

BUSI 3063 CIN4: Business Analytics Modeling

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Course Outline

Course Overview

The fundamental purpose of this course is to develop your ability to analyze quantitative information using mathematical modeling techniques applied to support decision making associated with business problems. The course uses Excel as the analytical tool / platform to formulate and solve problems using a number of mathematical modeling techniques. Throughout the world, Excel is by far the most pervasive software application used by organizations to analyze quantitative data. The course will further develop your ability to use this tool to analyze business problems.

The course is divided into two principal modules; (i) deterministic modeling techniques including linear programming, and integer programming, and (ii) predictive modeling using regression analysis. The emphasis throughout the course is to apply these techniques to business problems in areas such as production scheduling, resource allocation, investment analysis, transportation / logistics planning, inventory management, market analysis, and risk assessment.

Instructor

Hassan Sarhadi, Ph.D.



School of Business

Acadia University
Wolfville, Nova Scotia
CANADA B4P 2R6

Phone: (902) 585-1370

E-mail: hassan.sarhadi@acadiau.ca

Office: Patterson Hall, Room 321

Course Materials

Textbook: Ragsdale, Cliff T., *Spreadsheet Modeling and Decision Analysis*, Thomson South-Western, using 8th Edition, 2018 (ISBN 978-1-305-94741-2).

Required Software: You must own the English language version of Excel (MS Office or MAC / Apple versions) complete with the Solver add-in to ensure you will be able to access all course materials, follow the text and lectures, and complete exams. I will be using MS Excel 2016, so this is the preferred version of Excel to be using; this way your screen will be equivalent to mine. However, MS Excel 2007 and 2010 will also work. For Apple users, it may be necessary to obtain the software bundled with the text to ensure you have a version of Solver that is compatible with Excel designed for the Apple operating system.

See the [student handbook](#) for ordering information.

You will find information on accessing Library resources from off-campus here - <http://library.acadiau.ca/distance-education/access.html>.

Learning Objectives

By the conclusion of the course students will;

- Learn how to develop and interpret regression models to predict what value a dependent variable of interest will assume based on different combinations and levels of independent variables.
- Understand how to formulate, solve and interpret a variety of business problems using linear programming (LP), including the specific types of problems that can be solved using integer linear programming.
- Develop competencies in advanced analytic functions of Excel.

Learning Resources and Success Factors

There are a number of resources for you in this course. First, PDF files and videos of modules will explain the fundamentals concepts of in each module. Second, the sample problems posted in some modules will give you a chance to gradually build your skills in model development and working with Excel. Third, the textbook will provide you with more details of each concept and will also give you access to the sample problems. Finally, reviewing your past exams (quizzes and midterm) and contacting the instructor and asking your questions are also crucial in making sure that you are fully aware of each concept presented in this course.

Preparation before watching videos is critical to ensure you make the best use of each session. This includes reading the relevant sections from the text in advance, working through suggested problems, and contacting the instructor and asking your questions concerning anything in the course that is not clear to you. Also, the quizzes are designed and timed such that they provide you with timely feedback on your understanding of the course and give you a chance to learn from the mistakes you made in the quizzes.

Evaluation

Quizzes (best 2 of 3)	30%
Midterm Exam	30%
Final Exam	40%

Quizzes: There will be 3 Quizzes (best 2 of 3 count and worth 15 marks each).

Midterm Exam: The exam will be based on material from Modules 1, 2, 3 & 4. It will test your understanding of basic concepts (Module 1 and 2) and your ability to develop and solve mathematical models (Modules 2, 3, and 4).

Final Exam: The final exam will be based on Modules 4 and 5. It will have a combination of modeling problems and Excel work.

Exam

How to apply: Complete the Application for Examination (<https://openacadiaexams.acadiau.ca>)

Proctored at Acadia

- The final exam in an online course must be passed to successfully pass the course unless otherwise stated in the assessment section of the course syllabus. There are no rewrites or supplemental examinations at Acadia University.
- Examination requests must be received one month prior to the date you wish to write your examination.
- Course requirements must be completed to the satisfaction of your instructor.
- Graduating Students Note: If you are graduating in Spring Convocation you must write by April 15th. If you are graduating in the Fall you must write by September 15th.

Proctored at Another Location

If it isn't practical to take your exam at Acadia, off-campus exams can be written at another university or college. Arrangements for an examination may be made through the Registrar's Office or the Continuing Education office of most universities and colleges. If it is not possible to write your exam at an approved institution, please contact us for assistance.

