



**MGNT 3430 - Operations Management – SP12**  
**Section B (CRN 10323) – M/W/F, 10:10-11:00 – COBA, Rm 2244**  
**Section A (CRN 10322) – M/W/F, 11:15-12:05 – COBA, Rm 1124**

**Instructor:** Dr. Jacob V. Simons, Jr.  
**Office:** Room 3354  
**Office hours:** M/W 12:05-12:35 & 1:30-3:00 (subject to change)  
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**Prerequisite:** BBA status and a C or better in BUSA 3131 or STAT 2231

**General:** I have tried to include all the administrative information you need for this course in the syllabus and intend to conduct the class as described here. But I reserve the right to make any changes needed to correct mistakes or to improve the value of your learning experience. If changes are necessary, I will announce them in class in sufficient time for you to prepare. (Absence from class will not excuse you from responsibility for any changes.)

**Course objectives:** Organizations attempt to achieve their goals by providing goods and services whose value to customers exceeds their cost. No matter what your academic major, any organization you join will expect you to plan, organize, and control some portion of their operations. This will involve determining what’s needed, how much of it, when, and how best to get it. Our course can help you do this by learning relevant terms and concepts, understanding typical decisions and challenges, and applying useful qualitative and quantitative models.

**Text:** To minimize your cost, we’re using a paperback selection of chapters from *Operations & Supply Chain Management* (13<sup>th</sup> edition) by Jacobs and Chase, published by McGraw-Hill. You will need to have a copy of the text and bring it to each class.

**Course grades:** The first table below lists the graded activities and their relative weights. I try to provide feedback on graded activities promptly – generally by the following class period. Throughout the course, I will give you access to a record of your graded activities and your current course average, calculated using the relative weights shown. Your final course letter grade will be determined by your course average. You can be assured of receiving grades at least as good as those shown in the second table.

Graded activity	%
Quizzes (drop lowest two)	15
Class participation (drop lowest two)	20
Exam 1	15
Exam 2	15
Exam 3	15
Final exam	20
Total	100

%	Letter grade
90% or higher	A
80% or higher	B
70% or higher	C
60% or higher	D
Less than 60%	F

**Quizzes (15%):** To encourage preparation for class, we will have quizzes throughout the semester. Some quizzes may be given in class, but most are to be completed in Georgia View (GaView) prior to when we discuss that topic in class. During the dates shown in the course schedule, you will be allowed one attempt to take each GaView quiz. You will have a 15-minute time limit, but you may use your textbook and notes. You are not allowed any other form of assistance. I may also give unannounced, closed book quizzes in class. Quizzes cannot be “made up” and no credit will be given for missed or late quizzes, regardless of your reason for not completing them on time. (This includes computer and network problems, which are beyond my control.) So you’re taking a risk if you wait until the last minute. However, I will drop your lowest two quiz scores from the calculation of your course average.

**Class participation (20%):** Past experience clearly shows that students who don't participate in class, get low exam scores and course grades. Therefore, I will award participation scores for many (but not all) classes. Note that this component is for "participation", not just attendance. Participation requires that you have prepared for class according to the syllabus and any additional instructions I've given in prior classes. Next, you have to attend class and participate constructively in whatever we're doing. If the class is a lecture, this means paying attention, answering questions, taking notes, and thinking about what's being said. If we work problems, you should already have an idea how to do them from having read the textbook's examples and having attempted any assigned problems. If we're working in small groups, you should contribute value to the group's activities, rather than relying on someone else to carry you. Since class participation requires that you actually be in class, these scores cannot be "made up", even if you have a good reason for not being in class. However, I will drop your lowest two participation scores from the calculation of your course average.

**Examinations (65%):** The exams during the semester will each be worth 15% of your course grade. The final exam (worth 20%) will include a comprehensive portion, but will mostly emphasize material covered since the previous exam. Each exam will consist of closed book responses to items based directly on the learning objectives specified at the end of this syllabus for each of the topics covered on the exam. Exams will include both conceptual and analytical items. Formulas will not be provided for you unless I tell you otherwise. (In such cases, you would still have to know which formula to use.) However, answers will probably be solicited in multiple choice form. Therefore, you must bring a brown scantron sheet to each exam.

