

**Commerce 4QA3
Operations Modelling & Analysis
Winter 2022 Course Outline**

**Operations Management Area
DeGroote School of Business
McMaster University**

COURSE OBJECTIVE

- To develop an understanding of operations management principles.
- To gain familiarity with common analytical tools necessary for solving production operations problems.

INSTRUCTORS AND COURSE INFORMATION

Instructors

Dewan F. Wahid (CO1)

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Office Hours: Email for appointment

Elkafi Hassini (CO2)

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Office Hours: Email for appointment

Teaching Assistant

Jing Wang

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Office Hours: Email for appointment

Times and Locations

Section	Days	Time	Room
4QA3 C01	F	11:30-14:20	KTH B124 (starting from Feb. 11, 2021) From Jan 14 to Feb 4: use this MS Teams Link
4QA3 C02	M	14:30-17:20	IWC E201 (starting from Feb. 7, 2021) From Jan 14 to Feb 4: use this MS Teams Link

Course Website: avenue.mcmaster.ca

COURSE ELEMENTS

Credit Value: 3	Leadership: Yes	IT skills: Yes	Global view: Yes
Avenue: Yes	Ethics: Yes	Numeracy: Yes	Written skills: Yes
Participation: Yes	Innovation: Yes	Group work: Yes	Oral skills: Yes
Evidence-based: Yes	Experiential: Yes	Final Exam: No	Guest speaker(s): No

COURSE DESCRIPTION

Production and Operations Management is the profession that designs, plans and operates production and service systems to achieve the goals of the organization. Goals are to provide certain products (i.e., goods and services) to certain customers in certain geographical areas. Production systems take labour, material, and equipment and, through a conversion process, produce these products (i.e., goods and services). Topics to be covered include designing products, designing and locating facilities, quality control, project planning, supply chain management, forecasting customer demand, and production and inventory management.

LEARNING OUTCOMES

Upon completion of this course, students will be able to complete the following key tasks:

- Understand the strategic importance of operations;
- Understand elements of designing an operations system;
- Perform key operations analytics such as:
 1. Demand prediction
 2. Project optimization
 3. Operations job scheduling
 4. Transportation planning
 5. Quality control
- Understand elements of supply chain management

REQUIRED COURSE MATERIALS AND READINGS

[Production and Operations Analytics](#), 2021 (8th ed.), Steven Nahmias, Waveland Press, Inc. Textbook available in the campus store as well as an eBook version is available on several platforms.

COURSE OVERVIEW AND ASSESSMENT

There will be weekly lectures of three hours that will be conducted initially online, via MS Teams, and will move to in-person, when the University's COVID health and safety regulations allow.

A detailed schedule of readings and assignments is included in the last page of this course outline. All assignments will be submitted online, through Avenue to Learn, and all tests will be done online in a given time window.

Group work should be done in teams of three. An end of term peer evaluation will be conducted. Team work marks may be adjusted depending on the feedback received from the peer evaluations.

You are required to attend all lectures. Missed presentation will receive a grade of zero. Missed tests will receive a grade of zero unless the student has submitted and been approved for a Notification of Absence or MSAF. Late assignments submissions will be penalized 5% for each day they are late. Your final grade will be calculated as follows:

Grade Component Description	Weight Best of	
Tests MC and computation questions; 30 min. timed	45% (best three) 3 x 15% each	60% (all four) 4 x 15% each;
Case reports Teams of 3	40% 2 x 20% each	30% 2 x 15% each
Case presentation During online class	15%	10%
Production Game	Winner 4%* Runner-up 2%*	Winner 4%* Runner-up 2%*

OR

* 4% (2%) will be added to Test 3 marks for each present member of the winning (runner-up) group up to a maximum of 15% for Test 3.

COURSE DELIVERABLES

Tests

Online 30-minutes tests will be administered at given time window for both sections. Each test has a weight of 15%. There will be *four* tests as per the tentative schedule on the last page. Either all four test scores or the best three will be counted, depending on your performance in the case reports.

Case Report

Case assignments will be done in groups of *three* students. The groups have to be finalized by the second week. The purpose of the case studies is to provide you with an opportunity to apply the concepts and methodologies learned in the course to "real-life" problems. You will be asked to submit a brief report (2-3 pages) of your analysis of the case based on some questions. Each report will be worth 15%.

