Instructor Information

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Web Site: https://faculty.business.wsu.edu/munson/mgtop-340/
Office Hours: Wednesdays, 12:00–3:00 p.m.

Teaching Assistant Information

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Email: m.kazemi@wsu.edu
Office Hours: Tuesdays 1:00-3:00 p.m. and Wednesdays, 2:00-4:00 p.m.

Meeting Time and Location

T/Th, 10:30 a.m.–11:50 p.m., Todd Hall 120

Course Overview

Along with marketing and finance, operations management is one of the three fundamental functions of all businesses. Operations management refers to the process by which an organization converts inputs (e.g. labor, material, knowledge, equipment) into outputs (goods and services) for both its external and internal markets. Operations managers, ranging from first-level supervisors to chief operating officers (COOs), are concerned with the getting the product or service made and delivered. More specifically, they are responsible for designing, running, controlling, and improving production systems. Every organization, whether manufacturing or service, public or private, deals with operations planning and management. WSU graduates have accepted the following types of entry-level positions in the field: buyer, management analyst, material analyst, operations researcher, planner, procurement trainee, production supervisor, project manager, quality control technician, and transportation/logistics trainee.

As recent experience has shown in global markets, significant competitive advantages accrue to those firms capable of producing quality goods and services efficiently. For this reason, the careful design and management of the production process is of fundamental importance for the long-term success and survival of a corporation. We shall focus on the decision problems that confront operations managers. We will discuss commonly occurring application problems such as the development of a manufacturing and service strategy, capacity planning, production planning, inventory control, forecasting, quality management, and location analysis. For many problems, such as production planning and inventory control, solution techniques will be presented. For others, we seek only a clear articulation of the problems, an identification of the strategies available, and, if possible, an analysis of the trade-offs inherent in choosing among them.
Course Description

340 Operations Management 3 Course Prerequisite: MGTOP 215, STAT 212, STAT 360, or STAT 370; certified major (any college); junior standing. Management of operations, emphasizing production planning, inventory control, scheduling, forecasting, quality management, supply chain management, and facility layout and location.

Expected Student Learning Outcomes

1. Apply analytical tools for analysis, management, and performance improvement of business processes and supply chains
2. Apply total quality management concepts and techniques
3. Design and control manufacturing and services processes
4. Forecast demand and implement appropriate inventory control systems
5. Provide a global comparison of operations among some of the most important economies around the world
6. Discuss recent advances and issues in operations management

Required Course Material

3. Lecture notes are available on the course web site by topic, or a complete bound version of the notes may be purchased from Cougar Copies.

Optional Course Material

1. Practice problems located on the course web site.

MyLab Operations Management and the Heizer et al. Text

A portion of the problem sets will be completed in MyLab Operations Management. The system provides built-in student learning aids, as well as an individual study plan for self-paced learning. Registration includes 12-month access to the online version of the full Heizer et al. textbook. Once you are registered in MyLab Operations Management, if you so desire you will also have the option to buy a discounted copy of the full textbook and have it mailed directly to you from the publisher. To do this in MyLab Operations Management, navigate to the Course Home → Purchase Options area in your course to be directed to the MyPearsonStore where you will purchase a copy of your text.

Section 1 MyLab Course Name: Fall 2019 MgtOp 340, Sec. 1; Course ID munson32374
### Grading

<table>
<thead>
<tr>
<th></th>
<th>Weight</th>
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<tbody>
<tr>
<td>Problem Sets</td>
<td>25%</td>
</tr>
<tr>
<td>MyOMLab Simulations</td>
<td>2%</td>
</tr>
<tr>
<td>Exam 1</td>
<td>20%</td>
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<tr>
<td>Exam 2</td>
<td>20%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>24%</td>
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<tr>
<td>The Goal Exam Questions</td>
<td>9%</td>
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Up to 4% of extra credit may be earned based on class participation (see below). After class participation adjustment (if any), the following letter grades based on absolute percentage score will be guaranteed:

- 92% and above: A
- 90%-91.99%: A−
- 87%-89.99%: B+
- 82%-86.99%: B
- 80%-81.99%: B−
- 77%-79.99%: C+
- 72%-76.99%: C
- 70%-71.99%: C−
- 67%-69.99%: D+
- 60%-66.99%: D

### Problem Sets

Six problem sets will be assigned during the semester. These are designed to give students practice in applying the quantitative techniques learned in class. Typically, the problem sets will be assigned one week prior to the due date. The lowest problem set score of the six will be dropped; therefore, makeup opportunities will not typically be granted.

For each problem set, some problems will be completed using MyLab Operations Management, while others will be completed by hand and turned in during class. Students may work in groups containing up to 4 people for the handwritten portion of the assignments. When working together, groups may turn in one assignment containing the names of all of the group members. Each student must complete the MyLab Operations Management portion individually.

### MyLab Operations Management Simulations

Students will complete two simulations in MyLab Operations Management: forecasting and inventory management. Each simulation takes approximately 30 minutes to complete at home. Students play the role of a consultant or manager who must make decisions over time within an uncertain environment. Players receive emails, text messages, and phone calls along the way. Full point credit is given for students that reach the respective goals of each simulation.
Exams

There will be two exams during the semester, as well as a cumulative final exam (excluding Topics 1 and 3). All exams will be open book, open notes, and a calculator should be brought. **Important: Devices such as computers, tablets, and phones are not allowed during the exams. This includes any materials available in e-book format.** The final exam will be held as follows:

**Thursday, Dec. 12, 10:10 a.m.–12:10 p.m.**

Prior to each exam, a practice exam will be available on the course web site.

*Note: These sample exams are meant to illustrate the types of questions that might appear on the real exams. In some cases, the actual exam questions will be quite similar, but in other cases the questions will be completely different. Students are responsible for more information than is needed to successfully complete the practice exams.*

**Required Book: The Goal**

What is *The Goal?* The book claims to be many things. It claims to be about science and education, about progress, about global principles of manufacturing and some people might say that it is about a love story or the meaning of life. For this instructor, the book is:

(a) a fascinating depiction of an operations process (for those of you without an operations background, an excellent opportunity to get an introduction to manufacturing environments),

(b) an excellent example of how operations should be viewed: as a business function that can be understood with the use of a business language and not necessarily with the use of obscure technical terminology, and

(c) a clear portrayal of how to apply relatively non-technical problem-solving techniques to achieve significant improvements.

This novel is an extremely popular book that is assigned in many undergraduate and graduate business courses throughout the nation. In addition, many corporate executives require their employees to read it. The story format combines entertainment with educational value, and most students report that the book is a pleasure and that it reads very “quickly.”

Students are responsible for Chapters 1-15 on Exam 1, Chapters 16-24 on Exam 2, and Chapters 25-40 on the Final Exam. For testing purposes, *The Goal* may be brought to the exams. Each exam will contain four multiple choice or short answer questions related to the book. For the most part, these will be “reading check” questions and should be able to be answered quickly by the well-prepared student. For the 12 *Goal* questions asked during the course, students will receive no penalty for the first three missed. Each question missed thereafter counts as a 1% deduction from the final grade average.
Class Participation

Class attendance is expected and highly recommended. Material will be covered in class that cannot be found in the required and optional readings. Students can help to improve their grade by up to 4% by attending and actively participating in class. The instructor will do his best to assign bonus points objectively, thus no attempted negotiation will be tolerated. Attendance will be taken randomly during the semester. Given the large student enrollment, it is strongly recommended that students place a nameplate containing their first and last names in front of them to help ensure that the professor knows who they are.

The following can be considered to be a guideline for the allocation of bonus points.

Attendance
1% You have attended most to nearly all of the classes.
2% You have attended nearly all to all of the classes.

