COURSE NUMBER (A02/G02) (3.0 CH)
OPERATIONS AND SUPPLY CHAIN MANAGEMENT
FALL 2022

INSTRUCTOR

Name:	Javad Feizabadi	Office Location:	TBA
Phone:	TBA	Office Hours:	TBA
Fax:	TBA	Class Room:	530 Drake
Email:	TBA	Class Time:	Thursdays 2:30pm – 5:45pm Sep 22, 29, Oct 6, 13, 20, 27, Nov 3, 17, 24, Dec 1

COURSE DESCRIPTION

To provide students with concepts, techniques, and tools that will enable them to design, analyze and improve the firm's core strategic and operational capabilities; the strategy of execution. It covers a broad range of application domains and industries such as high-tech, online services, sustainability, insurance, health care, retail, fashion, automotive, manufacturing, and more. Special emphasis will be given to the effect of uncertainty in business decision-making and the interplay between high-level financial objectives and operational capabilities. In particular, some of the topics covered include process analysis and innovation, capacity analysis and ROI, inventory management, postponement, production control, risk pooling, operational risk, quality management, revenue management, and pricing. The course will include lectures, many case studies, as well as simulations, and interactive exercises. A special feature of the course is engaging students in simulation games that provide hands-on demonstrations of some central concepts. The course will provide a competitive edge in almost every post-graduate career path, including consulting, sustainability, corporate management, NGOs, product development, financial services, private equity, and healthcare.
The course relies on a combination of lectures, readings, and assignments. To pursue the course objective most effectively, students will have to:

1. Prepare the assigned readings and exercises, and discuss them in class;
2. Prepare 2 case study write-ups and be prepared to discuss the rest of the cases;
3. Prepare a two-page review of the book "The Goal" by E. Goldratt; and
4. Engage in a number of managerial simulation exercises and prepare related written reports.

COURSE OBJECTIVES

On course completion, you should be able to:

- Describe the fundamental dynamics in the operating systems and their performance implications,
- Explain operating performance differences among the firms by understanding the root causes of variability in operating systems,
- Predict the performance outcomes in operating systems by identifying major operational policies and their performance implications and applying them in simulated operations settings,
- Generate innovative operating models by recombining several operational policies,
- Evaluate and improve operational performance in both service and manufacturing operating systems.

COURSE MATERIALS

The required course material includes:

- [H.S.] Wallace J. Hopp and Mark L. Spearman (2011); "Factory Physics"; Mc Graw-Hill, Third Edition
- [C.T.] G. Cachon and C. Terwiesch, (2009); "Matching Supply with Demand: An Introduction to Operations Management," McGraw-Hill Irwin, 3rd Edition,
- Harvard Business Publishing Course Pack
- E.M. Goldratt and J. Cox, "The Goal: A Process of Ongoing Improvement," North River Press, Second Revised Edition, 1992

COURSE ASSESSMENT

Student progress will be assessed through:

- Class Participation (Individual) 10%
- Homework Assignments (Individual) 20%
- Two Case Study Write-Ups (Team) 20%
- Goal Book Report (Team. 10%
- Simulation (Team) 20%
- Final Exam (Individual) 20%
    - Wednesday, December 7, 2022
    - 6:00pm – 9:00pm
    - Room 343 Drake

Class Participation (Individual)

Class participation will be assessed on the basis of your comments in each class. Some of the criteria that I will use to judge effective class participation include:

1. Is the participant a good listener?
2. Is the participant concise and articulate?
3. Are the points made relevant to the current discussion? Are they linked to the comments of others?
4. Do the comments show clear evidence of appropriate and insightful analysis of the case?

