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Course Description

How do organizations such as financial institutions, health care providers, manufacturing plants, and tech companies meet customer needs and stay consistent with their goals and values? How do organizations make trade-off decisions with respect to quality, cost, and time? Operations Management provides tools and methods to answer these questions systematically in the global business world.

Operations managers are primarily concerned with the design, procurement, production, and delivery of goods and services. They are responsible for planning, designing, operating, controlling and improving the various procurement, production, storage, and shipping processes involved, from the time the product or service is designed until customer delivery occurs. The challenge for operations managers is to produce goods and services and deliver them in an efficient manner according to the business strategy of their company. Typically, this involves balancing the trade-offs between satisfying customer demand, on-time delivery, lower costs, and higher quality.

Course Learning Goals

In this course, you will learn the fundamentals of Operations Management, enhance your managerial insight and intuition, and improve your business decisions.

The focus of this course is on the Marshall Undergraduate Learning Goals (see pp. 14-15 of the syllabus for a complete description) of “understanding key business areas” and “developing critical thinking skills,” while also supporting the goal of “being effective communicators.” Upon successful completion of this course, students will be able to:

- Describe the spectrum of operations management activities in a business, and the types of decisions made by operations managers.
- Utilize a variety of tools and techniques effectively to compete successfully in the marketplace, including:
 - Business Process Management.
 - Capacity Management.
 - Waiting Line Management.

- Optimization.
- Revenue Management.
- Inventory and Supply Chain Management.
- Predict, anticipate, and take into account how operations management interfaces with other functional areas such as strategy, accounting, finance, human resources, and marketing.
- Demonstrate critical thinking skills to assess trade-offs in process design, capacity allocation, inventory levels, and customer service.
- Apply optimization tools and techniques to practical problems; for example, use the Excel Solver to formulate and solve a linear optimization problem.
- Apply critical thinking and problem-solving and make real-time decisions on capacity, quoted lead-times, work-in-process levels, contracts, and inventory.
- Make operational decisions taking into account the global nature of supply chains (via an experiential learning simulation), the interplay between levels of the supply chain and their locations, and its implications for pricing, competition and customer service.

Prerequisites and/or Recommended Preparation

Co-requisite: BUAD 310

Course Notes

Please check the Blackboard site and your email daily for class preparation materials or instructions. Lecture slides will be posted on Blackboard. If you would like hard copies of them, it will be your responsibility to print them out.

Materials

For most of the class, lecture notes and materials on blackboard will be sufficient. If you are interested in the textbook, you can purchase a copy or borrow a friend's copy.

- *BUAD 311 Operations Management*: Custom-made textbook available in eBook format at <https://create.mheducation.com/shop/>, ISBN: 9781308430478 (*optional*)

Simulation

We will be playing the EBeer game, which is based on a board game developed at MIT. Through this game you will learn about system dynamics in the context of a supply chain. Four team members each take a different position on a simple linear supply chain: retailer, wholesaler, distributor, and factory, with a goal to minimize inventory and backlog costs.

Because this is an interactive simulation, you must be present to participate (and to get participation points). Accessing the simulation is a two-step process (please use your USC email address when registering):

- 1) **Purchase** your *individual code* by going to <http://eb.responsive.net/in/usc/> and clicking where it says “Click here to purchase your individual code” in the 2nd paragraph
- 2) **Register** for our section by going to <http://eb.responsive.net/in/usc/> and clicking on your section in the list (or “Overflow” if you want to attend the 7PM lecture)
 - a. Click on the **Register** button
 - b. For your **Login ID**, use your LAST NAME (plus any extra digits if required)
 - c. Do **not** use your favorite password since the professor can see your password
 - d. The **Course Code** is *usc*
 - e. Leave **Section ID** blank
 - f. The **Student Registration Code** is the individual code you purchased
 - g. Provide your First and Last Name
 - h. When you see “You have registered successfully” you are ready for class (remember your login ID and password)

