

Syllabus ISE410 Spring 2019 Revised 12/20/2018

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Office Hours:	Tue/Thu, 12:45 P.M. – 1:45, Room GER 202 or by appointment
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TA:	Sierra Williams, <a href="mailto:sierrawi@usc.edu">sierrawi@usc.edu</a>
TA Office Hours:	TBD
Class time/place:	Tuesdays and Thursdays 2:00 P.M. – 3:20 P.M., Room THH210

Web Page: [http:// www.gezabottlik.com](http://www.gezabottlik.com) - Lecture notes, assignments, solutions and grades.  
<https://blackboard.usc.edu> - for uploading assignments

**Prerequisites:**

ISE 330. You must have this prerequisite to enroll in this class. You will be expected to apply methods from this course.

**Test Schedule:**

Midterm 1:	Tuesday, February 12, 2019	2:00 P.M. – 3:20 P.M.
Midterm 2:	Thursday, March 7, 2019	2:00 P.M. – 3:20 P.M.
Final:	Thursday, May 2, 2019	2:00 P.M. – 4:00 P.M.

**Learning Outcomes:** Upon completion of this course the student is expected to have demonstrated his/her ability to know and properly use:

1. Excel, Excel VBA, and Solver to solve problems associated with the class.
2. Understanding the need of forecasting, inventory control, planning, scheduling and quantitative and stochastic methods in managing operations
3. Simulating outcomes of various strategies in planning, forecasting and inventory control
4. Understanding and applying the basic concepts of Enterprise Resource Planning
5. Apply optimization to inventory and planning problems

The midterms and final will be based on problems homework, quizzes and the discussions in class. **All tests and quizzes are open book and open notes and laptops.** Students are expected to **apply** what they should have learned up to that point to analyzing situations, identifying the problems and applying the appropriate techniques to solve them or interpreting computer solutions.

**Assignments:**

Readings, problems and software exercises will be included in each week’s assignment. These are assigned on Tuesday and are due on the following **Wednesday at midnight on the assignment manager on Blackboard.** The assignment manager assigns a file name. The grader will return the assignments electronically only if there are any points taken off. Reading assignments are due when the material will be covered in class. It is imperative that you **prepare for class** -- you will find it extremely difficult to follow the discussion if you have not read the material.

I will **not accept** late homework, unless **prior** arrangements have been made (e.g. out of town funeral). Homework is to be a **digital Word (or Excel) 97 or later printable file.** Do not type results into spreadsheets – use formulas. No photos of your work – scan if necessary. If it is a team assignment, the team members’ names, assignment number, the date and any other team that you worked with must be in the **header.** Use a consistent template and format the output for a professional appearance. The assignment manager assigns the file name – use very short names like 410-1. A sample will be available on the web site. **There can only be one file per homework. (no zip files!).**

The assignments should be as professional in appearance as if you were preparing reports at work or for publication. Clearly label the problem number and your conclusions for each problem, followed by the supporting calculations. **The problems must be in the order assigned. Out of sequence problems will receive no credit.**

Assignments will be either individual or team. If two teams discuss or collaborate on a homework, they must indicate that on their assignments. Each team must turn in a separate homework. Generated

data and essay questions must be unique to each team. Team assignments should have all team members' names on them, but only if they worked on it.

It's OK to work on individual homework together, but finish it by yourself and indicate whom you worked with. For individual homework each student must turn in a separate homework. Do not give your files to others, and do not use others' files. Do not copy solutions from people you have worked with or from anyone else. Generated data and essay questions must be unique to each student. If you use solutions from prior semesters, indicate that. **If the answer is given in a book, don't just copy it, explain how you got it**

**Objectives and Content**

This course covers planning and scheduling systems. While the emphasis is on implementing effective production planning and scheduling systems, the material is equally applicable to service systems. While a prior knowledge of operations research, probability and statistics, and engineering economy is assumed, each of these will be reviewed briefly as the need arises. The focus is on mathematical models for solving problems arising in planning and scheduling.

**It is up to you to become familiar with and learn the mechanics of the material in the text. I am here to explain things you don't understand, to add things that are not in the book or the additional materials, and to evaluate whether you can apply the material to real problems. The lecture and class discussions are a supplement to what is contained in the book. It is NOT intended to be a duplication of what is contained in the book or the additional materials.**

I am looking forward to an intellectually stimulating and rewarding semester with you.

**Grading:**

Homework	~16%	16.5 points	1.5 pts each (- 0.5 if not submitted)
Midterm Exam 1	~19%	18.5 points	
Midterm Exam 2	~15%	15 points	
Final Exam	~29%	29 points	
Participation (Attendance on non quiz days, <b><u>discussion, preparedness for class</u></b> )	~ 7%	7.5 points	0.3 pt. each
Quizzes	~14%	13.5 points	1.5 pt. each

The grade for the course will only be based on the required work listed above and cannot be improved with additional work. Note that the usual average difference between adjacent grades is less than 0.5%.

