoothing	2.8, App. 2.B	
	Jan 19	Forecasting: Moving Averages with Seasonality	2.9	Quiz #1
3	Jan 24	Forecasting Winter’s Method	2.9	
	Jan 26	Inventory Management: Preliminaries ABC Analysis	4.1–4.4	Probe #3
4	Feb 7	Inventory Management: Deterministic Models Economic Order Quantity (EOQ) Model	4.5, Study Set #2	
	Feb 9	<b>Term Exam 1</b> <i>Topic: Forecasting</i>		Exam #1

Week	Date	Topic	Supplemental Activity	In-class Activity
5	Feb 14	Inventory Management: Deterministic Models EOQ with Quantity Discounts	4.7	Quiz #2
	Feb 16	Inventory Management: EOQ with Multiple Products	4.6, 4.8 App. 4.A	
6	Feb 21	Inventory Management: Deterministic Models Formulation and Wagner-Whitin Model	App. 7.A Study Set #3	Quiz #3
	Feb 23	Inventory Management: Deterministic Models Lot Sizing Heuristics	7.2	
7	Feb 28	Inventory Management: Stochastic Models Single-period Newsboy Model	5.3 Study Set #4	Probe #4
	Mar 1	<b>Term Exam 2</b> <i>Topic: Deterministic Inventory Models</i>		Exam #2
8	Mar 6	<b>Spring Break</b> <i>No class meeting</i>		
	Mar 8	<b>Spring Break</b> <i>No class meeting</i>		
9	Mar 13	Inventory Management: Stochastic Models Periodic Review: Single-period Model	App. 5.B	
	Mar 15	Inventory Management: Stochastic Models Periodic Review: Multiple-period with Backlogging		Quiz #4
10	Mar 20	Inventory Management: Stochastic Models Periodic Review: Multiple-period with Lost Sales		
	Mar 22	Inventory Management: Stochastic Models Continuous Review: Multiple-period with Backlogging	5.4, App. 5.C Study Set #5	Quiz #5
11	Mar 27	Inventory Management: Stochastic Models Continuous Review: Multiple-period with Lost Sales		
	Mar 29	Inventory Management: Stochastic Models Continuous Review: Service Levels	5.5	Quiz #6
12	Apr 3	Logistics Management: Definition, Modes, and Costs		Probe #5
	Apr 5	<b>Term Exam 3</b> <i>Topic: Stochastic Inventory Models</i>		Exam #3
13	Apr 10	Logistics Management Network Design	6.1, Zara Study Set #6	
	Apr 12	Logistics Management Warehouse Location and Cross-docking	IKEA	Quiz #7
14	Apr 17	Logistics Management: Consolidation Strategies	6.6	
	Apr 19	Supply Chain Management: Preliminaries The Bullwhip Effect	6.7	Probe #6
15	Apr 24	Supply Chain Management: Retailer-Supplier Coordination and Relationships	Wal-Mart	
	Apr 26	<b>Reading Days</b> <i>No class meeting</i>		
16	May 3	<b>Final Exam: 3B: 10:30am-12:30pm</b> <i>Comprehensive</i>		

**Honesty Policy.** All students admitted to the University of Florida have signed a statement of academic honesty committing themselves to be honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action. This statement is a reminder to uphold your obligation as a University of Florida student and to be honest in all work submitted and exams taken in this course and all others.

If you conduct any dishonest act during an examination (e.g., cheating on an exam, or using any extra material that you are not allowed to use during an exam), you will get a credit of 0 on that particular exam. Necessary disciplinary action, as dictated by the rules of the University, will also be taken.

**Accommodation for Students with Disabilities.** Students requesting classroom accommodation must first register with the Dean of Students Office. That office will provide the student with documentation that he/she must provide to the course instructor when requesting accommodation.

**UF Counseling Services.** Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:

- University Counseling Center, 301 Peabody Hall, 392-1575, Personal and Career Counseling.
- SHCC mental Health, Student Health Care Center, 392-1171, Personal and Counseling.
- Center for Sexual Assault/Abuse Recovery and Education (CARE), Student Health Care Center, 392-1161, sexual assault counseling.
- Career Resource Center, Reitz Union, 392-1601, career development assistance and counseling.

**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.