

**COURSE CODE:** BUAD 315

**COURSE TITLE:** Management Science

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### **Calendar Description**

Management science is a discipline that aids decision-making by applying a scientific approach to managerial problems. This course discusses quantitative methods and their extensive applications in business. Topics include linear programming, project scheduling, waiting line models, inventory management, simulation, Markov process, decision analysis, and forecasting. Use of computer software is an integral part of this course. (also offered by Distance Education)

**Prerequisite(s):** STAT 124 or 121 and minimum third-year standing

**Co-requisite(s):** None

**Prerequisite For:** BUAD 491

**Substitutable Courses:** None

**Graduation Requirement:** BBA Required

**Transfer Credit:** N/A

**Special Notes:** None

**Credits:** 3

**Hours per Week:** 3

**Originally Developed:** February 2000

**EDCO Approval:** February 2000

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**CHAIR'S APPROVAL:**



## Learning Outcomes

- Outcome Upon completion of this course students will be able to:
- 1 **Explain** the scientific approach of how to apply systematic methodologies in solving managerial problems that guide decision making.
  - 2 **Identify** and apply appropriate techniques for managing business problems and correctly interpret the results of analysis through critical thinking.
  - 3 **Recognize** and explain specific problems including their components and assumptions and solve them using linear programming.
  - 4 **Use MS Excel** to create quantitative models of management problems and insert appropriate statistical functions in Excel.
  - 5 **Solve** typical problems using formulas and tables.

## Course Objectives

- Objectives This course will cover the following content  
See weekly Course schedule

## Professors

| Name                           | Phone Number | Office | Email  |
|--------------------------------|--------------|--------|--|
| Roger Wheeler (Course Captain) | ext 4226     | C119   | <a href="mailto:rwheeler@okanagan.bc.ca">rwheeler@okanagan.bc.ca</a>   |
| Michael Conyette               | ext 2231     | V-C339 | <a href="mailto:mconyette@okanagan.bc.ca">mconyette@okanagan.bc.ca</a> |

## Evaluation Procedure

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|                        |              |
|------------------------|--------------|
| Assignment and Quizzes | 20 %         |
| Midterm Exam*          | 40 %         |
| Final Exam*            | 40 %         |
| <b>Total</b>           | <b>100 %</b> |

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Notes:

**\* Students must earn half of all available exam marks to achieve a passing grade in the course.**

**Generative AI tools are not permitted in any case.**

The use of generative AI tools, including ChatGPT and other similar tools, to complete or support the completion of any form of assignment or assessment in this course is not allowed. Use of these tools is considered cheating through the use of unauthorized aids (see Academic Integrity Policy section 6.1) and would be considered academic misconduct and have serious consequences, including but not limited to, a grade of zero on the assignment or assessment or a grade of zero in the course.

## Required Materials

Anderson, D. R., Sweeney, D. J., Williams, T. A., Camm, J.D., & Martin, K. (2015). Quantitative Methods for Business (13th ed.), Cincinnati, OH: South-Western

Students require access to Microsoft EXCEL.

Students will have optional access to TreePlan EXCEL add-in.

## Notes

There will be no make-up or supplementary exams.

## Course Schedule

(Subject to change at the discretion of the professor)

| Date                              |          | Topic  | Textbook          |
|-----------------------------------|----------|--|-------------------|
| <b>2025</b><br>Week of    Class # |          | Monday, January 6th, First day of class<br>Friday, January 17th, Last day to register for Winter 2025<br>Monday, February 17th, Statutory Holiday (no classes)<br>Tuesday, Feb 18 to Friday, Feb 21, Mid-semester Study Break (no classes)<br>Friday, March 14th, Last day to withdraw from class without academic penalty<br>Friday, April 11, Last day of class<br>Tuesday, April 15th – Friday, April 29th, Final Exam Period | Chapter(s):       |
| Jan 6                             | 1        | <b>Introduction</b> to Management Science  | Ch 1              |
| Jan 13                            | 2        | <b>Probability Distributions</b><br>Self Study: Ch 3: Q 1, 3, 4, 9, 14, 18, 24, 29, 30   | Ch 3              |
| Jan 20                            | 3        | <b>Decision Analysis</b><br>Self Study: Ch 4: 1, 3, 5, 7, 8, 14, 16 (where possible, use MS or Excel to solve these problems; use EXCEL for #16a)  | Ch 4<br>App 4.1   |
| Jan 27                            | 4        | <b>Forecasting</b><br>Self Study: Ch 6: 5, 7, 8, 9, 13, 17<br>(where possible use MS or Excel to solve these problems)   | Ch 6              |
| Feb 3                             | 5        | <b>Linear Programming (LP)</b><br>Self Study: Ch 7: 2, 7 by hand Ch 7: 13, 31, 35, 42, 43<br>(use MS or EXCEL for 13c, 31, 35b, 42 & 43)   | Ch 7<br>App 7.1   |
| Feb 10                            | 6        | <b>LP Sensitivity Analysis</b><br>Self Study: Ch 8: 1, 2, 5, 6, 10, 12, 13<br>(use MS or EXCEL to solve the LP for #1 & 2)   | Ch 8<br>App 8.1   |
| Feb 17                            | --       | Family Day & Mid-Semester Study Break (no classes)   | --                |
| <b>Feb 24</b>                     | <b>7</b> | <b>Midterm exam (Chapters 3, 4, 6, 7 &amp; 8)</b>  |                   |
| Mar 3                             | 8        | <b>Distribution and Network Models</b><br>Self Study: Ch 10: 1, 2, 6, 9, 17<br>(use MS or Excel to solve 2b & 17c)   | Ch 10<br>App 10.1 |
| Mar 10                            | 9        | <b>Integer Linear Programming</b><br>Self Study: Ch 11: 2, 7a–7c, 13   | Ch 11<br>App 11.1 |
| Mar 17                            | 10       | <b>Project Management</b><br>Self Study: Ch 13: 3, 6, 10, 13, 21   | Ch 13             |
| Mar 24                            | 12       | <b>Waiting Line Models</b><br>Self Study: Ch 15: 5, 11, 18, 21, 24, 27, 30, 34<br>(use MS to solve these problems)   | Ch 15             |
| Mar 31                            | 13       | <b>Simulation</b><br>Self Study: Ch 16: 2, 8, 10, 14, 18   | Ch 16<br>App 16.1 |
| Apr 7                             | 14       | <b>Markov Processes</b><br>Self Study: Ch 17: 3, 8, 13   | Ch 17             |
| <b>Apr 15-29</b>                  |          | <b>Final Exam Period (Chapters 10, 11, 13, 15, 16, 17)</b>   |                   |

