



# Rotman Commerce UNIVERSITY OF TORONTO

## Course Outline (Update: August 31<sup>st</sup>, 2020)

### RSM 270 H1 F

Operations Management

Fall 2020

Course Meets: L0102 Mondays, 9:00 am - 11:00am, Online Synchronous  
L0201 Mondays, 11:00 am - 1:00pm, Online Synchronous  
L0301 Wednesdays, 9:00 am - 11:00am, Online Synchronous  
L0401 Wednesdays, 11:00am - 1:00pm, Online Synchronous

**Class Meetings:** Classes will run as a mixture of asynchronous offline and synchronous online sessions. Both types of lectures, synchronous online and asynchronous offline, will be supported with pre-recorded videos each week. Most (if not all) lectures will be held as (i) **asynchronous offline before the mid-term** exam and (ii) **synchronous online after the mid-term** exam. Any change in the above schedule will be communicated to students one week ahead of time. I will be available from 10:00am to 12:00pm on lecture days to respond to students' questions regarding the posted videos.

There will be **two mandatory synchronous online sessions** during the second half of the term where we will meet to play one of the assigned games and to debrief the results. Other than these two mandatory synchronous online sessions, no student will be mandated to attend other online synchronous sessions if s/he does not so desire. The rationale behind this way of delivery is to provide students with maximal scheduling flexibility, enabling them to optimally schedule their times towards a more productive semester during COVID-19 pandemic. Online lectures will be comprised of 90 minutes of lecture and 30 minutes of Q&A.

**Instructor:** Vahid Roshanaei, RT 419

**E-Mail:** [Vahid.Roshanaei@Rotman.Utoronto.ca](mailto:Vahid.Roshanaei@Rotman.Utoronto.ca) (Please start subject with **RSM270**)

**TAs:**

- 1) Mahsa Hossein ([mahsa.hosseini@rotman.utoronto.ca](mailto:mahsa.hosseini@rotman.utoronto.ca))
- 2) Sukhcharhat Dhillon ([sukhcharhat.dhillon@mail.utoronto.ca](mailto:sukhcharhat.dhillon@mail.utoronto.ca))
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- 5) Tianshu Lu ([tianshu.lu@rotman.utoronto.ca](mailto:tianshu.lu@rotman.utoronto.ca))

**Office Hours:** By on-line appointment, preferably after lectures

**Webpage:** Quercus for RSM270

Make sure you **always read the online Announcements!**

### Course Scope and Mission

Operations is the term that refers to the process by which an organization converts inputs (e.g., labor, material, knowledge, equipment) into outputs (goods and/or services) for both internal and external markets. In this course, we will study how to manage this process. We will study strategic issues related to how firms determine the way in which they will compete as well as tactical and operational decision making. Topics include Operations Strategy, Process Analysis, Statistical Processes Control in Manufacturing and Services, Waiting-Line Management, Inventory Management, Forecasting, Linear Programming, and Supply Chain Management.

The objectives of this course are:

- to develop your decision-making skills.

- to expose you to the main concepts of operations management in manufacturing and service organizations.
- to provide you with useful tools for problem solving in business and government environments.

### Course Prerequisites

RSM100Y1/RSM100H1/MGT100H1

### Statement on Equity, Diversity, and Inclusion

The University of Toronto is committed to equity, human rights, and respect for diversity. All members of the learning environment in this course should strive to create an atmosphere of mutual respect where all members of our community can express themselves, engage with each other, and respect one another's differences. U of T does not condone discrimination or harassment against any persons or communities.