Participation
1% You have participated multiple times throughout the course.
2% You have contributed intelligent comments and questions in many classes.

Most grading in college (and in this course) is based on achievement. This class participation bonus allows students to improve their grade based on effort. If any students are struggling with their assignments, then they have no excuse for not striving to receive a 4% class participation bonus. This represents a very easy way to improve your grade. In addition, active class participation should improve the class experience for everyone.

Important Dates (subject to change)

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>September 12</td>
<td>Problem Set 1 due</td>
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<tr>
<td>September 24</td>
<td>Problem Set 2 due</td>
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<tr>
<td>October 3</td>
<td>Problem Set 3 due</td>
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<tr>
<td>October 8</td>
<td>NO CLASS (for Exam 1)</td>
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<tr>
<td>October 8</td>
<td>Exam 1, 8:00 p.m., Todd 130 (tentative)</td>
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<tr>
<td>October 17</td>
<td>MyLab Forecasting Simulation due by midnight</td>
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<tr>
<td>October 24</td>
<td>Problem Set 4 due</td>
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<tr>
<td>October 31</td>
<td>Problem Set 5 due</td>
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<tr>
<td>October 31</td>
<td>Go get some candy</td>
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<tr>
<td>November 5</td>
<td>MyLab Inventory Simulation due by midnight</td>
</tr>
<tr>
<td>November 6</td>
<td>Exam 2, 8:00 p.m., Todd 130 (tentative)</td>
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<tr>
<td>November 7</td>
<td>NO CLASS (for Exam 2)</td>
</tr>
<tr>
<td>November 7</td>
<td>A new era for men’s basketball begins!</td>
</tr>
<tr>
<td>November 21</td>
<td>Problem Set 6 due</td>
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<tr>
<td>November 25–29</td>
<td>NO CLASS—Thanksgiving Break</td>
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<tr>
<td>December 6</td>
<td>Celebrate finishing the semester</td>
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<tr>
<td>December 7</td>
<td>Recover from semester-ending celebration</td>
</tr>
<tr>
<td>December 12</td>
<td>Final Exam: 10:10 a.m. – 12:10 p.m.</td>
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**Students with Disabilities**

Reasonable accommodations are available for students with a documented disability. If you have a disability and need accommodations to fully participate in this class, please visit the Access Center (Washington Building 217; 509-335-3417) to schedule an appointment with an Access Advisor. All accommodations MUST be approved through the Access Center.

**Campus Safety**

Students should familiarize themselves with the following links regarding safety at WSU:

- [http://safetyplan.wsu.edu](http://safetyplan.wsu.edu)
- [http://oem.wsu.edu/](http://oem.wsu.edu/)
- [http://alert.wsu.edu/](http://alert.wsu.edu/)

**Midterm Grades**

Washington State University now requires midterm grades to be reported for all undergraduate classes. In lieu of reporting a single letter grade snapshot, students will be able to monitor their actual current average in the course all semester long by viewing the posted grades on the instructor’s bulletin board outside of Todd 471.

**Academic Integrity**

Students are encouraged to visit the Washington State University Center for Community Standards website at: [https://communitystandards.wsu.edu/](https://communitystandards.wsu.edu/).

This university and this instructor take academic integrity seriously. Violations including, but not limited to, cheating and plagiarism, may result in penalties ranging from losing points on an assignment to failure in the course. Do not copy answers from other groups for assignments and from other individuals on exams. Such behavior creates a blatant misrepresentation of one’s achievements, and it damages the very foundation of academia.

