

SCO 3001: Operations and Supply Chain Management

Fall 2020 (Section 7)

Course Overview: Many firms around the world demonstrate that operations and supply chains can be effective weapons for building and sustaining an organization's competitive advantage. This course addresses the key operations and supply chain issues that have strategic and tactical implications.

We study manufacturing, service, business, nonprofit, and government organizations in this course. We focus on making good decisions in operations. The five major decision areas are: process, quality, capacity, inventory, and supply chain.

Our methods of study are both qualitative and quantitative. Classroom time will include lectures, case studies, discussion, problem solving, videos, and small group activities.

In this course, we pursue the following goals.

1. Use and understand a framework for making operations decisions in the five operations areas: process, quality, capacity, inventory, and supply chain.
2. Understand how the operations function relates to other major business areas: marketing, finance, accounting, human resources, information systems, engineering.
3. Utilize process and quality improvement methodologies.
4. Apply tools such as process mapping, quality control charts, other quality tools, and inventory models.
5. Design a plan for capacity management, production planning and scheduling.
6. Differentiate between and apply inventory management systems methods and concepts.
7. Develop problem solving skills and understand sourcing and global logistics ideas.
8. Effectively communicate (orally and in writing) the results of operations analysis and case studies.
9. Use teamwork skills to analyze operations problems, case studies and communicate the results of the analysis.

Meeting Time/Location: We are meeting Tuesdays and Thursdays from 2:30 pm to 3:45 pm. All meetings are online (via Zoom).

Teaching team and office hours:

- **Instructor:** Behrooz Pourghannad; behrooz@umn.edu
 - Tentatively scheduled 4:00 pm – 5:00 pm on Wednesday
- **Peer Assistances:** Alexis Breunig; breun026@umn.edu
 - Tentatively scheduled 11:45 am – 12:45 pm on Monday and Friday
- **Graduate Assistance:** Heather Stanislawski; stani136@umn.edu

Prerequisites: A basic understanding of introductory concepts in probability and statistics as well as some basic knowledge of Microsoft Excel are assumed.

Texts:

- *Operations Management in the Supply Chain: Decisions and Cases*, 8th Edition ISBN 978-1-259-71877-9, by Roger G. Schroeder and Susan Meyer Goldstein
- *The Goal* by Eliyahu M. Goldratt and Jeff Cox, North River Press, Second Edition, 1992.
- Any other required reading material will be supplemented

Class Notes: Before each lecture on Thursday (usually Monday mornings), a PDF version of the slides will be posted. Most of the time, these slides will be incomplete, and you will be expected to fill in the blanks in class.

Website: Lecture notes, assignments, and solutions will be posted online on Canvas.

Schedule of Lecture Topics: The following is a tentative schedule of lecture topics.

	Topics to Cover	HW	Quiz
Module 1	Introduction		
	Processes		
	Quality		
	Exam 1 (before Thanksgiving)	Project 1	
Module 2	Forecasting		
	Inventory		
	Scheduling		
	Exam 2	Book dis.	
Module 3	Supply Chain		
	Service Operations		
	Selected Topic: Healthcare		
	Exam 3 (either at the last day of class or as scheduled)	Project 2	

Exams: There are three exams. The first two exams will be administered during scheduled class time. The time of the third exam will be determined later in the semester it would be either during the last class or the same as final exam date.

Exams will be online. Canvas provides the capability for online testing. It is assumed that all students will have a laptop computer with internet access and is compatible with the Canvas format; these can be used in class for the exam.

Makeup exams / alternate test dates. Appropriate arrangements will be made if an absence is due to a medical emergency or other special circumstances. Coordination with the instructor in writing (email) is required.

Assignments: Submissions are due by the date and time listed in Canvas or as provided in class. Otherwise indicated in the assignment, the grading of assignment will be as follows:

- *Full credit:* Student achieved the correct solution and showed work on how the results were obtained: two points
- *Partial credit:* Achieved correct answer but did not show how their work or how the results were obtained: one point
- *No credit:* The results did not achieve the expected response, or you did not submit your assignment

All assignments shall be submitted in Canvas as a PDF or MS Office (Word, Excel or PowerPoint) document unless otherwise stated in the submission instructions. Students will be notified if a document cannot be downloaded or opened. If this occurs, you will need to coordinate your submission with the class assistant or the instructor. No rework is allowed otherwise there is a medical emergency or other special circumstances.