No Recording and Copyright Notice

It is a violation of USC’s Academic Integrity Policies to share course materials with others without permission. **No student may record any lecture, class discussion or meeting with the instructor without prior express written permissions.** The word “record” or the act of recording includes, but is not limited to, any and all means by which sound or visual images can be stored, duplicated or retransmitted whether by an electro-mechanical, analog, digital, wire, electronic or other device or any other means of signal encoding. Marshall reserves all rights, including copyright, to the lectures, course syllabi and related materials, including summaries, PowerPoints, prior exams, answer keys, and all supplementary course materials available to the students enrolled in the class whether posted on Blackboard or otherwise. They may not be reproduced, distributed, copied, or disseminated in any media or in any form, including but not limited to all course note-sharing websites. Exceptions are made only for students who have made prior arrangements with DSP and the instructor.

ASSIGNMENTS AND GRADING DETAIL

Participation	10%
Write-ups (2 cases)	2%
Quizzes and Exams	
• Quizzes (best 3 out of 4)	18%
• Midterm	30%
• Final Exam	40%

The weights listed above determine a student’s overall course grade for this class. The course grade represents one’s performance relative to other students in the class. Your grade will not be based on a mandated target, but on your performance. Historically, the average grade for this class is around a “B.” Your grade will be based on your overall score for the course, as well as your ranking among the students in your section.

Class Attendance & Participation

Students are expected to attend all class sessions in their enrolled section. Your participation score is based on your contributions to the lectures including, but not limited to thoughtfully responding to the instructor's prompts; asking questions; answering other students' questions; and sharing personal or professional experiences related to course content.

Please keep your webcam video on, and participate in all polls, whiteboards, chats and breakout rooms. If you are unable to attend a lecture, watch the Zoom recording prior to the next lecture and complete any pop-quizzes as required.

BUAD 311 involves several simulation games, particularly in the second half of the course. Your performance on these simulation games will be taken into account when computing your participation grade.

Your first participation opportunity begins now. You can get participation points by reading the entire syllabus and then sending an email to Kathy.Takayama@marshall.usc.edu with "BUAD 311 Syllabus Nugget" in the subject, and all of the following in the body of the email:

- Section #
- Where you are located (city, state, country)
- Any fun fact about yourself

Write ups

There will be two write-ups for the course. Each contributes 1% to the course grade. Write-ups are short essays in response to posted discussion questions, and are graded PASS or FAIL based on completion and accuracy. **Write-ups are to be submitted on Blackboard.** Students are responsible for familiarizing themselves with the Blackboard assignment submission interface and uploading assignments ahead of time; instructors or TAs are not responsible for individual technical difficulties related to Blackboard assignment submission.

Quizzes

There are four quizzes, of which the best three will count towards the course grade for 6% each. Quizzes are not cumulative. Quizzes are meant to help keep you "on track" with the course material. To help you prepare, approximately a week before each quiz a short set of quiz questions will be distributed. You are free to work in groups on these questions (and encouraged to do so), but **you cannot ask the TA, peer tutors or instructors for help with them.** On the day of the quiz in class, one of the questions will be randomly selected from the quiz preparation materials, with slightly different numbers and small modifications. If you have done the quiz preparation questions diligently, the quiz will be very easy for you. Solutions to the quizzes will be distributed only after all sections have taken the quiz, at which point you are free to meet with the TA, peer tutors or instructor for help with the questions. All quizzes are closed books and there are no crib-sheets permitted for quizzes. Each student should bring a stand-alone calculator capable of power and square root operations. Collaboration of any sort on quizzes is strictly prohibited and will result in an "F" in the course grade. Any suspicion of cheating will be reported and investigated by USC. Please see the "Academic Integrity and Conduct" section below for further details.