**Student Conduct/Deportment**

Students are expected to show due respect for the rights of others. For example, while students have the right to freedom of expression, this expression cannot interfere with the rights of others or disrupt the processes of the University. Any malicious act that causes harm to any person’s physical or mental well-being is prohibited. Such activities include sexual harassment, discrimination, intimidation (e.g., bullying or belittling fellow students), disruptive behavior (e.g., loud talking in class) or slanderous comments made about other students or faculty (e.g., false and unsubstantiated claims of discrimination made for the purpose of improving grades). Students should be familiar with the Washington State University standards for student conduct presented in the WSU student handbook (available from student services). Students who fail to conduct themselves properly are subject to discipline, which may extend to temporary or permanent removal from the institution.
Suggested Additional Materials for the Serious Operations Manager

A subscription to the *INFORMS Journal on Applied Analytics*.
The movie called “The Doctor.”
Membership in a professional society such as The Production and Operations Management Society (POMS), The Decision Sciences Institute (DSI), or The Institute for Operations Research and the Management Sciences (INFORMS).

Final Thoughts

“If you think education is expensive—try ignorance.”
--Mark Twain

“As a professor, you challenge a student because you consider her capable of learning. You question her premises because you think she’s game enough to re-examine them.”
--Wendy Kaminer

“When I hear, I forget. When I see, I remember. When I do, I understand.”
--Calvin Coolidge

“The only place where success comes before work is in a dictionary.”
--Vidal Sassoon

“The person who knows how will always get a job, but the person who knows why will always be their boss.”
--John L. Munson

“Alex, if you’re like nearly everybody else in this world, you’ve accepted so many things without question that you’re not really thinking at all.”
--Jonah from *The Goal*

“I skate where the puck is going to be, not where it has been.”
--Wayne Gretzky

“It is good to have an end to journey toward; but it is the journey that matters, in the end.”
--Ursula K. LeGuin

“Even if you’re on the right track, you’ll get run over if you just sit there.”
--Unknown

“Do not go where the path may lead, go instead where there is no path and leave a trail.”
--Ralph Waldo Emerson

“A peacock that rests on his feathers is just another turkey.”
--Dolly Parton

“I hold up a calculator in class and say, ‘If all you can do is these computations, you can be replaced. I want you to think more deeply.’ ”
--Professor Jack Bookman

“Whatsoever you give your energy to is what you will have more of.”
--All That Matters about Quality I Learned in Joe’s Garage

“Be who you are and say what you feel because those who mind don’t matter and those who matter don’t mind.”
--Dr. Seuss

“Don’t practice until you get it right. Practice until you can’t get it wrong.”
--Unknown

“I’ve failed over and over and over again in my life...And that is why I succeed.”
--Michael Jordan

“High school graduates can plug numbers into formulas. Managers think!”
--Chuck Munson

“Do what you’re asked, and you can keep your job. Exceed expectations, and you may get promoted.”
--Chuck Munson

“Anyone can work hard when they want to. The truly successful work hard when they don’t.”
--Chuck Munson
Course Outline

1. Introduction to Operations Management and Operations Strategy

   Highlights: history of OM, productivity, comparing wage rates across countries, competitive priorities, manufacturing strategies

   Heizer et al., Chapter 1
   Heizer et al., Chapter 2—“Achieving Competitive Advantage Through Operations”

2. New Product Development

   Highlights: calculating product reliabilities, determining value of backup systems

   Heizer et al., Chapter 5 (skim)
   Heizer et al., Chapter 17—“Reliability”

3. Total Quality Management

   Highlights: quality costs, Taguchi quality loss function, quality techniques, quality awards and certifications, quality gurus

   Heizer et al., Chapter 6

4. Statistical Process Control

   Highlights: developing charts to monitor quality of output over time: x-bar charts, R charts, p charts, and c charts

   Heizer et al., Supplement 6

5. Process and Capacity Design

   Highlights: bottleneck and capacity analysis, process strategies, operational hedging, imperfect machines

   Heizer et al., Chapter 7
   Heizer et al., Supplement 7—“Capacity” and “Bottleneck Analysis and the Theory of Constraints”

6. Forecasting

   Highlights: moving average, exponential smoothing, regression, seasonal indices, tracking forecast errors

