

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

OM 701, Section A1: Introduction to Operations Management Research
Fall 2017, Course Outline

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

(The meeting times and places may 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 a uLearn site (log on at <https://ulearn.ualberta.ca/>). 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 operations management. 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 attempt to 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 and 2

Week 1: First meeting: 5 September. Introduction to the course. Begin lecture on queueing theory.

Second meeting: 7 September. Finish lecture on queueing theory.

Assignment for second meeting:

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 12 and 14.

Assignment for September 12: Present one paper. Read the paper that the other student is presenting, so that you can discuss it. We will select the two papers during Week 1.

Assignment for September 14: Browse through the titles of papers published in 2017 or 2016 in the following journals:

- Management Science¹
- Operations Research
- Manufacturing & Service Operations Management
- Production and Operations Management
- Journal of Operations Management

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

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