Midterm and Final Exam

There are one midterm exam and one final exam. All exams are closed books. Each student may prepare two letter-sized (8.5"x11") double-sided crib sheets for the midterm and three letter-sized (8.5"x11") double-sided crib sheets for the final. Each student should bring a stand-alone calculator capable of power and square root operations. Collaboration of any sort on exams is strictly prohibited and will result in an "F" in the course grade. Any suspicion of cheating will be reported and investigated by USC. Please see the "Academic Integrity and Conduct" section below for further details.

According to the USC Office of Academic Records and Registrar, *"No student in a course with a final examination is permitted to omit the final examination or take the final examination prior to its scheduled date, and no instructor is authorized to permit a student to do so. No student is allowed to re-take a final examination or do extra work in a course after the semester has ended for purposes of improving his or her grade."*

Students must attend all quizzes and exams at the indicated times and dates, in their enrolled sections.

If you foresee a conflict, you must contact the instructor within the first three weeks of the semester to explore alternative options, to be determined by the entire 311 teaching team. No rescheduling of exams will be allowed after the first three weeks of class. The only exception is a "documented medical emergency," for which the student must provide one of the following documentation by the time of the exam: (1) A signed doctor's note, with the name and phone number of the medical professional verifying the medical emergency; (2) An email from the student's Marshall advisor; (3) An email from a USC Support and Advocacy advisor (see "Support Systems" below). For all other reasons of missing a quiz or an exam, including travels for non-emergencies, interviews, adverse traffic conditions, or forgetfulness about exam time, the student will not be allowed to reschedule, and missing a quiz or an exam will result in a zero for the quiz or the exam.

MARSHALL GUIDELINES AND USC POLICIES

Add/Drop Process

BUAD 311 will remain in open enrollment (R-clearance) for the first three weeks of the term. If there is an open seat, students will be freely able to add a class using Web Registration throughout the first three weeks of the term. If the class is full, students will need to continue checking Web Registration to see if a seat becomes available. There are no wait lists for these courses, and professors cannot add students. An instructor may drop any student who, without prior consent, does not attend the first two sessions; the instructor is not required to notify the student that s/he is being dropped. If you are absent three or more times prior to the end of week 3, your instructor may ask you to withdraw from the class by that date. These policies maintain professionalism and ensure a system that is fair to all students.

Students with Disabilities

USC is committed to making reasonable accommodations to assist individuals with disabilities in reaching their academic potential. Any student requesting academic accommodations based on a disability is required to register with the Office of Disability Services and Programs (DSP) **each semester**. A letter of

accommodation for approved accommodations can be obtained from DSP. **Approved accommodations apply within a class once the student provides the instructor the letter of accommodation.** Approved accommodations may not be used retroactively by a student on a test, assignment or other coursework that has already been completed. **Students must notify the instructor of their intention to use their accommodation at least 2 weeks in advance of each quiz/exam date.**

Academic Integrity and 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, <https://policy.usc.edu/scientific-misconduct/>.

Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review, should there be any suspicion of academic dishonesty. The review process can be found at: <https://sjacs.usc.edu/>. Failure to adhere to the academic conduct standards set forth by these guidelines and our programs will not be tolerated by the USC Marshall community and can lead to dismissal.

Discrimination, sexual assault, and harassment are not tolerated by the university. You are encouraged to report any incidents to the *Office of Equity and Diversity* or to the *Department of Public Safety*. This is important for the safety of the whole USC community. Another member of the university community – such as a friend, classmate, advisor, or faculty member – can help initiate the report or can initiate the report on behalf of another person. *Relationship and Sexual Violence Prevention and Services (RSVP)* provides 24/7 confidential support.

