

## SYLLABUS WINTER 2009

### DSOM 326 PRODUCTION AND OPERATIONS MANAGEMENT

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#### **Textbook**

F. Robert Jacobs and R.B. Chase, **Operations and Supply Management**, (12th Ed.), Richard D. Irwin, Inc., 2009. MHID 0077228936, ISBN-13 9780077228934 (cost about \$185) or from the UMKC Bookstore JACOBS-CHASE (0390659274) PRODUCTION OPERATIONS MANAGEMENT (CUSTOM) (cost about \$88).

#### **Course Description**

This course presents an introduction to the concepts, models, and methods of operations management. Students will study approaches to planning, scheduling, and controlling product and service facilities, processes, cost, quality, quantity, production, capacity, inventory, and supply chains. Computer applications and computer-based operations control systems will be introduced as a means to effectively manage the operations functions of both product and service organizations. ERP Systems, Lean/Just-In-Time, Six Sigma, Total Quality Management, Supply Chain Management, e-commerce, and other contemporary topics in operations management are introduced in this survey course. The course studies both product and service oriented organizations for general applicability. **Prerequisites:** ECON 202, STAT 235 or BDS 308. Students must possess these prerequisites or they MAY be dropped from class.

#### **Objectives**

Students will appreciate and understand the strategic role and function of Production/Operations Management (POM) in modern enterprises and its contributions to organizational effectiveness and efficiency such as return on investment, profit, costs, quality, speed, flexibility, and service.

Students will understand and apply POM concepts, models, and systems in improving organizational performance through improvements in productivity, processes, statistical quality control, forecasting, inventory management, and supply chain management.

Students will be able to apply and evaluate different strategic and tactical approaches to improving organizations through problem sets and tests

#### **Why is this Course Important?**

In the 21<sup>st</sup> Century everyone is expected to have some facility with the most important concepts of this class. The most important concepts and skills developed in this class are productivity, project management, process improvement, statistical quality control/six sigma, lean/Just-In-Time,

forecasting, inventory management, TOC/constraints management, and their effective use in Supply Chain Management. Most individuals who are interviewing you for a professional position will be familiar with many of these concepts. In addition, your potential employers will expect you to have familiarity with Microsoft Office applications; the most important Office application for this class is MS Excel. Every company in the US is implementing major projects related to one or more of the above applications. The emerging economies of the world continue to threaten our competitiveness and your personal wealth and success. **Your competitiveness in the job market will be enhanced through mastering the concepts of this class.**

## Grading Options

Your course grade will be determined from three tests, a Group project, and a cumulative final examination. Option I will be used in determining your course grade unless you qualify for Options II OR III.

Option I Weights		Option II <sup>(a)</sup> Weights		or Option III <sup>(a)</sup> Weights	
<b>Class Participation</b>	<b>10%</b>	<b>Class Participation</b>	<b>10%</b>	<b>Class Participation</b>	<b>10%</b>
<b>Test I</b>	<b>22.5%</b>	<b>Test I</b>	<b>0% or 20%</b>	<b>Test I</b>	<b>0% or 30%</b>
<b>Test II</b>	<b>22.5%</b>	<b>Test II</b>	<b>0% or 20%</b>	<b>Test II</b>	<b>0% or 30%</b>
<b>Test III</b>	<b>20%</b>	<b>Test III</b>	<b>0% or 20%</b>	<b>Test III</b>	<b>0% or 30%</b>
<b>Cumu. Final</b>	<b>25%</b>	<b>Cumu. Final</b>	<b>40%<sup>(b)</sup></b>	<b>Cumu. Final</b>	<b>30%</b>
<b>Total of 100% for each option.</b>					

As shown above, neither the Final nor Class Participation can be dropped in the grade calculation.

In order to qualify for Options II and III, you must receive a 100% for Class Participation and homework assignments must be completed. and possibly, special classes must be attended. Assuming you qualify for Options II and III, then that option maximizing your grade will be used for you.

I have never understood why some students “opt out” of the qualifying for Options II and III.

Further explanation of options: Under Options II and III the cumulative final examination will be weighted more heavily as shown in the Cumulative Final row and you will be able to drop on of the three tests.