Course Projects:

You will complete two team projects in this course. The objective of these projects is to reinforce the course concepts by applying the principals discussed to a specific company, situation, or context. Composition of teams will be determined during the first few weeks of class. The desired team size is 3-4 students.

Why is this a team activity and why does the Carlson School place so much emphasis on teamwork? Executive feedback notes the importance of individuals being able to work in teams and this has been cited as one of the strengths of our graduates! Our graduates also comment on the importance of teams in the corporate world.

The details of each project and its submission deadline will be announced accordingly in class and the project description and requirement will be posted on Canvas.

Grading: Final grades will be assigned based on the following breakdown:

Exam 1	15
Exam 2	20
Exam 3	20
Assignment and Quizzes	25
Project 1	10
Project 2	10
Extra credit (up to)	5
Total	105

The following statement regarding the Carlson School’s grading policy was provided to faculty: In Spring 2019 the faculty of the Carlson School approved grading guidelines for UG courses that strongly encourage instructors to use criterion-based grading. Criterion-based grading changes the message from students competing with each other to students working to meet instructor expectations. It is the responsibility of the instructor to set the rigor of the course and design appropriate assessments so that differences in course achievement are reflected in differences in grades. The above statement updates the previous Carlson School Grading Policy based on a class median aggregate GPA. For this class the final course grades are based on the following scale :

A	93% to 100%
A-	90% to <93%
B+	86% to <90%
B	82% to <86%
B-	80% to <82%
C+	76% to <80%
C	72% to <76%
C-	70% to <72%
D+	65% to <70%
D	60% to <65%
F	<60%

Per the new policy, the instructor can lower the scale (in your favor) but will never raise the scale. I will use my subjective judgment to lower the scale, if needed, to ensure that grades are consistent with the following University of Minnesota guidelines:

- **A:** Represents achievement that is outstanding relative to the level necessary to meet course requirements.
- **B:** Represents achievement that is significantly above the level necessary to meet course requirements.
- **C:** Represents achievement that meets the course requirements in every way.
- **D:** Represents achievement that is worthy of credit even though it fails to meet fully the course requirements.

- **F:** Represents failure and signifies that the work was either (1) completed but at a level of achievement that is not worthy of credit or (2) was not completed and there was no agreement between the instructor and that student that the student would be awarded a grade of *incomplete*.

Re-grades: You may submit an assignment or an exam for a re-grade within two weeks of its return date. Re-grade requests are not accepted after this time limit. The requests must be accompanied by a written explanation of why you feel the original grading was inaccurate.

Class Participation and Class Attendance: Students are expected to attend all lectures and to actively participate in our online discussions. As the class runs entirely online, your class participation is **even more important** to create a dynamic learning environment. Please inform the instructor beforehand if you are going to be absent or late to a class. Unexcused absences will negatively impact your grade.

Also note the following announce:

“Tennessee Warning Notice Pursuant to MN Department of Administration’s Data Practices

To make this class more accessible to all enrolled students, we intend to record all class lectures and discussions. Since your audio/video may be part of those recordings we are informing you. Along with the instructor and teaching assistants, these recordings will be shared with only the students enrolled in the class during this semester, in accordance with FERPA regulations.”

Course Policies and Requirements: Correspondence shall use official University of Minnesota accounts. Emails originating from outside the campus email servers may be classified as spam and / or not opened by the instructor. When sending an email, include the course title in the subject line.

Students are expected to treat all class members with courtesy and respect. While a lively discussion is encouraged, differences of opinion need to be factual and presented based on the subject matter of the course. Behaviors that are disruptive, harassing or otherwise inappropriate may result in disciplinary actions per university policy.

This course will be using Canvas to post course material, receive student assignments and administer examinations. Please verify you are able to login with your Internet ID and password and see the link to course’s Canvas site at the MyU Portal. If you have a technical question about Canvas, refer to the online Student Help & FAQ page.

You are expected to have access to, and able to use Microsoft Word, PowerPoint, and Excel. For assistance with access, system issues, etc. the current phone number and email for support is located at the MyU website.