5. Is there a willingness to participate?

Homework Assignments (individual)
There will be two homework assignments to test your grasp of some of the quantitative material taught in the course:

1. The assignments should be done individually and submitted at the beginning of class on the day they are due.

The Goal Book Report (team)
Each team (two-member teams) in the class should prepare and turn in a report of at most two pages containing answers to the following questions:

1. What are the methods described in The Goal for identifying a bottleneck?
2. After bottlenecks have been identified, what are the concrete factory floor-level actions described in the book for improving overall system performance?
3. Relate the notions of statistical fluctuations and dependent events mentioned in the book to concepts covered during the course. Also, explain and relate to course concepts the statement made by Jonah that a factory "balanced with demand" will soon experience bankruptcy.
4. Several times in the book, lot sizes are reduced in order to decrease cycle time. What are the limits to this strategy?
5. When designing an operational process from scratch, which process step(s) should be the bottleneck(s)?
6. Leaving writing style and other delivery issues aside (e.g., romance novel format), what substantial critiques would you make about the part of this book pertaining to the management of business operations?

The Operations Management Simulation Exercises
As a team, you will get to manage a series of web-based operations management simulation exercises. This assignment aims to let you adapt and apply the concepts discussed in the class in a managerial situation; it will also give you a chance to formalize your own decision models and test their relevance and effectiveness.
The titles of the simulation's exercises are as follows:

- Push-pull production
- Process analytics
- Operations management simulation: Benihana

You will receive a set of questions for each simulation exercise to prepare your report. Except for the Benihana simulation, the rest will be offline work, and we don't use the class time for them.

Factory Simulation Exercise
Your team will get to manage a virtual factory in two separate web-based simulation exercises. This assignment aims to let you adopt and apply concepts covered in the class in a managerial situation; it will also give you a chance to formalize your own decision models and test their relevance and effectiveness.
The first exercise involves a reduced set of managerial decisions. It is designed to help your team create its decision models before the full version of the game is played as part of the

second exercise. After the second simulation is over, each team will turn in a written report of at most four pages (excluding appendices) about this final exercise which should contain your answers to the following questions:

1. How did you forecast demand? For what decisions in the game did you find it most helpful to have a demand forecast available? A posteriori, were you happy with your demand forecasting technique, and would you use the same one if the game was to start over again? If not, define precisely how you would forecast demand for another potential simulation run.
2. What models and/or considerations did you use to decide how many machines of each type to buy initially? Later on, during the simulation, how did you decide how many more machines to buy or sell? A posteriori, were you happy with your capacity decision process, and would you use the same one if the game was to start over again? If not, define precisely how you would make capacity decisions for another potential run of the simulation.
3. How did you decide on the parameters of your (R, Q) inventory replenishment policy? How did you update these parameters over time? A posteriori, were you happy with your inventory model, and would you use the same one if the game was to start over again? If not, define precisely how you would set inventory replenishment parameters decisions for another potential run of the simulation.
4. How did you decide initially and later in the game what type of contract to go after? A posteriori, were you happy with your method/model for quoting lead-times, and would you use the same one if the game was to start over again? If not, define precisely how you would choose which contract type to use for another potential run of the simulation.
5. Describe your factory's performance during the simulation, both in absolute and relative terms and provide an interpretation. Is there anything not already mentioned in your previous answers that you would do to improve your performance if you were to play the game a second time?
6. What are the most important lessons you learned or insights you gained from playing this simulation game?

Final grades will be assigned as follows;

Cumulative Marks	Grade	GPA	Performance
90-100	**A+**	**4.5**	**Excellent**
80-89.99	**A**	**4.0**	**Very Good**
75-79.99	**B+**	**3.5**	**Good**
70-74.99	**B**	**3.0**	**Satisfactory**
65-69.99	**C+**	**2.5**	**Marginal**
60-64.99	**C**	**2.0**	**Unsatisfactory**
50-59.99	**D**	**1.0**	**Unsatisfactory**
49.99 and below	**F**	**0.0**	**Unsatisfactory**

NOTE: Class attendance is required. Missing more than 20% of this course due to absences may result in a failing grade. It is your responsibility to inform your professor in advance of your absence, and the reason for it (medical documentation or employer note if away for a

work commitment) is required. The professor decides how to deal with the impact of missed classes on your final grade.