   Heizer et al., Chapter 4—excluding “Associative Forecasting Methods: Regression and Correlation Analysis”
7. **Deterministic Demand Inventory Theory**
   
   Highlights: ABC Analysis, EOQ, POQ, quantity discounts, one-time sales, EOQ with lumpy demand, MRP
   
   Heizer et al., Chapter 12—excluding the last three sections

8. **Stochastic Demand Inventory Theory**
   
   Highlights: safety stock, continuous and periodic review systems, newsvendor problems
   
   Heizer et al., Chapter 12—“Probabilistic Models and Safety Stock,” “Single-Period Model,” and “Fixed-Period (P) Systems”

9. **Just-in-Time and Lean Systems**
   
   Highlights: reconciling EOQ and JIT, lean tactics to eliminate waste, supplier issues, JIT disadvantages
   
   Heizer et al., Chapter 16

10. **Scheduling and Planning**
    
    Highlights: scheduling rules, flow time and lateness calculations, Moore’s algorithm to minimize number of late jobs, Johnson’s rule for scheduling on two machines
    
    Heizer et al., Chapter 15

11. **Learning Curves**
    
    Highlights: calculating future costs and learning rates, labor planning
    
    Heizer et al., Module E

12. **Facility Layout and Location**
    
    Highlights: seven major layout strategies, one-dock warehousing, factors in facility location, center of gravity method, load-distance method
    
    Heizer et al., Chapters 8 and 9

13. **Supply Chain Management**
    
    Highlights: warehouse centralization, purchasing philosophies, supply chain risks, distribution systems, cooperation benefits
    
    Heizer et al., Chapter 11 and Supplement 11

14. **International Operations Management**
    
    Highlights: practices in Japan, South Korea, and Germany
    
    Heizer et al., Chapter 2—“Global Company Profile,” “A Global View of Operations and Supply Chains,” and “Global Operations Strategy Options”
At the end of this course, students should be able to: | Course topics that address these learning objectives are: | This outcome will be evaluated primarily by: |
---|---|---|
LG1 | Apply analytical tools for analysis, management, and performance improvement of business processes and supply chains | 1-8, 10-13 (Aug.-Dec.) | Problem Sets 1-6  
MyLab Operations Management Simulations  
Exams 1 and 2  
Final Exam |
LG2 | Apply total quality management concepts and techniques | 3-4 (Sep.) | Problem Sets 2-3  
Exam 1  
Final Exam |
LG3 | Design and control manufacturing and services processes | 5 (Sep.-Oct.) | Problem Set 3  
Exam 1  
Final Exam |
LG4 | Forecast demand and implement appropriate inventory control systems | 6-9 (Oct.-Nov.) | Problem Sets 4-5  
MyLab Operations Management Simulations  
Exam 2  
Final Exam |
LG5 | Provide a global comparison of operations among some of the most important economies around the world | 14 (Dec.) | Final Exam |
LG6 | Discuss recent advances and issues in operations management | 1-14 (Aug.-Dec.) | Exams 1 and 2  
Final Exam |

This course is a core course within the Bachelor of Arts in Business Administration degree program. The learning goals for the program are:

- **Goal 1:** Graduates will be able to solve business problems, supported by appropriate analytical techniques. (Assessed via homeworks and exams.)
- **Goal 2:** Graduates will demonstrate cultural awareness and will be able to identify and evaluate the global implications of business decisions. (Assessed via homework and exam questions covering global issues discussed in the course, especially Topic 14.)
- **Goal 3:** Graduates will demonstrate professional, socially responsible and ethical awareness. (Not directly assessed in this course.)
- **Goal 4:** Graduates will be effective business communicators. (Not directly assessed in this course.)

MgtOp 340 particularly contributes towards Goals 1 and 2.

By accomplishing the above goals, students will also advance toward the University learning goals of:

1. **Goal 1:** Critical and Creative Thinking
2. **Goal 2:** Quantitative Reasoning