To calculate your grade under Option II, take each test score (e.g., a .85 on a test) times its weight (e.g., .30 for Test I). Do this for each test and add these products and then divide by the sum of the weights. This will be your test percentage (Test%) for the course. After the Final Exam percentage is known, then simply multiply the Test% times (1-Cumulative Final Weight-Class Participation) and add this to Final% times (Cumulative Final Weight) and the Class Participation% times .10. Here is an example: A student scores 65%, 85%, and 90% on tests I, II, and III respectively.

Here is the calculation of her best overall test percentage under Options I and II where it is clear that Test I is to receive a 0% weight instead of .25:

**Option II Calculation:** Best Test Percentage =  $(0 \cdot .65 + .20 \cdot .85 + .20 \cdot .90) / (.20 + .20) = .875$

**Option III Calculation:** Best Test Percentage =  $(.00*.65 + .30*.85 + .30*.90)/(.00+.30+.30) = 0.875$

**Option I Calculation:** If you do not turn in written homework assignments, then here is your grade under Option I

Test Percentage =  $(.225*.65 + .225*.85 + .20*.90)/(.225+.225+.20) = 0.80$

Again, I will calculate your grade using all options for which you qualify, then, the highest grade will be selected as your course grade.

### **Qualifying For Options II and III.**

Homework received on time will be graded either E for Excellent, S for Satisfactory, or U for Unsatisfactory – homework will be accepted and graded only once, the first time it is received. To Qualify for Options II and III you must complete 90% of all regular homework assignments on time with a grade of S or better and have a grade of E for at least 50% of those regular homework assignments (i.e., 5 out of 10 regular assignments must be an E). Late homework will be reduced by one-half a grade (a late S will be graded S-, a late E will be graded an E-). S- and E- do not count towards the 90% and 50% requirements above, but instead an E- will be counted as an S and a S- will be counted as a U. **Thus, late homework should be avoided and can not qualify for an E under Options II and III.**

### **Class Procedures**

You are urged to participate in class lectures and discussions and are expected to have studied the scheduled topic before each class. Only after comprehension of the reading assignments should homework be completed. It is impossible to discuss all the material of a period; therefore, those who have not prepared most of the material prior to the period will not do as well as those who prepare for each class. One of the most important variables in determining your attainment towards any goal is your effort. Of all the studies and research on learning-student-instructor relationships, the most conclusive result has been the importance of student effort toward the learning goal.

Your commitment to this course consists of 6-9 hours per week over and above the time spent in the classroom (note: in summer terms, this is 6-9 hours per period!). A trivial effort spent on homework assignments will result in trivial rewards. A reasonable effort extended towards completion of homework will result in an acceptable course grade. Your guidelines of reasonable effort have been given as 6-9 hours per week.

### **Class Participation<sup>a)</sup>**

**Class participation in this course:** Class attendance is required and students are encouraged to contribute to class discussions. Participation is the key to a lively class. 10% of the course grade will depend upon contributions to our class sessions. Class participation provides the opportunity to practice speaking and persuasive skills, as well as the ability to listen. Comments that are vague, repetitive, unrelated to the current topic, disrespectful of others, or without sufficient foundation will be evaluated negatively. What matters is the quality of one's contributions to the class discussion, not the number of times one speaks.

Everyone will start with a 100% grade for class participation and may lose points when any of the following occur:

Too Many Absences – Every missed class above 6 classes will reduce your class participation by 10%, thus if you miss 7 classes, your class participation grade will be reduced to 90%.

Disruptive class behavior – (something that has never occurred after warnings have been issued) – Every incidence will reduce your class participation by 2 points, thus if you have a behavioral problem during class, your class participation grade will be reduced to 80%, the second occurrence will yield a 60% grade, etc.

Non-participation in group activities – several group activities are planned for the semester. If you fail to participate in these activities during class, then your class participation will be reduced to 90%.

### **Defining Disruptive Behavior**

**“Disruptive behavior can assume many forms. It may be:**

the student in ... class who persistently arrives late or leaves early;  
the student who talks incessantly ... (during) lecture;  
the student who loudly and frequently interrupts the flow of class with questions or interjections; or  
the student who becomes belligerent when ... (being confronted about) his or her inappropriate behavior in class.”