COURSE SCHEDULE

Class #	Date	Content	Topics Coverage	Required Readings	Assignment
1	Sep. 22nd	Course Introduction	Course Introduction and Types of processes	Ch. 2 (C.T.), Ch. 0 (H.S.)	
	Sep. 22nd	Basic Operations Dynamics	Little's Law Bottlenecks, cycle time	Ch. 7 (H.S.), Ch. 3 (C.T.)	
2	Sep. 29th	Basic Operations Dynamics	Little's Law Bottlenecks, cycle time	Ch. 7 (H.S.), Ch. 3 (C.T.)	
	Sep. 29th	Case Study: Kristen's Cookie Company	Process analysis, Set up time, run time, throughput time, cycle time		
3	Oct. 6th	Variability basics	Demand, supply, lead time variability	Ch. 8 (H.S.)	
	Oct. 6th	Variability basics	Demand, supply, lead time variability	Ch. 8 (H.S.)	
4	Oct. 13th	Case Study: Sport Obermeyer	Forecasting and inventory management	Ch. 13 (C.T.), Ch. 18 (H.S.)	
	Oct. 13th	Performance Impact of Variability: Waiting Lines	Queuing theory	Ch. 9 (H.S.), Ch. 8 (C.T.)	
5	Oct. 20th	The corrupting influence of variability	Flow, cycle time, batching	Ch. 9 (H.S), Ch. 7 & 8 (C.T.)	
	Oct. 20th	Case Study: Manzana Insurance	Cycle time, Bottleneck and process analysis, and variability		
6	Oct. 27th	The corrupting influence of variability	Flow, cycle time, batching	Ch. 9 (H.S.), Ch. 7 & 8 (C.T.)	HW1
	Oct. 27th	Case Study: Executive Shirt Company, Inc.		Ch. 18, 7, 8, 9 (H.S.), Ch. 3 & 7, 8 (C.T.)	
7	Nov. 3rd	Push & Pull Systems	JIT and Kanban	Ch. 10 (H.S.), Ch. 11 (C.T.)	
	Nov. 3rd	Case Study: Assembling Smartphones: Takt Time or Cycle Time?	Takt time, cycle time		
8	Nov. 17th	Capacity Planning	Short and medium-term capacity planning	Ch. 18 (H.S.), Ch. 3 & 7 (C.T.)	

	Nov. 17th	Case Study: Shouldice Hospital Limited	Capacity analysis	Ch. 18 (H.S.), Ch. 3 & 7 (C.T.)	Case Write-Up
9	Nov. 24th	Case Study: L.L. Bean, Inc. Item Forecasting and Inventory Management		Ch. 14 (C.T.), Ch. 2 (H.S.)	Goal Report
	Nov. 24th	Revenue Management		Ch. 16 (C.T.)	HW2
10	Dec. 1st	Case Study: Leadership Online (A): Barnes & Noble vs. Amazon.com		Ch. 19 (C.T.)	
	Dec. 1st	Case Study: Benihana of Tokyo & Benihana Simulation	Process flow, batching, inventory, cycle time, throughput time	Ch. 18, 7, 8, 9 (H.S.), Ch. 3 & 7, 8 (C.T.)	Case Write-Up

DETAILED COURSE SCHEDULE AND ASSIGNMENT QUESTIONS

Introduction and Class overview — Class 1
Readings: course syllabus (this document)
Cover: Chap. 2 (C.T.), Chap. 1 (H.S.)

Factory Simulation Exercise:
Readings: LITTLEFIELD TECHNOLOGIES: OVERVIEW
MANAGING CAPACITY AND LEAD-TIME AT LITTLEFIELD TECHNOLOGIES

NOTE 1: In order to familiarize yourself with the simulation game interface, analyze early demand data and plan your strategy for the game, you can use the below URL:

http://responsive.net/littlefield.html#:~:text=Littlefield%20is%20an%20online%20competitive,testing%20service%20named%20Littlefield%20Labs.