For your record here is University of Minnesota's Fall 2020 academic calendar

September 7, Monday	Labor Day holiday
September 8, Tuesday	Classes begin
November 26-27, Thursday and Friday	Thanksgiving holiday
December 16, Wednesday	Last day of instruction
December 20, Sunday	Study days
December 17-19, 21-23, Thurs.-Sat., Mon.-Wed.	Final examinations
December 23, Wednesday	End of the term

Scholastic Dishonesty: You are expected to do your own academic work and cite sources as necessary. Failing to do so is scholastic dishonesty. Scholastic dishonesty means plagiarizing; cheating on assignments or examinations; engaging in unauthorized collaboration on academic work; taking, acquiring, or using test materials without faculty permission; submitting false or incomplete records of academic achievement; acting alone or in cooperation with another to falsify records or to obtain dishonestly grades, honors, awards, or professional endorsement; altering, forging, or misusing a University academic record; or fabricating or falsifying data, research procedures, or data analysis. Student Conduct Code is available at

http://regents.umn.edu/sites/default/files/policies/Student_Conduct_Code.pdf.

Additional Resources

Other recommended textbooks: The following texts offer additional discussion of material related to our course.

Introductory

- *Fundamentals of Supply Chain Theory* by Larry Snyder and Max Shen, John Wiley, 2011
- *Principles of Inventory Management* by John Muckstadt and Amr Sapra, Springer 2009
- *Designing and Managing the Supply Chain* by David Simchi-Levi, Philip Kaminski and Edith Simchi-Levi, McGraw-Hill, Third Edition, 2007
- *Matching Supply with Demand: An Introduction to Operations Management* by Gerard Cachon and Christian Terwiesch, McGraw Hill, 2009
- *Decision Systems for Inventory Management and Production Planning* by Edward Silver, David Pyke, and J. Peterson, Third Edition, John Wiley, 1997
- *Production and Operations Analysis* by Steve Nahmias, Fifth Edition, Irwin, 2007
- *Supply Chain Management* by Sunil Chopra and Peter Meindl, Prentice Hall, Ninth Edition, 2015
- *Operations Strategy* by Jan Van Mieghem and Gad Allon, Dynamic Ideas, 2015
- *Factory Physics for Managers: How Leaders Improve Performance in a Post-Lean Six Sigma World* by Edouard S. Pound, Jeffrey Bell and Mark Spearman, McGraw-Hill, 2014
- *Operations Rules* by David Simchi-Levi, MIT Press, 2010.

- *The New Science of Retailing: How Analytics are Transforming the Supply Chain and Improving Performance* by M. L. Fisher and A. Raman, Harvard Business Press, 2010.

Advanced

- *Foundation of Inventory Theory* by Paul Zipkin, McGraw-Hill, 2000
- *Stochastic Inventory Theory* by Evan Porteus, Stanford University Press, 2002
- *Stochastic Models of Manufacturing Systems* by John Buzacott and George Shanthikumar, Prentice-Hall, 1993
- *Inventory Control* by Sven Axäter, Kluwer, Second Edition, 2006
- *The Theory and Practice of Revenue Management* by Kalyan Talluri and Garrett van Ryzin, Springer, 2005.

Related magazines and journals: The following are selected journals and magazines that publish articles in the areas of production, inventory and supply chain management

- Harvard Business Review
- Supply Chain Management Review
- APICS Magazine
- Sloan Management Review
- Interfaces
- Manufacturing and Service Operations Management
- Management Science
- Operations Research
- Production and Operations Management
- IIE Transactions
- Naval Research Logistics
- European Journal of Operational Research

Related Blogs: The following are blogs focused on topical issues in supply chain management and to supply chain management in news.

- The Operations Room, <https://operationsroom.wordpress.com>
- RenaissanceInnovator.com, <http://renaissanceinnovator.com>
- Global Supply Chain Musings, <https://aviyer2010.wordpress.com>
- Global Supply Chain Blogs, <http://blogs.anderson.ucla.edu/global-supply-chain/>
- Jay and Bary's OM Blog, <https://heizerrenderom.wordpress.com>
- SupplyChain@MIT, <http://supplychainmit.com>

Useful Web sites: The following websites are rich in content related to the topics of our course and contain links to other relevant websites.

- www.factory-physics.com
- www.scmr.com
- <http://cscmp.org>
- <http://www.scdigest.com>
- <http://www.supplychainasia.org>

- www.apics.org
- www.poms.org
- www.informs.org

Students with Disabilities: The University of Minnesota is committed to providing equitable access to learning opportunities for all students. Disability Services (DS) is the campus office that collaborates with students who have disabilities to provide and/or arrange reasonable accommodations.

If you have, or think you may have, a disability (e.g., mental health, attentional, learning, chronic health, sensory, or physical), please contact DS at 612-626-1333 to arrange a confidential discussion regarding equitable access and reasonable accommodations.

If you are registered with DS and have a current letter requesting reasonable accommodations, please contact the instructor early in the semester to review how the accommodations will be applied in the course.