

Mercer University B Stetson School of Business and Economics
Spring Semester, 2010, Session I
Masters of Business Administration

BAA 611.A14: Operations Management Science

Office Hours: Wednesday 1:00-3:00 PM
Thursday 2:00-4:00 PM and 5:00 - 6:00 PM
And by appointment
Office Location: Business And Education
Academic Building: Room 202
E-mail: Miller_Jr@Mercer.Edu
Web Address: <http://ssbea.mercer.edu/miller>

Professor: John Miller
Home: (770) 493-1668
Phone and fax
Office (678) 547-6166

COURSE DESCRIPTION:

This course focuses on the strategic and tactical issues in managing the creation and distribution of goods and services. Concepts and techniques for process and project management are covered. A broad base of topics related to operations management and management science are emphasized.

CLASS OBJECTIVES:

To learn about some of the tools and techniques used in management science and operations management and to learn how to properly evaluate and apply these tools in the business environment. To learn which tools and techniques to apply in a specific situation and when such tools are not applicable. To learn how to use some of the available computer programs provided with the text software and with Excel to perform some types of analysis.

PREREQUISITES: None

TEXTBOOK:

OPERATIONS MANAGEMENT

Heizer, Jay and Render, Barry
Pearson Prentice-Hall
Ninth Edition [ISBN: 13: 0-13-234302-2]
2008

INCLEMENT WEATHER: If severe weather occurs, classes will be canceled in accordance with the Associate Provost's decision of Mercer Atlanta. Call the Mercer weather line for information about class cancellations - (678) 547-6111 (Atlanta) or listen to WSB 750 AM.

MERCER UNIVERSITY DISABILITY ASSISTANCE

Students with a documented disability should inform the instructor at the close of the first class meeting. The instructor will refer you to Richard Stilley, Assistant Dean of Campus Life, 678-547-6823, for consultation regarding evaluation, documentation of your disability, and recommendations for accommodation, if needed. To take full advantage of disability services, it is recommended that students make contact immediately. The office is located at the Davis Building, Room 223.

HONOR CODE:

Mercer University Atlanta expects every student to maintain the highest principles of academic honesty and integrity. Violations of academic honesty represent a breach of the University's expectations and will be

regarded as serious. Violations include, but are not limited to, the following:

PLAGIARISM:

The use of ideas, facts, phrases, or additional information such as carts or maps, from any sources, without giving proper credit to the original author. Using direct quotations, paraphrases, or reproductions of any material which is not of the students own authorship is also considered plagiarism. Failure to reference any such material is both ethically and legally improper.

LYING, CHEATING OR STEALING:

The use of unauthorized sources of information. Any student found guilty of cheating will automatically be awarded a grade of zero on that assignment.

GRADING STRUCTURE:

A	90 - 100
B+	87 - 89
B	80 - 86
C+	77 - 79
C	70 - 76
D	60 - 69
F	≤ 59

EVALUATION CRITERIA:

	<u>I</u>	<u>II</u>
Mid term	65%	35%
Final	35%	65%

System one will be used if your grade on the mid term is higher than your grade on the final. System two will be used if your grade on the final is higher than your grade on the mid term.

PROTOCOL FOR THE USE OF CELL PHONES AND PAGERS AND SIDE CONVERSTATIONS

Out of courtesy for all those participating in the learning experience, **all** cell phones and pagers must be turned off before entering any classroom, lab **or formal academic or performance event**. Also, **please refrain form having private conversations** when either your professor or your classmates are interacting in class and refrain from leaving class during the lecture unless it is an emergency.

INSTRUCTIONAL DESIGN:

Classes will begin with the instructor working a representative sample of the homework problems as selected by the students, followed by a lecture on a new topic including sample problems and discussion about this topic. Students will be given the opportunity to work homework and homework type problems during class as well as participate in classroom discussions of the topics being studied. Homework problems are divided into required and optional categories. Homework will not be collected, but **every student is required to have read the assigned material and to work all of the required homework problems prior to attending each class.** The optional problems are

included for the student who would like some additional practice to become familiar with the topics discussed in class. Every student is required to bring a calculator to every class. It is in the student's best interest to attend every class, however this is not always possible. If you find it necessary to miss a class it is your responsibility to learn the material that was covered during your absence. A maximum of one absence is permissible.

CLASS SCHEDULE:

1. Jan. 14 Chapter 1: Operations and Productivity. pp. 1-26.
Chapter 2: Operations Strategy in a Global Environment.
pp. 27-54.
Chapter 3: Project Management. pp. 55-82; 87-102.
2. Jan. 21 Chapter 5: Design of Goods and Services.
pp: 155-190.
Chapter 4: Forecasting. pp. 103-118; 121-123; 128-153.
Problems Due: 1.1,1.2,1.10
Optional: 1.5,1.6,1.7
Problems Due: 3.4,3.6,3.7a,3.7b,3.7c,3.14,3.18
Optional: 3.3,3.10,3.11,3.12,3.17,3.24
3. Jan. 28 Chapter 6: Managing Quality. pp. 191-219
Chapter 12: Inventory Management. pp. 481-496; 500-523.
Problems Due: 5.12,5.16
Optional: 5.11,5.13
Problems Due: 4.2,4.5,4.8a,4.8b,4.8c,4.8d,4.13,4.25
(calculate correlation and standard error of the estimate for 25);4.33a,4.33b
Optional: 4.3,4.15,4.32 (Calculate correlation and standard error of the estimate for 32).
4. Feb. 4 Chapter 11: Supply Chain Management. pp. 431-461.
Chapter 12: Inventory Management. pp. 497-499.
Chapter 16: Just-in-Time and lean Production Systems.
pp. 639-665.
Problems Due: 12.2,12.8,12.13,12.15,12.21,12.23,12.28
Optional: 12.7,12.9,12.12,12.20b,12.22,12.26,12.27
5. Feb. 11 Mid Term (Will cover chapters 1,2,3,5,4,6,and 12.)
6. Feb. 18 Chapter 14: Material Requirements Planning (MRP) and ERP.
pp. 559-597.
Quantitative Module B: Linear Programming. pp. 705-732.
Problems Due: 11.2
Optional: 11.3
Problems Due: 12.17,12.18a,12.18c,12.18d
Problems Due: 16.1,16.3
Optional: 16.2,16.4
7. Feb. 25 Quantitative Module A: Decision-Making Tools. pp. 685-704.
Quantitative Module C: Transportation Models. pp. 733-752.
Problems Due: 14.3,14.4,14.5
Optional: 14.2
Problems Due: B.1,B.5,B.7,B.19,B22