### Required Technology

For Fall-Winter 2020-21, this course will be entirely online. To participate fully and to complete the course successfully, you must ensure you have a computer with a working webcam, microphone, and reliable access to an internet connection. For further details, please visit this link:

[Recommended Technology Requirements for Remote/Online Learning](#)

### Suggested Readings

[A] Operations Management: Creating Value along the Supply Chain, Canadian Edition by Russell, Taylor, Castillo; Wiley 2019. (hardcover text + WileyPLUS: 978111894203, or loose-leaf text + WileyPLUS: 9781118942055)

[B] *Operations Management*, RSM270, by McGraw-Hill/Irwin. ISBN-13: 9781260068115, ISBN-10:1260068110: A tailored text book to our needs, based on Operations and Supply Chain Management, 15th Edition by Jacobs, Chase, 2018, McGraw-Hill Irwin

### Additional Recommended Readings

- [S&H]: *Operations Management 4th Canadian Edition* by Stevenson & Hojati, McGraw-Hill Ryerson, 2011.
- *Managing Business Process Flows: Principles of Operations Management* by Anupindi, Chopra, Deshmukh, Van Mieghem, and Zemel (2nd edition, Pearson Prentice Hall).
- *The goal: a process of ongoing improvement* by Eliyahu M. Goldratt and Jeff Cox.  
Note: This is a fictional story about a manager dealing with operational challenges in his job. The book is written like a novel, but it is also used as textbook in some operations management courses.

### Evaluation and Grades

Grades are a measure of the performance of a student in individual courses. Each student shall be judged based on how well they have command of the course materials. The detailed grading rubric is as follows:

Work	Nature of the work	Percentage	Due-date
Case	Group report	12%	<b>Case 1:</b> 6% due Nov. 1 <sup>st</sup> , 2020 <b>Case 2:</b> 6% due Nov. 30 <sup>th</sup> , 2020
	Group presentation	8%	<b>Case 1:</b> 4% due Nov. 2 <sup>nd</sup> , 2020 <b>Case 2:</b> 4% due Dec. 1 <sup>st</sup> , 2020
Games*	Offline/Individual Online/Individual Online/Group	7%	<b>Game 1:</b> 2% due Oct. 25 <sup>th</sup> , 2020 <b>Game 2:</b> 2% Dec. 7 <sup>th</sup> -9 <sup>th</sup> , 2020 <b>Game 3:</b> 3% due Dec. 10 <sup>th</sup> , 2020
Mid-Term Test	Online/individual	28%	Nov. 2 <sup>nd</sup> , 2020, 9am - 11am
Assignments	Online/individual	10%	5 ongoing (roughly bi-weekly): 2% each

Final Assessment	Online/individual	35%	During Faculty of Arts & Science Final Assessment period
Total		100%	

\*: Game 1 will be held outside lecture hours (Offline). The second and third games will be held in class during lecture times (Online). *Not playing Game 2 will result in losing 5% of the total grade.* Read the grading rubric for games in page 4.

## **COURSE FORMAT AND EXPECTATIONS**

### **Assignments**

A total of 5 individual online assignments will be given. Individual assignments will be posted and are to be handed in online through UTORMAT (<https://utormat.io/#/login?r>).

Please note that clear, concise, and correct writing will be considered in the evaluation of Assignments. That is, you may lose points for writing that impedes communication: poor organization, weak paragraph development, excessive wordiness, hard-to-follow sentence structure, spelling mistakes and grammatical errors. Students who require additional support and/or tutoring with respect to their writing skills are encouraged to visit the Academic Success Centre (<http://www.studentlife.utoronto.ca/asc>) or one of the College Writing Centres ([www.writing.utoronto.ca/writing-centres](http://www.writing.utoronto.ca/writing-centres)). These centres are teaching facilities – not editing services, where trained staff can assist students in developing their academic writing skills. There is no charge for the instruction and support.

The group presentation and group report require students to work in teams of 3-4. Working as a team is challenging; this is true both in the real world and in your academic classes. However, learning to work together in teams is an important aspect of your education and preparation for your future careers. You are encouraged to review the teamwork resources available to all Rotman Commerce students at <https://rotmancommerce.utoronto.ca/teamwork-resources> while navigating these challenges, but keep in mind that supports are also available for when you think you may need extra help.

### **Group Works**

Group works consists of two parts: (i) a written report that must not exceed 5 pages and (ii) a timed and recorded presentation.