Support Systems

Counseling and Mental Health - (213) 740-9355 – 24/7 on call
studenthealth.usc.edu/counseling

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call
suicidepreventionlifeline.org

Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-9355(WELL), press “0” after hours – 24/7 on call
studenthealth.usc.edu/sexual-assault

Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

Office of Equity and Diversity (OED) - (213) 740-5086 | *Title IX* – (213) 821-8298
equity.usc.edu, titleix.usc.edu

Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

Reporting Incidents of Bias or Harassment - (213) 740-5086 or (213) 821-8298

usc-advocate.symplicity.com/care_report

Avenue to report incidents of bias, hate crimes, and microaggressions to the Office of Equity and Diversity | Title IX for appropriate investigation, supportive measures, and response.

The Office of Disability Services and Programs - (213) 740-0776

dsp.usc.edu

Support and accommodations for students with disabilities. Services include assistance in providing readers/notetakers/interpreters, special accommodations for test taking needs, assistance with architectural barriers, assistive technology, and support for individual needs.

USC Campus Support and Intervention - (213) 821-4710

campussupport.usc.edu

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

Diversity at USC - (213) 740-2101

diversity.usc.edu

Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call

dps.usc.edu, emergency.usc.edu

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call

dps.usc.edu

Non-emergency assistance or information.

COURSE CALENDAR

1	M 8/17 & T 8/18	Introduction and Overview	
2	W 8/19 & Th 8/20	Process Measures	
3	M 8/24 & T 8/25	Kristen's Cookie Company	Case write-up (Check Blackboard for the due date)
4	W 8/26 & Th 8/27	More on Process Analysis	
5	M 8/31 & T 9/1	Little's Law	
6	W 9/2 & Th 9/3	Waiting Line Management	
M 9/7 & T 9/8: No class; 9/7 is Labor Day (University holiday)			
7	W 9/9 & Th 9/10	Queueing Theory I	Quiz 1 (Quiz preparation questions will be distributed on Friday 8/28)
8	M 9/14 & T 9/15	Queueing Theory II	
9	W 9/16 & Th 9/17	Intro to Linear Optimization	
10	M 9/21 & T 9/22	Additional Optimization Applications	Quiz 2 (Quiz preparation questions will be distributed on Friday 9/11)
11	W 9/23 & Th 9/24	Midterm Review	
12	M 9/28 & T 9/29	MIDTERM	
13	W 9/30 & Th 10/1	Solving Linear Optimization – Excel Solver	
14	M 10/5 & T 10/6	Interpreting Linear Optimization	
15	W 10/7 & Th 10/8	Decision Tree	
16	M 10/12 & T 10/13	Revenue Management: Introduction	
17	W 10/14 & Th 10/15	Revenue Management: Dynamic Pricing	
18	M 10/19 & T 10/20	Inventory Management: EOQ	
19	W 10/21 & Th 10/22	Inventory Management: Uncertainty I	Quiz 3 (Quiz preparation questions will be distributed on Friday 10/9)
20	M 10/26 & T 10/27	Inventory Management: Continuous Review	
21	W 10/28 & Th 10/29	Intro to Forecasting	
22	M 11/2 & T 11/3	Intro to Supply Chain	
23	W 11/4 & Th 11/5	eBeer Game	Quiz 4 (Quiz preparation questions will be distributed on Friday 10/23), Case write-up (Check Blackboard for the due date)
24	M 11/9 & T 11/10	Zara	Case write-up (Check Blackboard for the due date)
25	W 11/11 & Th 11/12	Final Review	
Final	Th 11/19 4:30-6:30 PM PT	FINAL EXAM	

Module 1: Business Process Management

Session 1 – Introduction and Overview

Question: What is Operations Management (OM)? Why Operations Management?

Outline: You and your classmates will discover that OM defines business competitiveness and study of OM prepares you to become business leaders and entrepreneurs by qualitatively and quantitatively assessing trade-offs.

Learning Outcomes: By the end of this session, students should be able to

- Define and identify Operations Management problems in real-world situations
- Articulate the importance of OM to business competitiveness, leadership, and entrepreneurship
- Construct and interpret business processes using process flow diagrams
- Describe the potential trade-offs in make-to-stock and make-to-order processes

Session 2 – Process Measures

Question: How do process flows link to the profits? How do we quantify the performance?

