

EIN 4343 INVENTORY & SUPPLY CHAIN SYSTEMS Spring 2015

Catalogue 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.

Prerequisites. ESI 4312 Operations Research I (with a minimum grade of C). ESI 4313 Operations Research II (with a minimum grade of C).

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 Hall 472, Email: akcali@ufl.edu, URL: <http://www.ise.ufl.edu/akcali>, Office Hours: T 1:30-3:00pm or by appointment.

Teaching Assistant. Eric Blair, Email: eclair@ufl.edu, Office Hours: M 2:00-4:00pm at Weil 450.

Class Meeting Times and Locations. T 4–5 FLG 270 and R 4 FLG 270

Class Policies. Throughout the semester, following policies will be followed:

- **Flipped Class.** Students will be asked to study the derivations of the analytical models using self-study material on their own *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 models; (iii) work through a number of example problems to enhance student learning; and (iv) discuss issues related to the use of these models for analysis in practice.
- **Participation Policy.** To assess student self-study skills, students will be given 20 in-class activities throughout the semester. There will be no make-up opportunity for any of the missed activities. You have to participate in at least 8 activities to pass the class throughout the semester. Your highest 8 scores on these activities will be used to specify your participation grade. In-class activity participation policy is non-negotiable.
- **Exam Policy.** To assess student learning, students will be given two Term Exams (on February 17 and March 31) and a *comprehensive* Final Exam (on **May 1, 2015**). 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 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 with a doctor's report, death in family, 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. 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.

- **Announcements and Course Materials.** You are responsible for all announcements made in class. You are responsible for printing the self-study material from the class web site on Sakai. Paper copies of the self-study material will *not be distributed* in class.
- **Meet-and-Greet.** To get to know the students, the instructor will schedule a 10-minute one-on-one meeting with each student beginning the second week of classes. A sign-up sheet will be provided.
- **Creative Writing Component.** To allow students to connect seemingly two disparate areas of creative writing and engineering, the students will be given a number of creative writing assignments throughout the semester.

1. *Individual Assignment 1.* Write an “I am” poem about yourself.

I Am...

I am (*two special characteristics*)

I wonder (*something you are actually curious about*)

I hear (*an imaginary sound*)

I see (*an imaginary sight*)

I want (*an actual desire*)

I am (*the first line of the poem restated*)

I pretend (*something you pretend to do*)

I feel (*a feeling about something imaginary*)

I touch (*an imaginary touch*)

I worry (*something that really bothers you*)

I cry (*something that makes you very sad*)

I am (*the first line of the poem repeated*)

I understand (*something you know is true*)

I say (*something you believe in*)

I dream (*something you actually dream about*)

I try (*something you make an effort to do*)

I hope (*something you actually hope for*)

I am (*the first line of the poem repeated*)

2. *Group Assignment 1.* In groups of two, write an “I am” poem on a topic covered in EIN4343. You will first submit a draft and receive some feedback to improve your writing. Then, you will submit the poem’s final version. For this assignment, you may change the verbs also as you see fit.
3. *Group Assignment 2.* In groups of two, prepare a mind-map and write three-five connected/related Heiku poems on a topic covered in EIN4343. You will first submit your mind-map and receive some feedback to enhance the mind map. Then, you will submit the Heikus that conveys the essence of the topic you have chosen.

- **Professional Conduct.** Please remember to turn off cellular telephones and pagers before you come to class. Also, you will not be allowed to check e-mail, send text messages, and/or play games with your cellular telephones. You will not be allowed to take notes using a tablet or a hand-held device. Please come to class in time. Late arrivals as well as walking out and in during the lectures disrupt the flow of the lecture.

Grading. Your final grade for the class will be calculated based on quizzes, term exams, and the final exam as follows: Meet-and-Greet Dr. A. 1%, Individual “I am” Poem 1%, Group “I am” Poem Draft 1%, Group “I am” Poem Final 1%, Group Mind Map 1%, Group Heiku 1%, Participation 14%, Term Exam 1 25%, Term Exam 2 25% and Final Exam 30%. 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; 89.0 to 89.9 A-; 87.5 to 88.9 B+; 80.0 to 87.4 B; 79.0 to 79.9 B-; 77.5 to 78.9 C+; 70.0 to 77.4 C; 69.0 to 69.9 C-; 69.0 to 69.9 D+; 60.0 to 68.9 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.

| Session | Topic | Reading | Activity |
|---------|--|---------|-----------|
| Jan 6 | Introduction: Preliminaries | | A #1 |
| Jan 8 | Inventory Management: ABC Analysis | | “I am” #1 |
| Jan 13 | Inventory Management: Deterministic Models Economic Order Quantity (EOQ) Model | | A #2 |
| Jan 15 | Inventory Management: Deterministic Models EOQ Extensions | | A #3 |
| Jan 20 | Inventory Management: Deterministic Models EOQ with Quantity Discounts | | A #4 |
| Jan 22 | Inventory Management: EOQ with Multiple Products | | A #5 |
| Jan 27 | Inventory Management: Deterministic Models Wagner-Whitin Model and Heuristics | | A #6 |
| Jan 29 | Inventory Management: Stochastic Models Periodic Review: Single-period Model | | A #7 |
| Feb 3 | Inventory Management: Stochastic Models Periodic Review: Multiple-period with Backlogging | | A #8 |
| Feb 5 | Inventory Management: Stochastic Models Periodic Review: Multiple-period with Lost Sales | | A #9 |
| Feb 10 | Inventory Management: Stochastic Models Continuous Review: Multiple-period | | A #10 |
| Feb 12 | Logistics Management: Definition, Modes, and Costs | | |
| Feb 17 | Term Exam 1 <i>In Class</i> | | Exam # 1 |
| Feb 19 | Logistics Management Transportation Service Selection | | |
| Feb 24 | Logistics Management: Network Design | IKEA | A #11 |
| Feb 26 | Logistics Management Warehouse Location | | A #12 |
| Mar 3 | Spring Break <i>No Class</i> | | A #13 |
| Mar 5 | Spring Break <i>No Class</i> | | A #14 |

| Session | Topic | Reading | Activity |
|----------------|--|-----------------------|--------------------|
| Mar 10 | Logistics Management Cross-docking | | A #15 |
| Mar 12 | Logistics Management: Consolidation Strategies | Zara | A #16 |
| Mar 17 | Logistics Management: Consolidation Strategies | | “I am” #2 Draft |
| Mar 19 | Supply Chain Management: Definition and Issues | | A #17 |
| Mar 24 | Supply Chain Management: The Bullwhip Effect | | “I am” #2 Final |
| Mar 26 | Supply Chain Management: Retailer-Supplier Coordination | Wal-Mart | |
| Mar 31 | Term Exam 2 <i>In Class</i> | | Exam #2 |
| Apr 2 | Supply Chain Management: Supplier Relationships and Disruptions | Nokia vs. Ericsson | |
| Apr 7 | Forecasting: Preliminaries | | A #18 |
| Apr 9 | Forecasting: Moving Average and Exponential Smoothing | | Mind Map |
| Apr 14 | Forecasting: Regression and Double Exponential Smoothing | | A #19 |
| Apr 16 | Forecasting: Moving Averages with Seasonality | | A #20 |
| Apr 21 | Forecasting Winter’s Method | | Heiku |
| Apr 23 | Reading Days <i>No Class Meeting</i> | | |
| May 1 | Final Exam 1C: 12:30-2:30pm | | |

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.