#### **I. Case submission (6%).**

Case studies require students to work in teams of 3-4 (preferably 4). Only one high-quality written report per group should be submitted. For the case studies, submission to Turnitin.com will be used as described above. An **electronic copy** is to be handed in online through Quercus.

II. **Case presentation (4%).** The goal of case presentation is to encourage students to learn how to communicate their case findings collaboratively, effectively, and concisely. Specifically, I intend students to learn how to effectively collaborate online and prepare their presentations. Evidently, most jobs in future likely entail some sort of working from home and working on joint projects with other colleagues that requires collective problem solving and presentation. Presentations must be submitted online through Quercus.

III. Each group must prepare a timed and recorded presentation that includes the contributions of all group members.

a. Students must follow a **PechaKucha Talk** for their presentation. That is, the presentation must consist of exactly 20 slides and each slide must be timed for 20 seconds. This means, the entire presentation must be delivered in 6 minutes and 40 seconds, no less no more. Failure to abide by such a time requirement will result in losing 4% as such presentations will not be graded by the TA. These presentations must also be uploaded online through QUERCUS.

- b. Each member of a group should undertake presenting part of the case. If the group consists of 4 students, each student must present exactly 5 slides. If a group consists of 3 students, each student should present at least one third of the slides. For even number of students (2 or 4) in a group, equal amount of contribution is expected.
  - c. Materials included in each slide must be suitable for 20 seconds; presenting too fast or too slow will result in losing grades. Thus, choosing the right pace and content for each slide is key to a successful presentation.
  - d. The inclusion of relevant visualization to better explain your subject matter is another key to a successful presentation.
- IV. **Games:** Some concepts in Operations Management are best learned by doing. Playing games that closely approximate reality are best tools to get students familiar with real-world trade-offs that a firm must make. I have considered two games: (i) a **Newsvendor Game (NVG)** and (ii) **Beer Distribution Game (BDG)** (a supply chain management game). We play the BDG twice: (i) the first time each student will play the game individually without knowing other members of a supply chain, but the second time students will know all members in their supply chain, and they can make coordinated decisions.
- a. **Grading:**

Each of the first two games bears 2% of the total grade: 1% for playing and completing the game before the due date, and 1% for correctly answering questions related to the game that are posted via Quercus. These questions will take 6-10 minutes of students' time. We play BDG twice during lecture hours. As stated above, the first round of BDG bears 2%, but its second round bears 3%.

**Remark 3:** Students will not be graded for the games' questions if they do not play these games.

**Remark 4:** Since students' individual learning in the first round of BDG impacts the group performance when playing the second round of BDG, I will not consider any grades for those students who miss the first round of BDG. That is, if you miss the first round of BDG, you will lose 5% of the total grade.

    - i. Students will be graded based on their performance on the second round of playing the BDG. Specifically, the quality of decisions (total supply chain inventory cost) made by each supply chain, consisting of four students, will be compared with other supply chains in class.
  - b. **Grouping:** Since games 2 and 3 are related, we strongly encourage students to write down their lessons learned from their poor/great inventory decisions when they played the BDG individually. The computer will make inventory decisions on behalf of the supply chain in that one group member is lacking. In each round of BDG, students are randomly assigned to one of the supply chains. In the second round of the BDG, I will create **breakout groups** in Quercus to allow students to get in touch with other members in their supply chain to coordinate their decisions.
  - c. **Obtainment:** Games are available at <https://games.fathomd.com/>. You each need to purchase the game license by clicking the paypal link [https://www.paypal.com/cgi-bin/webscr?cmd=\\_s-xclick&hosted\\_button\\_id=9KJU5TZWNY9GE](https://www.paypal.com/cgi-bin/webscr?cmd=_s-xclick&hosted_button_id=9KJU5TZWNY9GE). You also need to read the hand-out, which includes a game-related homework assignment. The TA will post the handout on Quercus. The handout explains how to create an account and familiarize yourself with the game and its objectives.
  - d. **Debriefing:** The TA will debrief the game and will send a short recorded video regarding the performance of different supply chains and the learning objectives for playing these games.