Optional: B.2,B.9,B.12
 Problems to be worked in class: A.2,A.3,A.7,A.8;A.14,A.16
 C.1a,C.2

8. Mar. 4 COMPREHENSIVE FINAL EXAM

SUPPLEMENTARY ANSWERS TO HOMEWORK PROBLEMS

- Chap. 1 1.1 a.) 3.0; b.) 3.125; c.) 4.166%.
 1.5 a.) 20; b.) 26.6; c.) 33%
 1.6 Labor: 3.3333; 3.6364; 0.0303; 9.09%; Resin: 20.00;
 20.22; 2.22; 11.11%; Capital: 10.00; 0.0909; -.0909; -
 9.09%; Energy: 0.3333; 0.3509; 0.0175; 5.26%
 1.7 0.206186; 0.22179; 7.5388%.
 1.10 Labor: 4.2857; 4.6135; 7.6932%; Capital: 0.10; 0.0833; -
 16.67%; Energy: 0.50; 0,5454; 9.09%.
- Chap. 3 3.3 A-C-F-H: 21 days.
 3.7 A-C-D-F-G: 28.7 hours.
 3.11 B-E-G: 21 weeks.
 3.17 a.) 12; b.) 1.7778; c.) A-C-F-H-J-K; d.) 40.1667 weeks;
 e.) 10.02778; f.) 0.09342.
 3.18 1.) C 1 day; 2.) A-E 1 day each; 3.) D-E 1 day each; 4.)
 D-E 1 day each; \$1,000.00.
 3.27 a.) 0.97725; b.) 0.34458; c.) 46.4.
 4.37 a.) a =1; b = 1; b.) r = 0.8452; c.) SEE = 1.1547.
- Chap. 5 5.11 a.) \$145,000 (best); b.) \$151,000; c.) \$154,000.
 5.13 EV(elegant) = \$3,500; EV(deluxe) = \$4,000.
- Chap. 4 4.3 Forecast = 9.18207.
 4.5 a.) 3,750; b.) 100; c.) Forecast = 3.740; MAD = 140;
 d.) 3,662.5.
 4.13 a.) 56.26304; 57,75746; b.) 49; 52.6666; 55.3333;
 c.) 45.8; 49.0; 52.2; 55.4; 58.6; 61.8; d.) Trend.
 4.15 555; 67.
 4.25 $\hat{y} = 5 + 20X$; 105; r = 0.9759; SEE = 7.0711.
 4.32 r = 0.99087; SEE = 7.7459.
 4.33 a.) $\hat{y} = 126 + 18X$; 126; b.) 32.
- Chap. 12 12.7 \$30.00.
 12.9 a.) 300; b.) 3,750.00; c.) 3,750.00; d.) 400.
 12.13 a.) 250; b.) 125; \$187.50; c.) 10; \$187.50; d.) \$375.00;
 e.) 25; f.) 20.
 12.15 a.) 100; b.) 2.5; c.) 50; d.) \$45.00.
 12.17 a.) 4,472.1359; b.) \$134.16; c.) \$134.16; d.) \$12,268.33.
 12.21 562,366.43; 543,516.67.
 12.23 402,601.21; 362,400.00; 342,500.00.
 12.27 a.) 8.96 (9); b.) 68.96 (69).
- Chap. 11 11.3 Donna: 8.8; Kay: 10.0.
- Chap. 16 16.1 5
 16.3 ELS = 60; 4.8 or 5.
- Module B B.1 $X_1 = 1 \frac{1}{3}$; Y = 3 $\frac{1}{3}$; Z = 25 $\frac{1}{3}$.
 B.5 $X_1 = 143/37$; $X_2 = 165/37$; Z = 5952/37.
 B.7 $X_1 = 40$; $X_2 = 60$; Z = 1,900.

B.9 X1 = 20; X2 = 10; Z = 640.
B.19 X1 = 12; X2 = 6; Z = 162.
B.22 X1 = 14; X2 = 33; Z = 221.

Module A A.3 12,200 (best); 10,400; 7,500.
A.5 28,000; 320,000 (best).
A.7 a.) 22,000; 26,000; 29,200 (best); b.) 34,000; c.) 4,800.
A.12 300.00; 340.50; 352.40 (best); 317.00.
A.17 76 (best); 64.
A.21 b.) 520 (best); 475.

Module C: C.1 NWC = \$3,120
C.2 NWC = \$226