**Class format and expectations:** We will use a combination of lecture and active learning methods to achieve our learning objectives. Regardless of the method used, we are all responsible for behaving respectfully toward each other and demonstrating self-discipline in the pursuit of learning. Here are some of the specific behaviors needed to maintain a productive learning environment:

1. Prior to class, read and think about the assigned material. Study examples in the text and work assigned problems.
2. If you still have difficulty understanding the material, contact the instructor for advice or assistance.
3. Attend class. Do not ask the instructor to go over material you missed by skipping class or not concentrating. Read the "Attendance policy" section for additional details.
4. Bring your textbook, a calculator, and note-taking materials to each class. (Bring a scantron and pencil on exam days.)
5. Turnoff all electronic devices, including but not limited to computers, cell phones, pagers, and beeping watches.
6. Don't come to class late or leave early. If you must enter late, do so quietly and do not disrupt the class by walking between the class and the instructor. Do not leave class early unless it is an absolute necessity. If you know in advance you will need to leave class early, sit near an exit and inform the instructor prior to class.
7. Focus on class material during class time. Sleeping, talking to others, doing work for another class, reading the newspaper, checking email, exploring the internet, etc., are unacceptable and can be disruptive.
8. Participate constructively in class activities, to include offering answers to questions I pose. Encourage others to do likewise by listening and avoiding criticism.
9. Don't converse with classmates while the instructor or another student is speaking. If you have a question or comment, please raise your hand and share it with the entire class.
10. Avoid audible and visible signs of restlessness. These are both rude and disruptive to the rest of the class. Don't pack book bags or backpacks to leave until the class is completely over.
11. Accomplish and submit your own work without any assistance that has not been explicitly authorized by the instructor. Read the "Academic misconduct" section for additional details.
12. If you have any concerns about how the class is being conducted or the behaviors of other students, please talk to me outside of class.

An instructor has both a right and a responsibility to take appropriate action in response to inappropriate behavior in the course. (I will base my assessment of "appropriateness" on what my experience has shown me to be generally accepted in both industry and academia.) The form of intervention will be determined by the instructor, but will depend on the nature of the misconduct observed, but will be consistent with the *Student Conduct Code* and the *Faculty Handbook*.

**Attendance policy:** University policy requires attendance on the first day of class, which I will verify. After that, I will continue to expect you to attend all classes, even if I don't record attendance. If you don't come to class, you can't earn any points awarded for that day's activities and you won't learn as much. However, you are still responsible for all material covered that day, as well as any new guidance I give out. Please do not ask me to repeat what happened in class. In addition, the university's policy for participation in final exams applies to all exams in this class. According to that policy, you are not allowed to take exams at other than the scheduled time except for emergency reasons, such as serious illness or the death of an immediate family member (i.e. parents, siblings, or spouses). If one of circumstances happens, contact me immediately to avoid receiving a zero and then bring your documentation to the next class you attend.

**Academic misconduct:**

I expect you to comply with the university's *Student Conduct Code*. Penalties for violations of the Code may include a course grade of F, suspension, and/or expulsion from the campus. Although I encourage you to study with other students, **ALL** work you submit/present for grading is to be accomplished on your own unless I tell you otherwise. Plagiarism and cheating are never acceptable. You may not use any source of assistance for quizzes and homework assignments other than what my directions explicitly permit. During exams, you may use only the information given on your exam and may not look at any other sources. (To avoid any appearance of cheating, keep your eyes on your own work.) In addition, you are not to discuss the content of examinations or how your work was evaluated with anyone unless and until I explicitly tell you it's OK to do so.