## Weekly Schedule

Session	Week of	Topic	Readings	Individual Assignments	Group Assignments
1	Sep. 14 & 16	Introduction & Overview: productivity & Competitiveness, Strategy & Operations	1.1, 1.4, 1.5 [A]	1-page intro	
2	Sep. 21 & 22	Process Analysis	Chapter 12 [A]		
3	Sep. 28 & 30	Statistical Process Control	Chapter 3 [A]	<b>Assignment # 1</b>	
4	Oct. 5 & 7	Queueing I (Little's Law & Inventory buildup)	5.5 [A]		Finalize Groups
-----	Oct. 12 & 14	Thanksgiving	No lecture		
5	Oct. 19 & 21	Queueing II (PK Formula)	Chapter 10 [B]	<b>Assignment # 2</b>	<b>Case #1:</b> Due on Oct. 31 <sup>st</sup> by 11:59pm
6	Oct. 26 & 28	Inventory Management – Deterministic EOQ Models	Chapter 13 [A]		
7	Nov. 2	<b>Midterm – Nov. 2nd, 2020, 9am – 11am</b> Notes sheet + calculator! (No lecture)		<b>Game # 1 (NVG):</b> Due on Nov. 8 <sup>th</sup> at 11:59pm	
-----	Nov. 9	Reading week (NO CLASSES)			
8	Nov. 16 & 18	Inventory Management – Stochastic Newsvendor Models	Chapter 13 [A]	<b>Assignment #3</b>	
9	Nov. 23 & 25	Forecasting		<b>Assignment # 4</b>	
10	Nov. 30 Dec. 2	Linear Programming - LP Model Formulation, Solving LP Using Graphical Methods	S14 [A]		<b>Case #2:</b> Due Nov. 30th by 11:59pm
11	Dec. 7 & 9	BDG # 1, Supply Chain Management		<b>Assignment #5, Game # 2 (BDG1):</b> in-class and due at 10am	
12	Dec. 10	BDG # 2, What's next?			<b>Game # 3 (BDG2):</b> in-class and due at 10am
Final Assessment	TBA	<b>Final Assessment (2 hrs)</b> Notes Sheet + Calculator!			

New in the 2020-2021 academic year, the Rotman Commerce Centre for Professional Skills (RC-CPS) will offer appointments with Teamwork Mentors for any teams encountering challenges in their teamwork. Some possible reasons you might book an appointment with a Teamwork Mentor include:

- Team members have identified constraints on their time, work or accommodations they require that conflict with necessary timelines for the team.
- Teams are unsure how to divide their workload for a team project.
- Teams are concerned about how to integrate the individual contributions of each member and how to ensure team members are contributing equally.
- Teams are concerned about how to ensure all group members are aware of academic integrity guidelines (e.g. properly attributing sources) and follow them.
- Teams would like to be able to communicate more effectively with each other, particularly when navigating a remote work academic environment.

To book a meeting with a Teamwork Mentor, send an email to [rotmancommerce.teamworkhelp@utoronto.ca](mailto:rotmancommerce.teamworkhelp@utoronto.ca) with the course code (e.g. RSM100) and team number (if available) in the subject line of the email. Any member of the team may reach out individually to book an appointment, but we also encourage teams to book their appointments as a team. You will normally receive a response within 24-36 hours but note that during busy times of the semester the waiting period may be longer. Be proactive in booking your meeting and do so **as soon as** challenges arise!



If you are a student registered with Accessibility Services, and extensions are one of your academic accommodations, you should consult with your Accessibility Advisor about this course. For considerations pertaining to teamwork and accessibility, please see information in the section on Accessibility Needs below under the Policies and Procedures heading.

## **POLICY AND PROCEDURE**

### **Missed Tests and Assignments (including midterm examinations)**

Students who miss a test or assignment for reasons entirely beyond their control (e.g. illness) may request special consideration.