Source of the above in quotes:

[http://sa.sjsu.edu/judicial\\_affairs/faculty\\_and\\_staff/disruptive\\_behavior.html](http://sa.sjsu.edu/judicial_affairs/faculty_and_staff/disruptive_behavior.html)

### **Homework Assignments**

Homework assignments will be assigned regularly with the objective of providing you the opportunity of testing your understanding of current concepts and topics. Homework sets are an integral part of fulfilling the course objectives; homework will be collected and graded each class as either being satisfactory (S), unsatisfactory (U), or Excellent (E).

### **Homework Requirements**

**Homework is due at the beginning of the class period in which it is due. Only homework that has been typed or very neatly written will be acceptable for an S or E. In addition, your name, date, assignment number, and chapter number are to appear in the upper right hand corner of the first page of the homework assignment. Finally, homework pages should be secured properly with either a staple or paper clip. Homework that does not conform to these requirements will not receive an E. If the homework assignment requires a considerable number of Greek or math symbols, then these can be handwritten into the printed pages.**

I have noted that many times some students copy homework from their classmates immediately before or during class. This is inconsistent with our purpose, and when this copying is presented as

being original, it is dishonest. To preclude such behavior, homework should be neatly typed or extremely neatly hand written. I encourage you to make handwritten notes or corrections on your neatly typed homework during lectures or discussions. When the homework is typed, then handwritten notes during class are clearly part of the in-class learning process and are encouraged. You will not be penalized for handwritten notes on your homework assignments. Again, homework is to be typed prior to class. **If you prefer to very neatly handwrite your assignments, then turn your homework in at the beginning of class.**

You will be tested upon comprehension of the homework as well as the other concepts introduced in the textbook, class discussions, and lectures. **Tests are rigorous!** Those who have not been doing their homework will find that the scheduled tests very adequately measure their knowledge. Be forewarned that trivial efforts result in trivial rewards. Copies of past tests are on the internet at <http://bloch.umkc.edu/forecast/ba519/tests/>.

It is highly recommended that you work together in groups if possible. Also, very early in the semester, you should get the telephone number of several people in this class so that if you have to be out of town or miss a class, you have someone to call for assignments. In addition, ask your classmate to collect handouts when you are not at class.

Do not regularly submit homework assignments or papers using email attachments or any other way in which I must printout your homework or papers. Such procedures are not as reliable in format and layout.

### **Attendance**

Class attendance will be taken regularly and when you miss too many classes, it will be used in determining your class participation grade. Unless you receive approval from me beforehand, when you miss the 7th class (4th class in the summer) because of excused or unexcused absences, you will lose 10% of the 10% for class participation for each class you miss over 6 classes. You are responsible for attendance. I will not warn you of your lack of attendance. Bureaucratically, the grade reduction will be made. In the past, students who have not attended regularly have done poorly in the course.

### **Grading Procedures**

The following percentage breakpoints will be used to determine your course letter grade as well as a letter grade on each test.

Final Course Letter Grades

95--100 A

91--94 A-

88--90 B+

80--87 B

77--79 B-

74--76 C+

69--73 C

65--68 C-

55--64 D

Less than 55 F

## Homework and Project Letter Grades

100 A+

97 A

92 A-

89 B+

84 B

78 B-

75 C+

72 C

67 C-

62 D

55 F

The highest grade on a test will be determined by me; however it often equals the highest number of points correct by one or more students. Your final course grade percentage will be calculated using the formula on page 1 of the syllabus.

## **WEBSITE and POWERPOINT Lecture Notes**

I have copies of my lectures and past tests available to you on my website. I suggest that you periodically download these. Many of my lectures are in a powerpoint format and past tests are either msword or ascii files. You should download the lectures of a day immediately prior to studying that material.

If you do not own powerpoint, then you can print off copies of these in our computer laboratory.

**You might print 2 to 3 slides per page if you so desire, 6-slides per page seems to work fine.**

The powerpoint lecture notes are copyrighted by McGraw Hill-Irwin and myself, thus, they are to used only in the context of your degree program at UMKC.