Days	Dates	Topics	Assignments (do before class)	Quizzes
W	Jan 18	Course intro	Review text content & organization	Jan 18-22
F	" 20	" "	In-class activities	
M	" 23	Operations and SCM	Study Ch. 1	Jan 19-22
W	" 25	" " "	DQ 3, IE: Harley-Davidson (1, 2)	
F	" 27	" " "	Case: Fast-Food (2, 4, 5, 6)	
M	" 30	Strategic Capacity Management	Study Ch. 4	Jan 26-29
W	Feb 1	" " "	DQ 2,6,7	
F	" 3	" " "	Probs 2,3,6	
M	" 6	Production Processes	Study Ch. 6	Feb 2-5
W	" 8	" "	DQ 1,2	
F	" 10	" "	Probs Tradeoff 6 vs.7, 5, 12	
<b>M</b>	<b>" 13</b>	<b>Review for exam</b>		
<b>W</b>	<b>" 15</b>	<b>Exam 1</b>		
<b>F</b>	<b>" 17</b>	<b>Small group exam correction (may provide an opportunity to raise exam score)</b>		
M	" 20	Global Sourcing and Procurement	Study Ch. 11	Feb 16-19
W	" 22	" " " "	DQ 2,4,5	
F	" 24	" " " "	Prob 2,4 (truckload = 40,000 pounds)	
M	" 27	Sales and Operations Planning	Study Ch. 16	Feb 23-26
W	" 29	" " " "	DQ 2,8	
F	Mar 2	" " " "	Prob 3,4,9	
M	" 5	Inventory Control	Study Ch. 17	Mar 1-4
W	" 7	" "	DQ 4,5,9	
F	" 9	" "	Prob 4,8,10,19,27,30	
<b>M-F</b>	<b>" 12-16</b>	<b>Spring Break – no classes –</b>		
<b>M</b>	<b>" 19</b>	<b>Review for exam (***) Last day to withdraw without academic penalty. (***)</b>		
<b>W</b>	<b>" 21</b>	<b>Exam 2</b>		
<b>F</b>	<b>" 23</b>	<b>Small group exam correction (may provide an opportunity to raise exam score)</b>		
M	" 26	Material Requirements Planning	Study Ch. 18	Mar 22-25
W	" 28	" " " "	DQ 1,2,4	
F	" 30	" " " "	Prob 2,9,10	
M	Apr 2	Scheduling	Study Ch. 19	Mar 29-Apr 1
W	" 4	"	DQ 2,3,4,9	
F	" 6	"	Prob 5,11,13	
M	" 9	Lean and Sustainable Supply Chains	Study Ch. 13	Apr 5-8
W	" 11	" " " " "	DQ 1,3,9	
F	" 13	" " " " "	Prob 1,3,7	
<b>M</b>	<b>" 16</b>	<b>Review for exam</b>		
<b>W</b>	<b>" 18</b>	<b>Exam 3</b>		
<b>F</b>	<b>" 20</b>	<b>Small group exam correction (may provide an opportunity to raise exam score)</b>		
M	" 23	Six-Sigma Quality	Study Ch. 9	Apr 19-22
W	" 25	" " "	DQ 6,7	
F	" 27	" " "	Prob 1,6,7 (look at category % and ratios)	
M	" 30	Process Capability & SPC	Study Ch. 9A	Apr 26-29
W	May 2	" " " "	DQ 2,5	
F	" 4	" " " "	Prob 2,3,6	
<b>M</b>	<b>May 7</b>	<b>Section B (CRN 10323) Final Exam @ 10:00-12:00</b>		
<b>W</b>	<b>" 9</b>	<b>Section A (CRN 10322) Final Exam @ 10:00-12:00</b>		

## MGNT 3430 – Learning Objectives

### Chapter 1: Operations and Supply Chain Management

1. Define the terms operations management, supply chain, and supply chain management.
2. Understand why it is important to study operations and supply chain management (OSCM).
3. Define the five types of operations and supply chain processes.
4. Identify and explain the essential differences between services and goods.
5. Identify the package of features that constitute a service.
6. Describe the economic growth of the service sector.
7. Define and differentiate efficiency, effectiveness, and value.
8. Describe the range of career opportunities in OSCM.
9. Identify and explain the current major challenges in OSCM.