In such cases, students must:

1. Notify the instructor AND the Rotman Commerce Program Office **on the date** of the missed course deliverable, e.g. missed test, final assessments, assignment or class (in the case of participation marks).
2. Complete a [Request for Special Consideration Form](#) and submit it along with supporting documentation this may include either your Self-Declaration of Absence on ACORN, or [Verification of Student Illness or Injury form](#) to the Rotman Commerce Office within **2 business days** of the originally scheduled course deliverable.

Students who do not provide appropriate or sufficient supporting documentation will be given a grade of 0 (zero) for the missed course deliverable.

Note that documentation must clearly establish that you were ill or had other circumstances that prevented you from attending on the date in question. After-the-fact reports are not sufficient.

Students who miss the midterm must write a “make-up” test.

### **Assessments**

Students are responsible for making sure they appear for the tests on time. No latecomers will be admitted. Both tests will be closed book. However, to each, you will be allowed to bring in one “notes sheet” (Letter Size 8.5”X11” – you can write on both sides). While the “notes sheet” can be of some help to you during the tests, its real value is that it helps you prepare for the tests. You are encouraged to prepare your own “notes sheet” (either independently or in collaboration with study partners). Do not use a “notes sheet” someone else has prepared.

The second tests will not be cumulative. For example, I won't ask you to do a calculation to determine some queue length, but I expect you to know Little's Law and to be able to do some basic things like drawing a Gantt chart (to mention two examples).

### **Late Assignments**

Please note that all assignments are due by the specified deadlines. The exact date and time will be given in the Quercus assignment. No late assignments will be accepted, except for students who, for reasons beyond their control, are unable to submit an assignment by its deadline must obtain approval from the instructor for an extension. Supporting documentation will be required as per the policy on missed tests and assignments.

### **Accessibility Needs**

The University of Toronto is committed to accessibility. If you require accommodations for a temporary or ongoing disability or health concern, or have any accessibility concerns about the course, the classroom or course materials, please contact Accessibility Services as soon as possible at [accessibility.services@utoronto.ca](mailto:accessibility.services@utoronto.ca) or [studentlife.utoronto.ca/as](http://studentlife.utoronto.ca/as).

For courses with deliverables that require you to work in teams, please note the following. If you are a student registered with Accessibility Services, and extensions are one of your academic accommodations, requests for extensions impact everyone in the group. As a result, requests for late submissions of any component of teamwork will require compelling reasons, advance notice, and must work for everyone in the team. You are encouraged to discuss with your course instructor, Accessibility Advisor, and other team members what you need in order to successfully complete your coursework. Additionally, the Rotman Commerce Centre for Professional Skills offers Teamwork Mentors (see section above) who can help you and your team discuss how to support you effectively and how to develop a work plan that meets the needs and constraints of all team members.

### **Volunteer Notetaking**

If you're interested in helping to make our classroom more accessible, volunteer to be a notetaker!

Accessibility Services needs dependable volunteer notetakers to assist students living with a disability to achieve academic success. All you have to do is attend classes regularly and submit your notes consistently.

1. Register online as a Volunteer Note-Taker at:  
<https://clockwork.studentlife.utoronto.ca/custom/misc/home.aspx>
2. Follow the link that says "Volunteer Notetakers"
3. Select your course and upload a sample of your notes
4. Once you have been selected as a notetaker, you'll get an email notifying you to upload your Notes.

If you have any questions or require assistance, please email [as.notetaking@utoronto.ca](mailto:as.notetaking@utoronto.ca) or call 416-978-6186.

Volunteers may receive co-curricular credit or a certificate of appreciation.

### **Academic Integrity**

Academic Integrity is a fundamental value essential to the pursuit of learning and scholarships at the University of Toronto. Participating honestly, respectfully, responsibly, and fairly in this academic community ensures that the UofT degree that you earn will continue to be valued and respected as a true signifier of a student's individual work and academic achievement. As a result, the University treats cases of academic misconduct very seriously.