**Quizzes:**

We will have about 9 quizzes during the semester. These are short, usually with one or two problems or about 10 True and False or fill in the blank. **We will start on 01/24.** There are no make up quizzes so be sure to show up for them

**Required Text:**

**Manufacturing Planning and Control** – Jacobs, Berry, Whybark and Vollman, McGraw-Hill 2011, ISBN 978-0-07-337782-7

**Additional Material will be provided during the semester**

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**Approximate Course Outline:**

Session	Date	Material	Homework No. due in week on Wednesday	Quiz
01	01/08	Introduction and Organization		
02	01/10	Inventory, Cost Components, Chapter 11		
03	01/15	Inventory, Economic order quantity	No. 1	
04	01/17	Inventory, Order points		
05	01/22	Inventory, Safety stock	No. 2	
06	01/24	Inventory, Lot sizing		QU1
07	01/29	Forecasting, Chapter 3	No. 3	
08	01/31	Forecasting, Regression		QU2
09	02/05	Forecasting, Smoothing	No. 4	
10	02/07	Review		
11	02/12	Midterm 1		
12	02/14	Forecasting, Seasonality		
13	02/19	Enterprise Resource Planning (ERP) Chapters 4 thru 6	No. 5	
14	02/21	ERP - Sales and operations		QU3
15	02/26	ERP - materials	No. 6	
16	02/28	ERP - Capacity		QU4
17	03/05	Review	No. 7	
18	03/07	Midterm 2		
19	03/19	Scheduling Chapter 8	No. 8	
20	03/21	Scheduling, Performance and Gantt charts		QU5
21	03/26	Scheduling, Single machine	No. 9	
22	03/28	Scheduling, Flow shops, job shops		QU6
23	04/02	Scheduling, Heuristics	No. 10	
24	04/04	Scheduling, Simulations, Advanced Production Systems		QU7
25	04/09	Scheduling, Simulations, Advanced Production Systems	No. 11	
26	04/11	Integrated Production Planning, Chapter 9		QU8
27	04/16	Just-in Time, Lean, Kan-ban, Theory of Constraints	No. 12	
28	04/18	Just-in Time, Lean, Kan-ban, Theory of Constraints		QU9
29	04/23	Just-in Time, Lean, Kan-ban, Theory of Constraints	No. 13	
30	04/25	Review		
	05/02	Final 2:00 P.M. – 4:00 P.M.		

**ALWAYS BE SURE TO GIVE THE SOURCE OF ALL YOUR INFORMATION. ANYTHING TAKEN VERBATIM FROM SOMEONE ELSE MUST BE IN QUOTATION MARKS AND REFERENCED. THIS INCLUDES PARTIAL SENTENCES.**

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This is intended to be an interactive class and your participation should increase as the semester progresses. Attendance at **all** classes for the **whole** class is expected of everyone. Frequent absences will result in a reduction in grade. Punctuality is expected. If you are late, be sure not to disturb the class as you enter.

**PLEASE DO NOT BRING FOOD OR DRINKS TO THE CLASS. BEVERAGES IN PLASTIC CONTAINERS ARE OK. NEATNESS, SPELLING, AND GRAMMAR COUNT. THEY ARE AN EXPRESSION OF YOUR COMMITMENT TO DO A GOOD JOB.**

**USE THE TOOLS IN WORD AND EXCEL!**

**The use of phones, Ipad, laptop or similar devices in class is strongly discouraged.**

**Last, but most important:** Statement on Academic Conduct and Support Systems

Academic Conduct:

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Part B, Section 11, “Behavior Violating University Standards” <https://policy.usc.edu/scampus-part-b/>. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, <http://policy.usc.edu/scientific-misconduct>.

Support Systems:

Student Counseling Services (SCS) - (213) 740-7711 – 24/7 on call

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention. <https://engemannshc.usc.edu/counseling/>

National Suicide Prevention Lifeline - 1-800-273-8255

Provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week. <http://www.suicidepreventionlifeline.org>

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-4900 - 24/7 on call

Free and confidential therapy services, workshops, and training for situations related to gender-based harm. <https://engemannshc.usc.edu/rsvp/>

Sexual Assault Resource Center

For more information about how to get help or help a survivor, rights, reporting options, and additional resources, visit the website: <http://sarc.usc.edu/>

Office of Equity and Diversity (OED)/Title IX Compliance – (213) 740-5086

Works with faculty, staff, visitors, applicants, and students around issues of protected class. <https://equity.usc.edu/>

Bias Assessment Response and Support

Incidents of bias, hate crimes and microaggressions need to be reported allowing for appropriate investigation and response. <https://studentaffairs.usc.edu/bias-assessment-response-support/>

The Office of Disability Services and Programs

Provides certification for students with disabilities and helps arrange relevant accommodations. <http://dsp.usc.edu>

Student Support and Advocacy – (213) 821-4710

Assists students and families in resolving complex issues adversely affecting their success as a student EX: personal, financial, and academic. <https://studentaffairs.usc.edu/ssa/>

Diversity at USC

Information on events, programs and training, the Diversity Task Force (including representatives for each school), chronology, participation, and various resources for students. <https://diversity.usc.edu/>

USC Emergency Information

Provides safety and other updates, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible, <http://emergency.usc.edu>

USC Department of Public Safety – 213-740-4321 (UPC) and 323-442-1000 (HSC) for 24-hour emergency assistance or to report a crime.

Provides overall safety to USC community. <http://dps.usc.edu>