### Chapter 4: Strategic Capacity Management

1. Identify typical capacity-related questions that must be addressed by managers. (p.72)
2. Differentiate the three time durations used in capacity planning.
3. Define the terms capacity, best operating level, capacity utilization, and capacity cushion.
4. Explain what economies and diseconomies of scale are and how they relate to each other.
5. Explain the concepts of a focused factory and a plant within a plant (PWP).
6. Define the terms capacity flexibility and economies of scope and give examples for plants, processes, and workers.
7. Explain the idea of maintaining system balance when changing capacity.
8. Describe the cost tradeoffs inherent in the frequency of capacity changes.
9. Calculate capacity requirements, based on given forecasts and resource availability.
10. Use decision trees to choose among capacity alternatives.
11. Identify factors that make capacity planning more challenging in services than in manufacturing.
12. Describe the relationship between capacity utilization and service quality.

### Chapter 6: Production Processes

1. Explain what a customer order decoupling point is, how its location differentiates four production environments, and the associated cost-lead time tradeoffs.
2. Calculate the number of finished products that can be produced in an assemble-to-order environment.
3. Construct and explain the product-process matrix.
4. Use break-even analysis to choose among alternative processes.
5. Describe the layouts associated with each of the five process types.
6. Describe the information depicted in assembly drawings, assembly charts, operation and route sheets, and process flowcharts.
7. Demonstrate process analysis, to include the determination of capacity at each stage, balance, overall system capacity and cost per unit.

### Chapter 11: Global Sourcing and Procurement

1. Define the terms strategic sourcing, outsourcing, offshoring, and vendor-managed inventory.
2. Identify and describe alternative sourcing processes, as well as the circumstances for which they're most appropriate.
3. Explain the bullwhip effect in supply chains.
4. State the typical inventory carrying cost for retailers.
5. List the demand characteristics that differentiate functional vs. innovative products.
6. List the characteristics that differentiate stable vs. evolving supply processes.
7. Identify and describe the four types of supply chains needed for different combinations of demand and supply uncertainty.
8. Identify typical motivations for outsourcing.
9. Describe the Hayes *et al.* framework for structuring supplier relationships.

10. Explain the idea of “green sourcing” and Deloitte’s six-step approach.
11. Demonstrate how to calculate the “total cost of ownership.”
12. Demonstrate the calculation of inventory turnover and weeks of supply to measure sourcing performance.

### **Chapter 16: Sales and Operations Planning**

1. State the purpose and time-frame of sales and operations planning.
2. Explain the idea of aggregation.
3. Identify the purpose of the aggregate operations plan and the four variables it specifies to achieve that purpose.
4. Explain the idea and benefit of complementary products.
5. Identify and describe the three primary production planning strategies.
6. Identify the various costs used to evaluate alternative production plans.
7. Demonstrate how to construct and cost an aggregate production plan, using each type of strategy.
8. Explain the concept of yield management and the five characteristics that make its use appropriate.

### **Chapter 17: Inventory Control**

1. Explain the different purposes for keeping inventory.
2. Identify and describe the different costs of inventory.
3. Demonstrate understanding of the relationships between marginal cost, marginal revenue, and order quantity in the single-period inventory model.
4. Differentiate fixed-quantity and fixed-period models and the contexts in which each apply utilizing ABC Classification.
5. Demonstrate understanding of the relationships between holding costs, ordering costs, order quantities, and cycle duration in the context of fixed quantity models.
6. Demonstrate understanding of the relationships between service level, safety stock, and re-order point when demand is variable.
7. Demonstrate understanding of how the availability of price breaks may influence the best fixed order quantity.
8. Demonstrate understanding of how order quantities, inventory costs, and service levels are affected by a decision to place orders at fixed time intervals.
9. Define independent demand, dependent demand, fixed-order quantity model, fixed time period model, single period model, multiple period model, safety stock, service level, and cycle counting.