NOTE 2:

Experience demonstrates that advanced planning and sound use of quantitative models blending physical and financial considerations provide key competitive advantages in this game.

Case Study: Kristen's Cookie Company (A1) and (A2)

Readings: Chap 3 (C.T.), Chap.7 (H.S.)

Assignment Questions:

1. Answer the key questions. Be sure to consider the effects of a second oven.
2. Answer the problems for further thought.

Case Study: Sport Obermeyer, Ltd.

Readings: Ch. 13 (C.T.), Ch. 18 (H.S.)

Assignment Questions:

1. Using the sample data given in Exhibit 10, make a recommendation for how many units of each style Wally Obermeyer should order during the initial phase of production. Assume that all ten styles in the sample problem are made in Hong Kong and that Obermeyer's initial production commitment must be at least 10,000 units. (Ignore price differences among styles in your initial analysis.)
2. What operational changes would you recommend to Wally to improve performance?
3. How should Obermeyer management think (both short-term and long-term) about sourcing in Hong Kong versus China?

Case Study: Manzana Insurance: Fruitvale Branch

Readings: Ch. 9 (H.S), Ch. 7 & 8 (C.T.)

Assignment Questions:

1. How is the Fruitvale Branch doing?
2. What are the causes of these problems?
3. Can you identify the problems in the way Manzana is calculating turnaround time in **Exhibit 3**?
4. If you were Bill Pippen, what would you recommend that Fruitvale do?

Case Study: Assembling Smartphones: Takt Time or Cycle Time?

Readings: Ch. 0, 7, 9 (H.S), Ch. 3, 7, 8 (C.T.),

Assignment Questions:

The case, as designed, is only meant for one discussion pasture to review the Hayes-Wheelwright product-process matrix one and the impact of variability on line performance. While the case provides comparative numbers for the process choices, the hope would be to develop students' intuition around why the numbers change so much.

Case Study: Shouldice Hospital Limited

Readings: Ch. 18 (H.S.), Ch. 3 & 7 (C.T.)

Assignment Questions:

1. How successful is the Shouldice Hospital?
2. How do you account for its performance?
3. What could go wrong here?
4. As Dr. Burns Shouldice, what actions, if any, would you take to expand the hospital's capacity?
5. How would you implement the changes you propose?

Case Study: L.L. Bean, Inc. Item Forecasting and Inventory Management

Readings: Ch. 14 (C.T.), Ch. 2 (H.S.)

Assignment Questions:

1. How does L.L. Bean use past demand data and a specific item forecast to decide how many units of that item to stock?
2. What item costs and revenues are relevant to the decision of how many units of that item to stock?
3. What information should Scott Sklar have available to help him arrive at a demand forecast for a particular style of men's shirt that is a new catalog item?
4. How would you address Mark Fasold's concern that the number of items purchased usually exceeds the number forecast?
5. What should L.L. Bean do to improve its forecasting process?

Case Study: Leadership Online: Barnes & Noble vs. Amazon.com (A)

Readings: Ch. 19 (C.T.)

Assignment Questions:

1. Based on your own experience of traditional bookselling and your exploration of online bookselling, compare willingness-to-pay for books supplied by these two business models.
2. Also compare the forecast long-run cost position of a successful online bookseller to Barnes and Noble's traditional business model. (Assume that Exhibits 4 and 7 in the case reflect average discounts of 10% off list price for Barnes & Noble's traditional bookstores and 25% off list for the online bookseller.)
3. Assess Barnes & Noble's response to the substitution threat from Amazon. How did Amazon respond in turn, and to what net effect?
4. Who will be the online leader? Will it ever make much money selling books (as opposed to selling stock)?

