

Department of Accounting, Operations, and Information Systems
Alberta School of Business
University of Alberta

OM 701, Section A1: Introduction to Operations Management Research
Fall 2018, Course Outline

Time: Tuesdays and Thursdays, 9:30-10:50. **Classroom:** T B 109.

(The meeting times and places could vary from week to week, in consultation with students.)

Instructor: Armann Ingolfsson (Armann.ingolfsson@ualberta.ca, BUS 4-30K, 780-492-7092)

The course has an eClass site (log on at <https://eclass.srv.ualberta.ca/portal/>). We'll see whether it's worth using or whether we'll just use email.

Course description: This course provides a general introduction to the major research fields of operations management (OM). The focus will be on reading and evaluating current papers from prominent OM journals. The theory of science and the review process will be briefly discussed. Students are expected to have as mathematical background the equivalent of an upper-level undergraduate or first-year graduate courses in optimization and probability or stochastic modeling. This course may be appropriate for some graduate students in engineering or computing science. Prerequisite: A graduate or undergraduate course in operations management. Open to all doctoral students or with the written permission of the instructor. Approval of the Business PhD Program Director is also required for non-PhD students.

Structure: This course is a seminar to prepare doctoral students for pursuing academic research in the field of OM. A seminar relies on the active participation of everyone involved (students and instructors). There will be very few lectures in this course.

Content and Evaluation:

1. Read and discuss several important OM papers
 - a. Present a summary of each assigned paper. The summary can be in the form of slides or a written report and it should focus on the research questions that are addressed in the paper, the paper's contributions, the methodology used, and any other noteworthy aspects of the paper.
 - b. Weight: 20%, for presentation, discussion, and possibly some related assignments.
2. Read and discuss the theory of science
 - a. We will spend one or two weeks reading about and discussing the theory of science and how it is relevant to the research fields within OM. Our discussion will focus on the concept of causality and on statistical methods for making inferences about causality.
 - b. Weight: 10%, for discussion and possibly an assignment.
3. Publishing OM research

- a. In this module, students will be asked to write one referee report, to learn about the history of one published paper, and to read and discuss editorials and position statements from top OM journals.
 - b. Weight: 15%, for referee report, for discussion, and for one or more assignments.
4. Attend several seminars in OM and possibly other fields
 - a. The student should read the paper to be presented (if available) before the seminar, attend the seminar and participate in the discussion, and submit a one-page report that summarizes the research questions, contributions, and methodology of the paper—similar to Item 1. In addition, the student should identify at least one related research question that has yet to be addressed. Students are expected to attend all OM seminars. If necessary, students should select other seminars to attend, in order to be able to attend at least four seminars during the term.
 - b. Weight: 15%, for one-page reports.
5. Prepare an inventory of recent papers in a particular area.
 - a. The students will survey top OM journals for the last one to five years and list papers that fall under a particular area, for example, health care OM or analytics and OM. The students will summarize the research questions, contributions, and methodological approach for the papers. The inventory should include about 10 papers per student.
 - b. Weight: 10%
6. Final exam
 - a. The final exam will be in December and it will cover all of the items above.
 - b. Weight: 30%.

Schedule for Weeks 1-3

Week 1: The first scheduled meetings are on September 4 and 6, but some students will not arrive in Canada until September 8.

We will try to have one brief meeting during Week 1 via skype or similar means. In addition, please do the following during Week 1:

First, write a short report (2-4 paragraphs) for the following papers, which summarizes what you learned (did not know before) or found particularly interesting. This counts towards Item 3.

Agarwal, R., & Dhar, V. (2014). Big data, data science, and analytics: The opportunity and challenge for IS research. *Information Systems Research* 25(3) 443–448 doi: 10.1287/isre.2014.0546.

Cachon, G. (2012). What is interesting, in operations management? *Manufacturing & Service Operations Management* 14(2) 166–169 doi: 10.1287/msom.1110.0375.

Tang, C. S. (2015). OM Forum—Making OM Research More Relevant: “Why?” and “How?”. *Manufacturing & Service Operations Management* 18(2) 178–183 doi: 10.1287/msom.2015.0553.

Second, install the Queueing ToolPak (QTP) Excel add-in, available from <http://queueingtoolpak.org/>, and complete the two tutorials in the help file, available at <http://queueingtoolpak.org/qtp40/help40/Default.htm> . We will use QTP for one or more assignments related to Item 1.

Week 2: Meetings on September 11 and 13.

Meeting on September 11: Introduction to the course. Begin lecture on queueing theory.

Meeting on September 13: Finish lecture on queueing theory. Decide on papers to present in Week 3.

Week 3: Meetings on September 18 and 21.

Each student will present one paper. Every student should also read the papers that the other students are presenting, so that you can discuss it.

Assignment for September 21: Browse through the titles of papers published in 2018 or 2017 in the following journals:

- Management Science¹
- Operations Research
- Manufacturing & Service Operations Management

¹ Management Science publishes articles in many areas. Please focus on the following departments: Decision analysis, operations management, optimization, and stochastic models and simulation.

- Production and Operations Management
- Journal of Operations Management

Select five papers that, based on the titles, you would like to learn more about.

You can include papers that have been published but have not yet been assigned to a volume of the journal (these are called “articles in advance” for journals published by INFORMS).