"If you have any questions about a disability or desire accommodation under the Americans with Disabilities Act, please contact the Office of Disabled Student Services, 235-1083."

## **OPERATIONS MANAGEMENT BODY OF KNOWLEDGE (THIS COURSE IS A SUBSET OF THE FOLLOWING TOPICS)**

### I. INTRODUCTION AND OVERVIEW OF OPERATIONS MANAGEMENT

A. INTRODUCTION TO PRODUCTION AND OPERATIONS MANAGEMENT

B. PRODUCTIVITY AND WORLD CLASS COMPETITIVENESS

C. PRODUCT/SERVICE DESIGN AND PROCESS PLANNING

D. TECHNOLOGY MANAGEMENT

### II. CONCEPTS OF QUALITY MANAGEMENT – SIX SIGMA AND TQM

A. CONCEPTS OF STATISTICAL CONTROL

B. STATISTICAL QUALITY CONTROL

C. SIX SIGMA AND TOTAL QUALITY MANAGEMENT

D. CONTROLLING PRODUCTIVE SYSTEMS

E. TOTAL EMPLOYEE INVOLVEMENT

### III. MANAGERIAL PLANNING AND CONTROL CONCEPTS AND METHODS

- A. FORECASTING
- B. LINEAR PROGRAMMING WITH SIMPLEX
- C. FACILITY LOCATION AND LAYOUT
- D. SIMULATION METHODOLOGY
- E. PROJECT MANAGEMENT PERT/CPM
- F. QUEUING ANALYSIS

### IV. COMPUTER BASED PLANNING AND CONTROL SYSTEMS AND METHODS

- A. SUPPLY CHAIN MANAGEMENT
- B. AGGREGATE PRODUCTION PLANNING
- C. MASTER PRODUCTION SCHEDULING
- D. DISTRIBUTION REQUIREMENTS PLANNING
- E. FINISHED GOODS INVENTORY MANAGEMENT
- F. MATERIALS REQUIREMENTS PLANNING
- G. OPERATIONS SEQUENCING AND SCHEDULING
- H. ERP SYSTEMS - INTEGRATED PLANNING, EXECUTION, AND CONTROL SYSTEMS

### V. HUMAN RESOURCE MANAGEMENT

- A. TOTAL EMPLOYEE INVOLVEMENT
- B. WORK METHODS, WORK MEASUREMENT, AND JOB DESIGN
- C. LEARNING CURVES

### VI. CURRENT TOPICS IN P/OM

- A. SUPPLY CHAIN MANAGEMENT
- B. ENTERPRISE RESOURCE PLANNING SYSTEMS
- D. JUST-IN-TIME DISTRIBUTION SYSTEMS (LEAN PRODUCTION)
- C. NEW PRODUCT DEVELOPMENT METHODS
- D. WORLD CLASS COMPETITIVENESS
- E. TECHNOLOGY MANAGEMENT
- F. EMPLOYEE INVOLVEMENT PROGRAMS - PEOPLE MANAGEMENT
- G. INAPRATION AND ENTREPRENEURSHIP

### **SCHEDULED TOPICS**

<b>PERIOD</b>	<b>DATE</b>	<b>TOPIC READING</b>	<b>ASSIGNMENTS</b>
1	JAN 12	INTRODUCTION TO COURSE LEARNING CURVE	<b>PREFACE C&amp;A</b>
2	JAN 14	PRODUCTION/OPERATIONS MANAGEMENT HISTORY OF POM	<b>CHAP 1</b>
3	JAN 21	OM STRATEGY AND COMPETITIVENESS	<b>CHAP 2</b>
4	JAN 26	PROJECT MANAGEMENT	<b>CHAP 3</b>
5	JAN 28	PROCESS ANALYSIS	<b>CHAP 6</b>
6	FEB 2	MANUFACTURING PROCESSES	<b>CHAP 7</b>
7	FEB 4	SERVICE PROCESSES	<b>CHAP 8</b>