Case Study: Benihana of Tokyo
& Benihana Simulation

Readings: Ch. 18, 7, 8, 9 (H.S.), Ch. 3 & 7, 8 (C.T.)

Assignment Questions:

1. What are the differences between the Benihana production process and that of a typical restaurant?
2. Examine the production system in detail. What are the major design choices which generate operating efficiencies?

ACADEMIC REGULATIONS AND STUDENT SERVICES

HUMAN ETHICS APPROVAL FOR DATA COLLECTION

As part of coursework, if you will be collecting data from people who are not students in this class, you must obtain Human Ethics approval from the UofM's Research Ethics Board (REB) prior to data collection. This applies to data collection such as surveys, interviews, focus groups, experiments, video recording, etc., where a respondent is solicited for participation.

If the entire class will be working on the same project, your instructor will apply for human ethics approval from the REB. If individuals or small groups of students will be working on different projects, it is the responsibility of the students to obtain approval (only one group member needs to apply). Your instructor will tell you whether s/he will be or you need to. **When in doubt, please talk to your instructor.**

Instructions and forms to apply for human ethics approval can be found at: http://umanitoba.ca/research/orec/ethics/guidelines.html

In most cases, you will be using the "Protocol Submission Form" which is under the "REB Forms - Fort Garry Campus" heading.

It can take up to six weeks to process human ethics applications and obtain approval. Therefore, plan early. Note that approval must be obtained prior to data collection and cannot be obtained during the data collection phase or retroactively. Violation can get you, your instructor, and the Asper School in serious trouble with the REB.

The following do not require REB approval:

a) Projects where students are conducting the research on themselves during class time;
b) Projects involving the use of records or information that is in the public domain, including the use of anonymous secondary data and surveys or questionnaires that have already been published;
c) Projects involving the use of naturalistic observation where there is no reasonable expectation of privacy (i.e. public park).
d) Practicum or job training projects where students are fully integrated into the organization's operational practices and are not conducting research;

e) Projects where the intent is to use the information to provide advice, diagnosis, identification of appropriate interventions or general advice for a client;
f) Projects where the intent is to develop skills which are standard practice within a profession (e.g. observation, assessment, intervention, evaluation, auditing); or
g) Projects where the information gathering processes are part of the normal professional relationship between the student and the participants.

If you have any questions, please contact humanethics@umanitoba.ca or your instructor.

UNCLAIMED ASSIGNMENT POLICY

Pursuant to the FIPPA Review Committee's approved recommendations of August 15, 2007, all unclaimed student assignments will become the property of the faculty and will be subject to destruction six months after the completion of any given academic term.

STUDENT SERVICES AND SUPPORTS

For Information on…	…follow this link
Course Outlines, Year-at-a-Glance, Concentrations, Textbooks, V.W. Dates and Final Exams	Asper Graduate Student Resources
Exam Rescheduling Policy - *Please refer to Missing a Test/Exam on page 18 of the MBA Student Handbook*	MBA Student Handbook
Help with research needs such as books, journals, sources of data, how to cite, and writing	Library Resources
Tutors, workshops, and resources to help you improve your learning, writing, time management, and test-taking skills	Writing and Learning Support
Support and advocacy for students with disabilities to help them in their academic work and progress	Student Accessibility Services
Copyright-related questions and resources to help you avoid plagiarism or intellectual property violations	Copyright Office
Student discipline bylaws, policies and procedures on academic integrity and misconduct, appeal procedures	Academic Integrity
Policies & procedures with respect to student discipline or misconduct, including academic integrity violations	Student Discipline
Students' rights & responsibilities, policies & procedures, and support services for academic or discipline concerns	Student Advocacy
Your rights and responsibilities as a student, in both academic and non-academic contexts	Your rights and responsibilities
Full range of medical services for any physical or mental health issues	University Health Service
Information on health topics, including physical/mental health, alcohol/substance use harms, and sexual assault	Health and Wellness
Any aspect of mental health, including anxiety, stress, depression, help with relationships or other life concerns, crisis services, and counselling.	Student Counselling Centre
Support services available for help regarding any aspect of student and campus life, especially safety issues	Student Support Case Management
Resources available on campus, for environmental, mental, physical, socio-cultural, and spiritual well-being	Live Well @ UofM
Help with any concerns of harassment, discrimination, or sexual assault	Respectful Work and Learning Environment
Concerns involving violence or threats, protocols for reporting, and how the university addresses them	Violent or Threatening Behavior