*Note: Some of the above may require the computation of a multiple day standard deviation from a single day standard deviation.*

### **Chapter 18: Material Requirements Planning**

1. Differentiate dependent demand from independent demand.
2. Explain what it means to say that dependent demand tends to be lumpy.
3. Explain what a master schedule is and how it relates to the aggregate plan.
4. Explain what time fences are and how they are used.
5. Describe the industry characteristics where MRP is most valuable.
6. Identify the three main inputs and two types of outputs for an MRP system. (Exhibit 18.4)
7. Explain what a modular bill of material is and when it’s useful.
8. Explain what a super bill of material is and when it’s useful.
9. Explain the practice of low level coding.
10. Demonstrate MRP calculations to determine the timing and quantity of planned order releases.

### **Chapter 19: Scheduling**

*(Note: These learning objectives are numbered in the order they are addressed in the chapter, but sequenced to more logically show how they relate to each other.)*

2. Define the terms work center, finite loading, and infinite loading.
3. Differentiate forward vs. backward scheduling.
4. Identify and explain the four functions that must be accomplished in scheduling and controlling an operation.
9. Explain the basic idea of input-output control.

8. Demonstrate the use of the assignment method to load (allocate) jobs to production resources (i.e. machines or workers).
5. Identify several objectives of work-center scheduling and explain the “push-down, pop-up” principle.
6. Demonstrate the use of various priority rules to sequence jobs on one machine and calculate their performance on alternative performance measures.
7. Demonstrate the use of Johnson’s rule to minimize makespan on two machines.
10. Construct and interpret Gantt Charts.
1. Define the terms Manufacturing Execution System (MES) and Service Execution System (SES).

### **Chapter 13: Lean and Sustainable Supply Chains**

1. Define the terms “lean production”, “waste”, “value stream”, “waste reduction”, and “Kaizen”.
2. Identify and explain the two philosophies upon which the Toyota Production System is predicated.
3. Explain what value stream mapping (VSM) is and how it’s useful.
4. Explain how preventive maintenance, Group Technology, and quality at the source contribute to lean layouts.
5. Describe the circumstances for which JIT is most appropriate.
6. Explain the “lean” view of the relationship between inventory levels and quality.
7. Explain why a level production schedule and uniform plant loading are necessary for JIT.
8. Describe how kanbans are used to implement pull production.
9. Demonstrate how to calculate the number of kanbans needed.
10. Explain the relationship between JIT and setup times.

### **Chapter 9: Six-Sigma Quality**

1. Define the terms “Total Quality Management (TQM)”, “design quality”, “conformance quality”, and “six-sigma quality”.
2. Identify and define the six dimensions of design quality.
3. Differentiate the four costs of quality (COQ) and demonstrate a COQ analysis.
4. Identify the typical functions of a quality control department.
5. Calculate defects per million opportunities (DPMO).
6. Identify the five steps of the six-sigma methodology (DMAIC) and what should be accomplished in each step.
7. Identify and describe the various analytical tools of six-sigma, to include where in the DMAIC process they’re most useful.
8. Explain the idea of a Failure Mode and Effect Analysis (FMEA).
9. Differentiate the training and ability of the different “belt” levels in a six-sigma program.
10. In the context of a Shingo system, explain the difference and relationship between an error and a defect and differentiate the three types of inspection.
11. Define the term “poka-yoke” and give examples.
12. Identify what is signified by the different quality standards and differentiate the three forms of ISO certification.
13. Describe the idea and process of benchmarking.

### **Chapter 9A: Process Capability and SPC**

1. Contrast the traditional view of the cost of variability with Taguchi’s view.
2. Calculate and interpret the process capability index ( $C_{pk}$ ).
3. Define & differentiate common and assignable variation.
4. Explain the difference between a process being “capable” and being “in control.”
5. Describe the general method of statistical process control (SPC).
6. Identify the kinds of control chart evidence that merit investigation. (Exhibit 9A.4)
7. Differentiate attribute vs. variable data.
8. Demonstrate the use of p charts.
9. Demonstrate the use of c charts.
10. Demonstrate the use of X-bar and R charts.
11. Explain what acceptance sampling is, to include how it’s accomplished and the two risks involved.