8	FEB 9	STATISTICAL QUALITY CONTROL	<b>CHAP 9 TECH NOTE</b>
9	FEB 11	SPECIFICATIONS VS PROCESS VARIATION	<b>CHAP 9 TECH NOTE</b>
10	FEB 16	PROCESS CAPABILITY ANALYSIS	<b>CHAP 9 TECH NOTE</b>
11	FEB 18	<b>IN CLASS REVIEW</b>	<b>IN CLASS REVIEW</b>
12	FEB 23	TEST 1	<b>REVIEW</b>
13	FEB 25	SIX SIGMA	<b>CHAP 9</b>
14	MAR 2	STRATEGIC SOURCING	<b>CHAP 10</b>
15	MAR 4	LOGISTICS	<b>CHAP 11</b>
16	MAR 9	LEAN AND JUST-IN-TIME	<b>CHAP 12</b>
17	MAR 11	FORECASTING - I MOVING AVERAGES & EXPONENTIAL SMOOTHING	<b>CHAP 15</b>
18	MAR 16	FORECASTING – II	<b>CHAP 15</b>
19	MAR 18	FORECASTING - III TRACKING SIGNALS AND ERROR STATISTICS ADVANCED APPLICATIONS	<b>CHAP 15</b>
20	MAR 30	TEST II	
21	APR 1	INDEPENDENT DEMAND INVENTORY CONTROL-I EOQ & QTY DISCOUNTS	<b>CHAP 17</b>
22	APR 6	INDEPENDENT DEMAND INVENTORY CONTROL-II STATISTICAL INVENTORY MANAGEMENT	<b>CHAP 17</b>
23	APR 8	INDEPENDENT DEMAND INVENTORY CONTROL-III ADVANCED APPLICATIONS	<b>CHAP 17</b>
24	APR 13	DEPENDENT DEMAND INVENTORY CONTROL MRP - MATERIAL REQ. PLAN. ERP SYSTEMS - MPS - CRP	<b>CHAP 18</b>
25	APR 15	ENTERPRISE RESOURCE PLANNING	<b>CHAP 18</b>
26	APR 20	OPERATIONS SCHEDULING JOB SHOP SCHEDULING CRITICAL RATIO, I/O CONTROL	<b>CHAP 19</b>
27	APR 22	TEST III	<b>REVIEW</b>
28	APR 27	THEORY OF CONSTRAINTS	<b>CHAP 20</b>
29	APR 29	REVIEW AND COURSE EVALUATION	<b>REVIEW</b>
30		<b>CUMULATIVE FINAL EXAM PLUS MATERIAL SINCE TEST II</b>	<b>12:30 Class on May 6<sup>th</sup> 8 am 2:00 Class on May 7<sup>th</sup> 8 am</b>

Academic Calendar for UMKC: <http://www.umkc.edu/registrar/acal.asp>

Final Exam Schedule: <http://www.umkc.edu/registrar/exam.asp>

### **Missing a Test/Final**

If because of illness or an important circumstance beyond your control you are unable to take a test when specified in the syllabus you should contact me immediately. If you receive permission from me to delay a test, then you will either have to drop that test (it will automatically become your dropped test) or you will have to take that test during finals week. Under no circumstances can a test be taken earlier than scheduled. International travel to return home earlier than the end of semester is not an acceptable reason for missing the final examination. If for some important reason you are unable to take the final examination at the time specified by the University than you will have to take an incomplete in the course and take the final examination sometime during the next semester, possibly at the end of the next semester.

### **Missing More than One Test**

If you miss more than one test (including the final examination), then you will automatically be scheduled to take that test during the following semester – thereby receiving an incomplete during this semester.

### **GENERAL CLASS POLICIES**

**The following guidelines are provided to make your learning experience at UMKC and in this course as enjoyable and enriching as possible. Significant time and effort have been expended on my part to make your time and effort in this class as productive, purposeful, and, I hope, enjoyable as possible. If you have sufficient time to devote to this class, then I believe you will feel, after completion of the course, that we have both been successful in this endeavor.**

**ATTENDANCE --Students are responsible for class attendance.**

**--Excessive absences adversely affect grades, 7 excused or unexcused absences results in loss of one letter grade in the course grade.--All students are responsible for class assignments and class lecture materials regardless of attendance. Call a classmate. Your work schedule may require you to travel, in such cases you are responsible for getting assignments from classmates. Class sizes and the many absences of those who work preclude me from routinely giving out individual assignments. Please help and be helped by a fellow classmate in collecting handouts, taking notes, and recording homework assignments.**