By their nature, the cases may describe situations that are ambiguous or provide extraneous information. Often the concepts and techniques learned in class may not be directly applicable to the real cases situations. Thus, you may have to make some assumptions when modeling the real-life situation and your report should include justification for these assumptions and the approach you chose for your analysis. Here, it is useful to keep in mind that it is not the actual solution that is important, but rather the procedure you use to arrive at the solution.

Case Presentation

Each group is will present one of the three cases according to the schedule in the last page of this outline. You are required to submit your presentation file before the time of

your presentation, as per the due date and time on avenue to learn. The presentation will be for 6 minutes, about 2 minutes per presenter.

Production Game

We will play a game in class to practice your inventory and operations planning skills. The game will be played in groups, the same that we use for the cases.

COMMUNICATION AND FEEDBACK

Students who wish to correspond with instructors or TAs directly via email must send messages that originate from their official McMaster University email account. This protects the confidentiality and sensitivity of information as well as confirms the identity of the student. Emails regarding course issues should NOT be sent to the Area Administrative Assistants. All students must receive feedback regarding their progress prior to the final date by which a student may cancel the course without failure by default.

- *For Level 1 and Level 2 courses, this feedback must equal a minimum of 20% of the final grade.*
- *For Level 3 courses and above, this feedback must equal a minimum of 10% of the final grade.*

Instructors may solicit feedback via an informal course review with students by Week #4 to allow time for modifications in curriculum delivery.

REQUESTING RELIEF FOR MISSED ACADEMIC WORK

In the event of an absence for medical or other reasons, students should review and follow the Academic Regulation in the Undergraduate Calendar [“Requests for Relief for Missed Academic Term Work”](#) and the link below;

<http://ug.degroote.mcmaster.ca/forms-and-resources/missed-course-work-policy/>

ACADEMIC INTEGRITY

You are expected to exhibit honesty and use ethical behaviour in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity. **It is your responsibility to understand what constitutes academic dishonesty.**

Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behaviour can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: “Grade of F assigned for academic dishonesty”), and/or suspension or expulsion from the university.

For information on the various types of academic dishonesty please refer to the [Academic Integrity Policy](https://secretariat.mcmaster.ca/university-policies-procedures-guidelines/), located at <https://secretariat.mcmaster.ca/university-policies-procedures-guidelines/>

The following illustrates only three forms of academic dishonesty:

- plagiarism, e.g. the submission of work that is not one's own or for which other credit has been obtained.
- improper collaboration in group work.
- copying or using unauthorized aids in tests and examinations.

AUTHENTICITY/PLAGIARISM DETECTION

Some courses may use a web-based service (Turnitin.com) to reveal authenticity and ownership of student submitted work. For courses using such software, students will be expected to submit their work electronically either directly to Turnitin.com or via an online learning platform (e.g. A2L, etc.) using plagiarism detection (a service supported by Turnitin.com) so it can be checked for academic dishonesty.

Students who do not wish their work to be submitted through the plagiarism detection software must inform the Instructor before the assignment is due. No penalty will be assigned to a student who does not submit work to the plagiarism detection software.

All submitted work is subject to normal verification that standards of academic integrity have been upheld (e.g., on-line search, other software, etc.). For more details about McMaster's use of Turnitin.com please go to www.mcmaster.ca/academicintegrity.

COURSES WITH AN ON-LINE ELEMENT

Some courses may use on-line elements (e.g. e-mail, Avenue to Learn (A2L), LearnLink, web pages, capa, Moodle, ThinkingCap, etc.). Students should be aware that, when they access the electronic components of a course using these elements, private information such as first and last names, user names for the McMaster e-mail accounts, and program affiliation may become apparent to all other students in the same course.

The available information is dependent on the technology used. Continuation in a course that uses on-line elements will be deemed consent to this disclosure. If you have any questions or concerns about such disclosure please discuss this with the course instructor.

ONLINE PROCTORING

Some courses may use online proctoring software for tests and exams. This software may require students to turn on their video camera, present identification, monitor and record their computer activities, and/or lock/restrict their browser or other applications/software during tests or exams. This software may be required to be installed before the test/exam begins.

CONDUCT EXPECTATIONS

As a McMaster student, you have the right to experience, and the responsibility to demonstrate, respectful and dignified interactions within all of our living, learning and working communities. These expectations are described in the [Code of Student Rights & Responsibilities](#) (the “Code”). All students share the responsibility of maintaining a positive environment for the academic and personal growth of all McMaster community members, **whether in person or online**.