Outline: You will learn that the flow of customers or products into and out of a system determines process measures and ultimately the bottom line.

Learning Outcomes: By the end of this session, students should be able to

- Calculate key performance measures of a process, including capacity, flow rate, and utilization rate
- Define flow time and work-in-process
- Identify the bottleneck that governs the capacity of a process

Session 3 – Kristen’s Cookie Company

Question: What is the makeup of a small cookie business? How do we determine capacity?

Outline: Through this case, you will gain a better understanding of the business profitability through business process analysis; you will evaluate key performance measures under different sales mixes, and recognize the impact of the bottleneck on price and profit.

Learning Outcomes: Through this case, students should be able to

- Conduct business process analysis to assess business profitability
- Evaluate key performance measures under different sales mixes
- Quantify the impact of the bottleneck on price and profit

Session 4 – More on Process Analysis

Question: Is it possible to improve utilization rate and capacity at the same time?

Outline: You will study strategies to meet seasonal demand and how flexible resources help increase system capacity and utilization rate at the same time. Through several examples, we will also solidify our understanding of calculating metrics such as capacity.

Learning Outcomes: By the end of this session, students should be able to

- Utilize flexible resources to increase system capacity and utilization rate at the same time
- Calculate performance measures in the presence of multiple products and yield losses

Session 5 – Little’s Law

Question: What is Little’s Law? How can it shed insight onto business process performance?

Outline: There is an important relationship among key performance indicators of a process. You will learn the powerful formula to help you better understand the performance of the business processes.

Learning Outcomes: By the end of this session, students should be able to

- Link various performance measures using Little's Law
- Articulate related business insights
- Apply the formula in various environments

Session 6 – Waiting Line Management

Question: What principles can support us in understanding and managing waiting lines?

Outline: We wait. Understanding *waiting* as a phenomenon enables us to create schedules, monitor inventory, analyze service, and determine a cost-effective balance for optimal performance and revenues. In this class, you will build a core understanding of three important factors pertaining to the performance of the waiting lines.

Learning Outcomes: By the end of this session, students should be able to

- Define characteristics of a waiting line queueing system
- Explain the effects of variability, utilization rate, and risk pooling on waiting line performance
- Describe the psychology of waiting lines

Sessions 7 and 8 – Queuing Theory

Question: How can mathematical calculations support optimal performance and revenues?

Outline: You will be able to translate real life waiting into variables for use in formulae and mathematical calculations to determine waiting line performance.

Learning Outcomes: By the end of this session, students should be able to

- Formulate the quantitative impact of various factors on waiting time
- Apply the formulae to calculate the waiting time of real-life waiting systems
- Explain waiting lines principles using the formulae

Module 2: Optimization

Sessions 9 and 10 – Introduction to Linear Optimization

Question: How do we find the optimal solution? What is linear optimization?

Outline: Optimization gives business a critical edge. In this class, you will learn that optimization is a powerful tool that can be applied to various business problems not limited to operations management. You will be able to formulate a linear optimization problem.

Learning Outcomes: By the end of this session, students should be able to

- Identify the powerful impact of optimization on business problems
- Describe components of a linear optimization problem
- Formulate a linear optimization problem
- Describe some common optimization problems in the business world, for both Internet companies and traditional companies

Session 11 – Midterm Review

Session 12 – Midterm

Sessions 13 and 14 – Solving and Interpreting Linear Optimization

Question: How do we solve a linear optimization problem? How can we interpret sensitivity analysis reports when the real-life challenge is vague?

Outline: You will solve linear optimization problems using Excel Solver. You will appreciate the value of the Excel reports, which help you understand and interpret how linear optimization problem solutions change when the conditions vary.

