



# Management Science (MGSC) 405

## Quantitative Approaches to Decision Making (Revision 8)

**Status:**

Replaced with new revision, see the [course listing](#) for the current revision

**Delivery mode:**

Individualized study online with eText

**Credits:**

3

**Area of study:**

Applied Studies (Business and Administrative Studies)

**Prerequisites:**

MGSC 301 or MATH 215 or MATH 216, or permission of the course professor.

**Precluded:**

None

**Challenge:**

MGSC 405 has a challenge for credit option.

**Faculty:**

[Faculty of Business](#)

**Notes:**

Students registering in grouped study mode are advised that there may be some differences in the evaluation and course materials information indicated below. To obtain the most up-to-date information,

contact the Faculty of Business Student Support Centre at 1-800-468-6531.

## Overview

MGSC 405 provides students with an introduction to an area of management science that is sometimes called “operations research.” The objective of this course is to have you develop an appreciation of the management science approach to problem formulation and solution that is now so important in today’s business and industrial sectors. The course focuses on quantitative approaches to decision making and introduces you to a variety of management science models, methods, and procedures. In this course, a greater emphasis is placed on problem modelling and the interpretation of results, and less emphasis is given to mathematical techniques and solution algorithms.

Credits earned in MGSC 405 may be applied toward the **Canadian Operational Research Society (CORS)**  diploma.

## Outline

- Lesson 1: Introduction
- Lesson 2: Linear Programming—The Graphical Method
- Lesson 3: Linear Programming—Sensitivity Analysis and Computer Solution
- Lesson 4: Linear Programming Applications
- Lesson 5: Transportation, Assignment, and Transshipment Problems
- Lesson 6: Integer Linear Programming
- Lesson 7: Network Models
- Lesson 8: Waiting Line Models
- Lesson 9: Decision Making Under Conditions of Risk and Uncertainty

## Evaluation

To **receive credit** [↗](#) for MGSC 405, you must receive a grade of at least 50 percent on each examination and an overall course grade of at least **D (50 percent)** [↗](#). You are advised not to attempt the final examination until you have received feedback on both assignments. The weightings for each assignment and the examinations are as follows:

<b>Activity</b>	<b>Weight</b>
Assignment 1	20%
Assignment 2	20%
Midterm Exam	30%
Final Exam	30%
<b>Total</b>	<b>100%</b>


The **midterm and final examinations** for this course must be requested in advance and written under the supervision of an AU-approved exam invigilator. Invigilators include either ProctorU or an approved in-person invigilation centre that can accommodate online exams. Students are responsible for payment of any invigilation fees. Information on exam request deadlines, invigilators, and other exam-related questions, can be found at the **Exams and grades** [↗](#) section of the Calendar.

To learn more about assignments and examinations, please refer to Athabasca University's **online Calendar** [↗](#).

## Materials

Anderson, D. R., Sweeney, D. J., Williams, T. A., Camm, J. D., Cochran, J. J., Fry, M. J., & Ohlmann, J. W. (2019). *An introduction to management science: Quantitative approaches to decision making* (15th ed.).

South-Western Cengage Learning. Print ISBN: 9781337406529; eText

ISBN: 9781337671286  (eText)

## eText

Registration in this course includes an electronic textbook. For more information on **electronic textbooks** [↗](#), please refer to our **eText Initiative site** [↗](#).

## Other Resources

All other learning resources will be available online.

## Challenge for credit

### Overview

The challenge for credit process allows you to demonstrate that you have acquired a command of the general subject matter, knowledge, intellectual and/or other skills that would normally be found in a university-level course.

Full information about **challenge for credit** [↗](#) can be found in the Undergraduate Calendar.

### Evaluation

To **receive credit** [↗](#) for the MGSC 405 challenge registration, you must achieve a grade of at least **D (50 percent)**  on the examination.

Paper Exam



**Challenge for credit course registration form**

## Important links

- › [Academic advising](#) [↗](#)
- › [Program planning](#) [↗](#)
- › [Request assistance](#) [↗](#)

[› Support services](#) 

Athabasca University reserves the right to amend course outlines occasionally and without notice. Courses offered by other delivery methods may vary from their individualized study counterparts.

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*Updated June 5, 2024*

View [previous revision](#) 

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