#### *The University of Toronto's Code of Behaviour on Academic Matters*

<http://www.governingcouncil.utoronto.ca/policies/behaveac.htm> outlines the behaviours that constitute academic misconduct, the process for addressing academic offences, and the penalties that may be imposed. You are expected to be familiar with the contents of this document. Potential offences include, but are not limited to:

In papers and assignments:

- Using someone else's ideas or words without appropriate acknowledgement.
- Submitting your own work in more than one course without the permission of the instructor.
- Making up sources or facts.
- Obtaining or providing unauthorized assistance on any assignment (this includes collaborating with others on assignments that are supposed to be completed individually).

On test and exams:

- Using or possessing any unauthorized aid, including a cell phone.
- Looking at someone else's answers
- Misrepresenting your identity.
- Submitting an altered test for re-grading.

Misrepresentation:

- Falsifying institutional documents or grades.
- Falsifying or altering any documentation required by the University, including (but not limited to), medical notes.

All suspected cases of academic dishonesty will be investigated by the following procedures outlined in the *Code of Behaviour on Academic Matters*. If you have any question about what is or is not permitted in the course, please do not hesitate to contact the course instructor. If you have any questions about appropriate research and citation methods, you are expected to seek out additional information from the instructor or other UofT resources such as College Writing Centres or the Academic Success Centre.

### **Email**

At times, the course instructor may decide to communicate important course information by email. As such, all UofT students are required to have a valid UTmail+ email address. You are responsible for ensuring that your UTmail+ email address is set up AND properly entered on the ROSI system. For more information please visit <http://help.ic.utoronto.ca/category/3/utmail.html>

Forwarding your utoronto.ca email to a Gmail, Yahoo or other type of email account is not advisable. In some cases, messages from utoronto.ca addresses sent to Gmail or Yahoo accounts are filtered as junk mail, which means that important messages from your course instructor may end up in your spam or junk mail folder.

### **Quercus and the Course Page**

The online course page for this course is accessed through Quercus. To access the course page, go to the UofT Quercus login at <https://q.utoronto.ca/> and log in using your UTORid and password. Once you have logged in, look for the Courses module where you'll find the link to all your course websites. If you don't see the course listed here but you are properly registered for the course in ROSI, wait 48 hours. If the course does not appear, go to the Information Commons Help Desk in Robarts Library, 1st floor, for help, or explore the Quercus Information and Help at [www.portalinfo.utoronto.ca/students](http://www.portalinfo.utoronto.ca/students) and review the Frequently Asked Questions.

### **Credit/No-Credit Option in Rotman Commerce**

You may request to Credit/No-Credit (CR/NCR) an RSM course in the following cases only:

- The course will not be used for any specialist or focus, including the 8.0 RSM FCE requirement.
- The course does not have a group work component.

If you wish to request CR/NCR for an RSM course, you must contact a Rotman Commerce academic advisor by the drop deadline for the current term. **The deadline for this term is November 9, 2020.**

Final approval is on a case-by-case basis with the permission of the Director, Rotman Commerce.



## **Recording Lectures**

Lectures and course materials prepared by the instructor are considered by the University to be an instructor's intellectual property covered by the Canadian Copyright Act. Students wishing to record a lecture or other course material in any way are required to ask the instructor's explicit permission, and may not do so unless permission is granted (note: students who have been previously granted permission to record lectures as an accommodation for a disability are, of course, excepted). This includes tape recording, filming, photographing PowerPoint slides, Quercus materials, etc.

If permission is granted by the instructor (or via Accessibility Services), it is intended for the individual student's own study purposes and does not include permission to "publish" them in anyway. It is absolutely forbidden for a student to publish an instructor's notes to a website or sell them in any other form without formal permission.

## **Notice of video recording and sharing (Download and re-use prohibited)**

This course, including your participation, will be recorded on video and will be available to students in the course for viewing remotely and after each session.

Course videos and materials belong to your instructor, the University, and/or other sources depending on the specific facts of each situation, and are protected by copyright. Do not download, copy, or share any course or student materials or videos without the explicit permission of the instructor.

For questions about recording and use of videos in which you appear please contact your instructor.