## Skills Across the Business Curriculum

The Okanagan School of Business promotes core skills across the curriculum. These skills include reading, written and oral communications, computers, small business, and academic standards of ethics, honesty and integrity.

## Student Conduct and Academic Honesty

### What is the Disruption of Instructional Activities?

At Okanagan College (OC), disruption of instructional activities includes student “conduct which interferes with examinations, lectures, seminars, tutorials, group meetings, other related activities, and with students using the study facilities of OC”, as well as conduct that leads to property damage, assault, discrimination, harassment and fraud. Penalties for disruption of instructional activities include a range of sanctions from a warning and/or a failing grade on an assignment, examination or course to suspension from OC.

### What is Cheating?

“Cheating includes but is not limited to dishonest or attempted dishonest conduct during tests or examinations in which the use is made of books, notes, diagrams or other aids excluding those authorized by the examiner. It includes communicating with others for the purpose of obtaining information, copying from the work of others and purposely exposing or conveying information to other students who are taking the test or examination.”

Students must submit independently written work. Students may not write joint or collaborative assignments with other students unless the instructor approves it in advance as a group/team project. Students who share their work with other students are equally involved in cheating.

### What is Plagiarism?

Plagiarism is defined as “the presentation of another person’s work or ideas without proper or complete acknowledgement.” It is the serious academic offence of reproducing someone else’s work, including words, ideas and media, without permission for course credit towards a certificate, diploma, degree and/or professional designation. The defining characteristic is that the work is not yours.

“Intentional plagiarism is the deliberate presentation of another’s work or ideas as one’s own.” Intentional plagiarism can be a copy of material from a journal article, a book chapter, data from the Internet, another student, work submitted for credit in another course or from other sources.

“Unintentional plagiarism is the inadvertent presentation of another’s work or ideas without proper acknowledgement because of poor or inadequate practices. Unintentional plagiarism is a failure of scholarship; intentional plagiarism is an act of deceit.”

### What are the Students’ Responsibilities to Avoid Plagiarism?

Students have a responsibility to read the OC Plagiarism Policy and Procedures outlined in the OC calendar, which is available in online format [www.okanagan.bc.ca](http://www.okanagan.bc.ca). Students must acknowledge the sources of information used on all their assignments. This usually involves putting the authors’ name and the year of publication in parentheses after the sentence in which you used the material, then at the end of your paper, writing out the complete references in a Reference section.

“Students are responsible for learning and applying the proper scholarly practices for acknowledging the work and ideas of others. Students who are unsure of what constitutes plagiarism should refer to the UBC publication “*Plagiarism Avoided; Taking Responsibility for your Work*”. This guide is available in OC bookstores and libraries.

Students are expected to understand research and writing techniques and documentation styles. The Okanagan School of Business requires the use of the APA or MLA style but suggests that students cite references using the APA guidelines (see Publication Manual of the American Psychological Association, 6<sup>th</sup> edition (2009)). A copy of the APA manual is available in the reference section and available for circulation from OC libraries. The library website has access to these two major citing styles.

### What are the Penalties for Plagiarism and Cheating?

The Okanagan School of Business does not tolerate plagiarism or cheating. All professors actively check for plagiarism and cheating, and the Okanagan School of Business subscribes to an electronic plagiarism detection service. All incidents of plagiarism or cheating are reported and result in a formal letter of reprimand outlining the nature of the infraction, the evidence and the penalty. The Dean of the Okanagan School of Business and the Registrar record and monitor all instances of plagiarism and cheating. Penalties for plagiarism and cheating reflect the seriousness and circumstances of the offence and the range of penalties includes suspension from OC.