

**Q781 Management Science Research Issues II (for Mr. Sina Khorsravinia)
Winter 2022 Course Outline**

**Management Science Field
DeGroote School of Business
McMaster University**

COURSE OBJECTIVE

To prepare the groundwork for the development of a thesis proposal. This will be in the form of:

- discussions with the thesis supervisor of research topics of interest,
- literature searches to establish the state of knowledge in the topic which has been selected by the student,
- developing a written review of the research area of interest, presented in a format similar to a research journal article, and,
- regularly presenting the readings in the class in the form of lectures.

INSTRUCTOR AND CONTACT INFORMATION

Dr. Yun Zhou

Title: Assistant Professor

Email: zhouy185@mcmaster.ca

Office: DSB428

Office Hours: By appointment

Tel: (905) 525-9140 x 27549

COURSE DESCRIPTION

This course builds on the material covered in Q780. However, in this course the primary emphasis will be on developing Ph.D. students' research skills in their particular area of interest. This will be achieved by focussing on an in-depth study of specific management science technique(s) (e.g., game theory or dynamic programming) as applied to the solution of problems in an area of application (e.g., revenue management) that may be of interest to the student.

LEARNING OUTCOMES

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

- in-depth understanding of the selected topics
- research skills in modeling and solution methodologies
- development of managerial insights from modeling and analyses

COURSE MATERIALS AND READINGS

The course materials include selected papers and book chapters. Below is a short list and more materials will be included during the term.

Keskin, N. B., Y. Li, J.-S. Song. 2021. Data-driven dynamic pricing and ordering with perishable inventory in a changing environment. *Management Science*. Forthcoming.

Qi, M., Y. Shi, Y. Qi, C. Ma, R. Yuan, D. Wu (2021). A Practical End-to-End Inventory Management Model with Deep Learning. *Management Science*. Online Feb 2021.

Besbes, O., Y. Fonseca, I. Lobel. Contextual Inverse Optimization: Offline and Online Learning.

S. Gabel, A. Timoshenko. Product Choice with Large Assortments: A Scalable Deep Learning Model.

P. Dütting, Z. Feng, H. Narasimhan, D. C. Parkes, S. S. Ravindranath. Optimal Auctions through Deep Learning.

EVALUATION

Notes about the types of assessments used as well as notes regarding how group work will be evaluated.

Components and Weights

Course report	50%
Participation	50%

Total	100%
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Conversion

At the end of the course your overall percentage grade will be converted to your letter grade in accordance with the following conversion scheme.

Grade	Points	Equivalent Percentages
A+	12	90 – 100
A	11	85 – 89
A-	10	80 – 84
B+	9	77 – 79
B	8	73 – 76
B-	7	70 – 72
F	0	69 and under

Course Report

This report is worth **50%** of your final grade. The student should summarize the surveyed topics and model development in the report.

Participation

Participation in class is worth **50%** of your final grade.

Please review the Graduate Examinations Policy (if applicable):

<http://www.mcmaster.ca/policy/Students-AcademicStudies/GradExamsPolicy.pdf>

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.

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.

It is your responsibility to understand what constitutes academic dishonesty. For information on the various types of academic dishonesty please refer to the Academic Integrity Policy, located at:

www.mcmaster.ca/academicintegrity

The following illustrates only three forms of academic dishonesty:

1. Plagiarism, e.g. the submission of work that is not one’s own or for which other credit has been obtained.
2. Improper collaboration in group work.
3. Copying or using unauthorized aids in tests and examinations

MISSED ACADEMIC WORK

Please discuss any extenuating situation with your instructor at the earliest possible opportunity.

STUDENT ACCESSIBILITY SERVICES

Students who require academic accommodation must contact Student Accessibility Services (SAS) to make arrangements with a Program Coordinator. Academic accommodations must be arranged for each term of study. Student Accessibility Services can be contacted by phone 905-525-9140 ext. 28652 or e-mail sas@mcmaster.ca.

For further information, consult McMaster University’s Policy for Academic Accommodation of Students with Disabilities:

<http://www.mcmaster.ca/policy/Students-AcademicStudies/AcademicAccommodation-StudentsWithDisabilities.pdf>

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 requiring a RISO accommodation should submit their request, including the dates/times needing to be accommodated and the courses which will be impacted, to their Program Office normally within 10 days of the beginning of term. Students should also contact their instructors as soon as possible to make alternative arrangements for classes, assignments, and tests.

POTENTIAL MODIFICATION TO THE COURSE

The instructor reserves the right to modify elements of the course during the term. There may be changes to the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the student to check their McMaster email and course websites weekly during the term and to note any changes.

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

N/A

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/>

COURSE SCHEDULE

Weekly meeting between the instructor and the student to discuss research work.