ACADEMIC INTEGRITY

It is critical to the reputation of the I. H. Asper School of Business and of our degrees that everyone associated with our faculty behaves with the highest academic integrity. As the faculty that helps create business and government leaders, we have a special obligation to ensure that our ethical standards are beyond reproach. Any misconduct in our academic transactions violates this trust. The University of Manitoba Graduate Calendar addresses the issue of academic misconduct under the heading "Plagiarism and Cheating." Specifically, acts of academic misconduct include, but are not limited to:

- using the exact words of a published or unpublished author without quotation marks and without referencing the source of these words
- duplicating a table, graph or diagram, in whole or in part, without referencing the source
- paraphrasing the conceptual framework, research design, interpretation, or any other ideas of another person, whether written or verbal (e.g., personal communications, ideas from a verbal presentation) without referencing the source
- copying the answers of another student in any test, examination, or take-home assignment
- providing answers to another student in any test, examination, or take-home assignment
- taking any unauthorized materials into an examination or term test (crib notes)
- impersonating another student or allowing another person to impersonate oneself for the purpose of submitting academic work or writing any test or examination
- stealing or mutilating library materials
- accessing tests prior to the time and date of the sitting
- changing name or answer(s) on a test after that test has been graded and returned
- submitting the same paper or portions thereof for more than one assignment, without discussions with the instructors involved.

Many courses in the I. H. Asper School of Business require group projects. Students should be aware that group projects are subject to the same rules regarding academic misconduct. Because of the unique nature of group projects, all group members must exercise extraordinary care to insure that the group project does not violate the policy on Academic Integrity. Should a violation occur on a group project, all group members will be held jointly accountable, no matter what their individual level of involvement in the specific violation.

Some courses, while not requiring group projects, encourage students to work together in groups (or at least do not prohibit it) before submitting individual assignments. Students are encouraged to discuss this issue as it relates to academic integrity with their instructor to avoid violating this policy.

In the I. H. Asper School of Business, all suspected cases of academic misconduct involving a graduate student (i.e. MBA, MFin, MSCM, MSc or PhD student) will be reported directly by the instructor to the Dean of the Faculty of Graduate Studies.

Javad Feizabadi
Department: Supply Chain Management
I.H. Asper School of Business

Dr. Feizabadi is an Assistant Professor of Operations and Supply Chain Management at Asper School of Business. Prior to join the Asper, he worked as a faculty member at MIT Global SCALE Network and as a Research Affiliate at MIT Center for Transportation and Logistics for over a decade. He obtained a Ph.D. in Operations Management. Before starting his academic career, he worked in various manufacturing companies ranging from the automotive industry to the agriculture machinery manufacturing industry, for eight years. Over close to two decades, he has obtained a combination of both practical and theoretical knowledge.

His primary research area focuses on the system-level understanding of supply chain phenomena. In particular, he explores the interdependencies in supply chain systems at various levels of analysis, i.e., firms, dyads, supply chain/supply networks. In the context of endogenous and exogenous sources of changes and consequent adaptation's need, understanding multi-dimensional and interdependent dynamics/events are paramount to enhance the system's cognitive ability and develop appropriate response and supply chain design. His scholarly research has appeared in journals such as Strategic Management Journal, International Journal of Production Economics, Journal of Business Logistics, among others.