- All fees associated with examinations written at other locations are your responsibility.
- Some courses may require specific software or internet accessibility at the off-campus examination location.

Student Handbook

You are responsible for becoming familiar with the contents of the Student Handbook. It contains important information about scheduling examinations (if applicable), applying for extensions, withdrawing from your course, ordering books, and computer and library services available to you. If you have questions about the policies outlined in the handbook (<https://courseware.acadiu.ca/openacadia/studenthandbook.html>), contact:

Open Acadia

- 21 University Avenue (Rhodes Hall)
- Wolfville, NS B4P 2R6
- Phone: 1-800-565-6568
- Fax: 1-902-585-1068
- Email: openacadia@acadiu.ca

School of Business Code of Conduct

The Acadia BBA program prepares students for a professional career. Students are expected to conduct themselves as professionals, to take responsibility for their own learning, and to show their respect for other people by treating all students, as well as faculty and staff, in a courteous manner.

Academic Integrity

Plagiarism and Other Academic Misconduct: Students are responsible for understanding the nature of plagiarism and other forms of academic misconduct. Penalties for any breach of academic integrity in the completion of course assignments or tests will be severe.

Academic integrity demands responsible use of the work of other scholars. It is compromised by academic dishonesty such as cheating and plagiarism. A student who is uncertain whether or not a course of action might constitute cheating or plagiarism should seek in advance the advice of the instructor involved.

- Cheating is copying or the use of unauthorized aids or the intentional falsification or invention of information in any academic exercise
- Plagiarism is the act of presenting the ideas or words of another as one's own. Students are required to acknowledge and document the sources of ideas that they use in their written work.
- Self plagiarism is also a form of plagiarism. It is the presentation of the same work in more than one course without the permission of the instructors involved.
- A student who knowingly helps another to commit an act of academic dishonesty is equally guilty.
- Penalties are levied in relation to the degree of the relevant infraction. They range from requiring the student to re-do the piece of work, through failure on that piece of work, to failure in the course, and to dismissal from the university.

Course Schedule

The following table shows the suggested course schedule based on the normal progress of the course in an in-person delivery of

the course. Here are some important points for you:

- You are allowed to adjust your speed; however, the order of the modules should be kept in place as there is a high level of dependency between modules in this course. For instance, you should not jump into module 4 before finishing (and fully understanding) modules 1, 2, and 3.
- The suggested study times would reflect the importance and level of difficulty of each module and are based on the normal amount of time that a given student could spend on a weekly basis (i.e., 4-5 hours per week).
- The last week is just reserved to give you a chance to review Modules 4 and 5 before taking the final exam.

You have 6 months to complete this course. You may set your own schedule, but if you intend to complete the course in less than 3 months, you should let me know so that we can arrange a schedule.

Please do not leave all of your course work until a few weeks before your completion date. Although I will make every effort to accommodate your schedule within reason, I need time to grade assignments and mark exams..

Recommended Schedule

Module	Topic	Suggested Study Time	Reading	Sections covered from the text, plus timeline for quizzes and Midterm
1	Introduction to Modeling, Decision Analysis	1 week	Chapter 1	Read the complete chapter. The chapter contains specific material that could be the basis of assignments and tests and it is important foundation material to understand the purpose and types of models.
2	Introduction to Optimization and Linear Programming	2 weeks	Chapter 2	All the material in this chapter is relevant, including the suggested problems from the end of the chapter.
Quiz #1				
3	Modeling and Solving LP Problems in a Spreadsheet	3 weeks	Chapter 3	8 th edition: all the material from pages 46-93 (Section 3.0 thru 3.13.6) <i>except</i> section 3.11.5 <i>Heuristic Solution for the Model</i> (pg.79). And of course, you are also responsible for the suggested problems from the end of the chapter.
Quiz #2				
4	Integer Linear Programming	3 weeks	Chapter 6	8 th edition: Sections 6.0 thru 6.10 and 6.14 thru 6.17; pgs. 247-263, and pgs. 278-293.
Midterm Exam				
5	Regression Analysis	3 weeks	Chapter 9	8 th edition: Sections 9.0 thru 9.9 and 9.11 thru 9.13 pgs. 447-463 and pgs. 467-476
Quiz #3				
4 & 5	Course Review	1 week	Chapters 6 & 9	
Final Exam				

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Last modified: Wednesday, 11 August 2021, 10:04 AM

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