**EXAMS--All exams will be taken on the scheduled date unless a prior arrangement is made with the instructor.**

**--Exams will cover the assigned materials and class lecturers.**

**--DO NOT MISS SCHEDULED EXAMS!!**

**--IF A STUDENT MISSES A SCHEDULED EXAM, HE OR SHE MAY HAVE TO TAKE THE EXAM NEXT SEMESTER AND RECEIVE AN INCOMPLETE GRADE OR MAY HAVE A LARGER PERCENTAGE OF HIS OR HER COURSE GRADE DETERMINED FROM THE FINAL. IN NO CASES WILL MAKE-UP FINALS BE GIVEN. A STUDENT MISSING THE FINAL WILL RECEIVE AN INCOMPLETE AND WILL BE REQUIRED TO TAKE THE FINAL NEXT SEMESTER.**

**WRITTEN ASSIGNMENTS, PROBLEMS, PROJECTS, REPORTS, ETC.**

--As in "real life", written assignments are expected when due. --Late assignments will be penalized two (2) points per calendar day --Assignments submitted by mail are received when postmarked and received by Professor Stephen A. DeLurgio  
Bloch School of Business Administration

UMKC

Kansas City, Missouri 64110

--All pages of assignments must be secured together (stapled or clipped), and the earned grade will be penalized for the failure of the pages to be secured.

--All written assignments must be done in good English style and grammar, and must be **LEGIBLE!!**

--Papers that already have been used in other classes can not be used in this class without prior knowledge of both teachers of said classes. Dual submittals of identical papers or papers which have contents which are significantly related must be approved prior to submittal. To submit the same or similar papers for different classes is a form of academic dishonesty and will be penalized as discussed below.

--All quoted material in any paper must be shown in full quotation marks and fully cited with appropriate footnotes or references.

--Under no circumstances can one "borrow" or use the works of others without full and open disclosures and credit for the sources of the information. To use others written or creative works with out giving full credit to the author is academic dishonesty. See the note below for the possible consequences of Academic Dishonesty.

--Students completing major or minor papers for courses should use a consistent and acceptable style sheet for all papers submitted. In almost all cases I will provide you with a handout of the acceptable style sheet of the class. When none is provided, you can assume that the style sheets used in other courses will be acceptable. In all cases, your papers should be well structured, coherent, cohesive, without significant misspellings, well documented with footnotes or references, inclusive of a cover page (with name, address, and phone number), introduction, problem statement, in depth discussion, results (where appropriate), summary and conclusion, and bibliography.

**DROPPING THIS CLASS**--Any student may drop this course at any time with a passing grade (WP) if three conditions are met: 1) the drop occurs before final exam week (or before the day of final exams in the summer term); 2) the student can still theoretically pass the course at that point in time; and 3) the student receives my permission to "drop".

**A REMINDER ABOUT UNIVERSITY POLICY ON SCHOLASTIC HONESTY - UMKC** assumes that all students are enrolled to learn; therefore, any cheating is basically at variance with the purposes of both the student and this institution. Any dishonesty detected in a course (including during examinations or in submitting plagiarized material) may result in an "F" grade in the course and may be cause for dismissal or suspension.

**MAKE UP WORK**--At times some students mistakenly believe that additional work can be given in order for that student to increase his or her grade. In no circumstances can individual make-up assignments be given in order to increase ones grade. My syllabus clearly defines the criteria used to assess a student's grade in this course. This criterion is used for all students except those with prior approval who must miss a scheduled examination.

**FINAL NOTE**--All major papers, projects and final exams will be retained by the instructor; physical possession of papers and projects by the instructor in no way affect legal rights and future use by the student authors in any subsequent application; however, any student who wants a personal copy of a project or paper should make a copy prior to submittal.

**--These papers and materials will be retained up to and including the end of the eighth (8) week of the next academic term. Therefore, all questions about final grades or papers, etc., must be settled by that time.**