It is essential that students be mindful of their interactions online, as the Code remains in effect in virtual learning environments. The Code applies to any interactions that adversely affect, disrupt, or interfere with reasonable participation in University activities. Student disruptions or behaviours that interfere with university functions on online platforms (e.g. use of Avenue 2 Learn, WebEx or Zoom for delivery), will be taken very seriously and will be investigated. Outcomes may include restriction or removal of the involved students’ access to these platforms.

ACADEMIC ACCOMMODATION FOR RELIGIOUS, INDIGENOUS OR SPIRITUAL OBSERVANCES (RISO)

Students requiring academic accommodation based on religious, indigenous or spiritual observances should follow the procedures set out in the [RISO](#) policy. Students should submit their request to their Faculty Office **normally within 10 working days** of the beginning of term in which they anticipate a need for accommodation or to the Registrar’s Office prior to their examinations. Students should also contact their instructors as soon as possible to make alternative arrangements for classes, assignments, and tests.

COPYRIGHT AND RECORDING

Students are advised that lectures, demonstrations, performances, and any other course material provided by an instructor include copyright protected works. The

Copyright Act and copyright law protect every original literary, dramatic, musical and artistic work, **including lectures** by University instructors.

The recording of lectures, tutorials, or other methods of instruction may occur during a course. Recording may be done by either the instructor for the purpose of authorized distribution, or by a student for the purpose of personal study. Students should be aware that their voice and/or image may be recorded by others during the class. Please speak with the instructor if this is a concern for you.

EXTREME CIRCUMSTANCES

The University reserves the right to change the dates and deadlines for any or all courses in extreme circumstances (e.g., severe weather, labour disruptions, etc.). Changes will be communicated through regular McMaster communication channels, such as McMaster Daily News, A2L and/or McMaster email.

RESEARCH USING HUMAN SUBJECTS

All researchers conducting research that involves human participants, their records or their biological material are required to receive approval from one of McMaster's Research Ethics Boards before (a) they can recruit participants and (b) collect or access their data. Failure to comply with relevant policies is a research misconduct matter. Contact these boards for further information about your requirements and the application process.

McMaster Research Ethics Board (General board): <https://reo.mcmaster.ca/>

Hamilton Integrated Research Ethics Board (Medical board): <http://www.hireb.ca/>

ACKNOWLEDGEMENT OF COURSE POLICIES

Your enrolment in Commerce 4QA3 will be considered to be an implicit acknowledgement of the course policies outlined above, or of any other that may be announced during lecture and/or on A2L. **It is your responsibility to read this course outline, to familiarize yourself with the course policies and to act accordingly.**

Lack of awareness of the course policies **cannot be invoked** at any point during this course for failure to meet them. It is your responsibility to ask for clarification on any policies that you do not understand.

COURSE SCHEDULE

**Commerce 4QA3
Operations Modelling & Analysis
Tentative Winter 2022 Course Schedule**

LECTURE	TOPIC	TEXT REFERENCE	ASSIGNMENTS
1	Strategy and Competition Facility Location	Ch. 1: 1.2-1.3, 1.5-1.9 Supplement 1: S1-1-S1.4 and S1.6 Ch. 7: 7.1-7.3	
2	Facility Layout	Ch. 1: 1.4, 1.9 and Appendix 1A	
3	Quality Control	Ch. 10: 10.1-10.6; 10.9	
4	Project Management	Ch. 12: 12.1-12.5	Case 1 Report Case 1 Presentation
5	Demand Prediction	Ch. 2: 2.1-2.10	Test 1
6	Sales and Operations Planning	Ch. 3	
READING WEEK			
7	Inventory Control Subject to Known Demand	Ch. 4: 4.1-4.7	Test 2
8	Inventory Control Subject to Unknown Demand	Ch. 5: 5.1-5.7	Case 2 Report Case 2 Presentation
9	Production Game		Test 3
10	MRP and JIT	Ch. 9: 9.1-9.3; 9.5-9.6	
11	Operations Scheduling	Ch. 11: 11.1-11.7; 11.10	Case 3 Report Case 3 Presentation
12	Logistics	Ch. 7: 7.6-7.9	Test 4