Learning Outcomes: By the end of this session, students should be able to

- Solve a linear optimization problem using the Excel Solver
- Interpret sensitivity analysis based on Excel reports for business insights
- Distinguish scenario analysis from sensitivity analysis

Session 15 – Decision Tree

Question: How can we optimize our decision in an uncertain world? What is a Decision Tree?

Outline: The Decision Tree is a schematic model used to manage uncertainty by clearly identifying alternative choices. You will learn how to construct a decision tree—its nodes and branches—and solve for the optimal decision.

Learning Outcomes: By the end of this session, students should be able to

- Use decision trees to express alternative choices and to manage uncertainty
- Describe differences between the three types of nodes in a decision tree
- Solve decision tree problems

Session 16 – Revenue Management: Introduction

Question: What is Revenue Management? How does it help business to increase profit? How to set prices?

Outline: You will understand the key concepts of revenue management. In this lesson, you will use an online platform to understand how to use consumer valuation information to set prices.

Learning Outcomes: By the end of this session, students should be able to

- Learn how to set prices based on customer valuation information
- Employ an analytical approach to make pricing decisions.

Session 17 – Revenue Management: Dynamic Pricing

Question: What if there is more information than valuations? How to exploit temporal patterns in data to extract more profit?

Outline: You will understand the key concepts underlying dynamic pricing (prices changing over time) and you will test your price setting skills using an online platform.

Learning Outcomes: By the end of this session, students should be able to

- Observe temporal patterns in data.
- Understand how to dynamically set prices in order to maximize revenue.

Module 3: Inventory and Supply Chain Management

Session 18 – Inventory Management: EOQ

Question: Why carry inventory? What is “economies of scale”? How can we minimize costs?

Outline: Inventory is essential for business activities though it can be costly. You will examine the trade-offs between economies of scale and inventory cost and learn how to find the right amount of inventory using the economic order quantity (EOQ) formula.

Learning Outcomes: By the end of this session, students should be able to

- Describe the different purposes for keeping inventory

- Explain the trade-offs between economies of scale and inventory cost in a basic inventory problem
- Optimize the amount of inventory using the economic order quantity (EOQ) formula

Sessions 19 – Inventory Management: Uncertainty

Question: Why carry inventory? How to ensure customer satisfaction with minimum inventory?

Outline: Inventory is a necessary evil especially when you face demand uncertainty. You will examine the trade-offs and apply marginal analysis to solve the problem optimally. You will also be able to establish an inventory policy when both economies of scale and demand uncertainty are present.

Learning Outcomes: By the end of this session, students should be able to

- Identify the elements and trade-offs of a basic inventory problem
- Apply marginal analysis to optimize inventory decisions in face of demand uncertainty
- Explain the risk pooling effect in inventory systems
- Derive the (ROP, Q) inventory policy when both economies of scale and demand uncertainty are present

Session 20 – Inventory Management: Continuous Review

Question: We establish and analyze an inventory policy when both economies of scale and demand uncertainty are present.

Learning Outcomes: By the end of this session, students should be able to

- Explain the risk pooling effect in inventory systems in a dynamic manner.
- Derive the (ROP, Q) inventory policy when both economies of scale and demand uncertainty are present
- Understand the tradeoffs between uncertainty, delay, and inventory decisions.

Session 21 – Introduction to Forecasting

Question: How do we plan without seeing the future? What makes a good forecast?

Outline: Anticipating the future is no easy task. From astrologers to business managers, we try as best we can to use science and mathematics to demystify the unknown for optimal decision-making. Finance, marketing, as well as production and service, rely on forecasting to make both long-term and short-term management decisions. You will learn the basic methods to forecasting, become skilled at calculating measurement error, and understand the trade-offs between responsiveness and stability in parametric selection.

Learning Outcomes: By the end of this session, students should be able to

- Describe the importance of forecasting for long-term and short-term decisions in finance, marketing, production and service
- Explain basic concepts and components of forecasting
- Measure the forecast error of a forecast method
- Apply the simple moving average model and the exponential smoothing method
- Assess the trade-offs between responsiveness and stability in parametric selection

Session 22 – Zara

Question: Have you been to a Zara store? How does Zara manage its inventory and supply chain?

Outline: The fashion business is demanding on inventory management because leftovers get significant markdowns. You will study and understand Zara's supply chain structure and its inventory policy and examine how its operation strategy aligns with its business strategy.

Learning Outcomes: Through this case, students should be able to

- Describe the importance of inventory management in the fashion business, in light of significant markdowns for leftover inventory
- Analyze Zara's supply chain structure and its inventory policy
- Explain how Zara's operation strategy aligns with its business strategy

Session 23 and 24 – Supply Chain Management

Question: What is a supply chain?

Outline: Expanding on what we learned from Zara, we will now experience a supply chain through the eBeer game which simulates the supply chain of a beer company including manufacturing, distribution, a wholesaler, and retail sites. Through the simulation you will work with partners and see the impact of our ordering decisions on inventory and back-order costs.

Learning Outcomes: By the end of this session, students should be able to

- Describe the difference between upstream and downstream as it applies to a supply chain
- Describe the high-level component in a typical manufacturing supply chain
- Experience being a working member of a supply chain through the eBeer simulation
- Explain the bullwhip effect, what two factors contribute to it, and ways to minimize it

Session 25 – Final Review

FINAL EXAM

- Thursday, November 19, 2020, 4:30-6:30 PM PST

Contribution of BUAD311 Operations Management to Student Achievement of Marshall's Six Undergraduate Program Learning Goals

#	Marshall Program Learning Goal Description	Degree of Emphasis	BUAD311 Course Objectives that Support This Marshall Undergraduate Goal
1	Our graduates will understand types of markets and key business areas and their interaction to effectively manage different types of enterprises. Specifically, students will:	High	BUAD311 Course Objectives 1-7 support Goal 1
1.1	Demonstrate foundational knowledge of core business disciplines, including business analytics and business economics.		1. Understand interfaces with other functional areas 2. Analyze trade-offs in decision-making 3. Understand the global nature of supply chain
1.2	Understand the interrelationships between functional areas of business so as to develop a general perspective on business management.		1. Understand interfaces with other functional areas 2. Analyze trade-offs in decision-making 3. Understand the global nature of supply chain 6. Apply operations management tools/techniques 7. Formulate a linear program for optimal product-mix
1.3	Apply theories, models, and frameworks to analyze relevant markets (e.g. product, capital, commodity, and factor and labor markets).		2. Analyze trade-offs in decision-making 3. Understand the global nature of supply chain 4. Learn waiting line and revenue management 5. Apply process analysis and capacity management skills to manage a factory in real-time 6. Apply operations management tools/techniques 7. Formulate a linear program for optimal product-mix
1.4	Show the ability to utilize technologies (e.g., spreadsheets, databases, software) relevant to contemporary business practices.		6. Apply operations management tools/techniques 7. Formulate a linear program for optimal product-mix
2	Our graduates will develop a global business perspective. They will understand how local, regional, and international markets, and economic, social and cultural issues impact business decisions so as to anticipate new opportunities in any marketplace	Low	BUAD311 Course Objectives 1, 2, 3, 5, and 6 support Goal 2
2.1	Understand how local, regional and global markets interact and are impacted by economic, social and cultural factors.		1. Understand interfaces with other functional areas 3. Understand the global nature of supply chain
2.2	Understand that stakeholders, stakeholder interests, business environments (legal, regulatory, competitor) and business practices vary across regions of the world.		1. Understand interfaces with other functional areas 2. Analyze trade-offs in decision-making 3. Understand the global nature of supply chain 5. Apply process analysis and capacity management skills to manage a factory in real-time 6. Apply operations management tools/techniques
3	Our graduates will demonstrate critical thinking skills so as to become future-oriented decision makers, problem solvers and innovators. Specifically, students will:	High	BUAD311 Course Objectives 1-7 support Goal 3
3.1	Understand the concepts of critical thinking, entrepreneurial thinking and creative thinking as drivers of innovative ideas.		1. Understand interfaces with other functional areas 2. Analyze trade-offs in decision-making 3. Understand the global nature of supply chain 4. Learn waiting line and revenue management 5. Apply process analysis and capacity management skills to manage a factory in real-time 6. Apply operations management tools/techniques 7. Formulate a linear program for optimal product-mix
3.2	Critically analyze concepts, theories and processes by stating them in their own words, understanding key		1. Understand interfaces with other functional areas 2. Analyze trade-offs in decision-making

	components, identifying assumptions, indicating how they are similar to and different from others and translating them to the real world.		4. Learn waiting line and revenue management 5 Apply process analysis and capacity management skills to manage a factory in real-time 6. Apply operations management tools/techniques 7. Formulate a linear program for optimal product-mix
3.3	Be effective at gathering, storing, and using qualitative and quantitative data and at using analytical tools and frameworks to understand and solve business problems.		4. Learn waiting line and revenue management. 5 Apply process analysis and capacity management skills to manage a factory in real-time 6. Apply operations management tools/techniques 7. Formulate a linear program for optimal product-mix
3.4	Demonstrate the ability to anticipate, identify and solve business problems. They will be able to identify and assess central problems, identify and evaluate potential solutions, and translate a chosen solution to an implementation plan that considers future contingencies		1. Understand interfaces with other functional areas. 2. Analyze trade-offs in decision-making 3. Understand the global nature of supply chain 4. Learn waiting line and revenue management. 5 Apply process analysis and capacity management skills to manage a factory in real-time 6. Apply operations management tools/techniques 7. Formulate a linear program for optimal product-mix
4	Our graduates will develop people and leadership skills to promote their effectiveness as <i>business managers and leaders</i>. Specifically, students will:	Mode rate	BUAD311 Course Objectives 1-6 support Goal 4
4.1	Recognize, understand, and analyze the motivations and behaviors of stakeholders inside and outside organizations (e.g., teams, departments, consumers, investors, auditors).		1. Understand interfaces with other functional areas 2. Analyze trade-offs in decision-making 3. Understand the global nature of supply chain 4. Learn waiting line and revenue management
4.2	Recognize, understand and analyze the roles, responsibilities and behaviors of effective managers and leaders in diverse business contexts e.g., marketing, finance, accounting.		1. Understand interfaces with other functional areas 6. Apply operations management tools/techniques
4.3	Understand factors that contribute to effective teamwork.		5 Apply process analysis and capacity management skills to manage a factory in real-time 6. Apply operations management tools/techniques
5	Our graduates will demonstrate ethical reasoning skills, understand social, civic, and professional responsibilities and aspire to add value to society. Specifically, students will:	Low	BUAD311 Course Objectives 1 and 2 support Goal 5
5.1	Understand professional codes of conduct.		1. Understand interfaces with other functional areas
5.2	Recognize ethical challenges in business situations and assess appropriate courses of action.		1. Understand interfaces with other functional areas 2. Analyze trade-offs in decision-making
6	Our graduates will be effective communicators to facilitate information flow in organizational, social, and intercultural contexts. Specifically, students will:	Mode rate	BUAD311 Course Objectives 1 and 6 support Goal 6
6.1	Identify and assess diverse personal and organizational communication goals and audience information needs		1. Understand interfaces with other functional areas 6. Apply operations management tools/techniques
6.2	Understand individual and group communications patterns and dynamics in organizations and other professional contexts		
6.3	Demonstrate an ability to gather and disseminate information and communicate it clearly, logically, and persuasively in professional contexts.		6. Apply operations management tools/techniques, create and defend well-reasoned solutions