https://courseoutline.auckland.ac.nz/dco/course/OPSMGT/752/1213

Business and Economics

OPSMGT 752 : Research Methods – Modelling (15 POINTS)

2021 Semester One

Course Prescription

Mathematical modelling methods in operations management research. Includes simulation techniques, Markov decision models, optimisation methods, game theoretic formulations, and other modelling methods.

Course Overview

Mathematical modelling is a core competency in Operations and Supply Chain Management research. The course's specific quantitative modelling toolset is designed to be both accessible and fundamental. Most of the models will be spreadsheet based but some will be purely theoretical and others will use discrete event simulation. The focus of the course is on developing students' skills for 1) understanding and making modelling assumptions, 2) choosing between different approaches, support tools, and analytical methods for modelling, 3) reading and understanding research papers in operations and supply chain management that use modelling techniques, and 4) using models for decision making and guiding business intuition.

Course Requirements

Prerequisite: INFOMGMT 290 or STATS 255, or equivalent

Capabilities Developed in this Course

Capability 1: Disciplinary Knowledge and Practice
Capability 2: Critical Thinking
Capability 3: Solution Seeking
Capability 4: Communication and Engagement
Capability 5: Independence and Integrity

Graduate Profile: Bachelor of Commerce (Honours)

Learning Outcomes

By the end of this course, students will be able to:

1. Apply the major concepts and tools used in mathematical modelling in open ended settings (Capability 1

and 5.1)

2. Manage and assess the trade-off between modelling assumptions and tractability in authentic case studies (Capability 1)
3. Demonstrate critical and creative thinking to formulate, justify, and evaluate models for operational decision making in various organizational contexts. (Capability 2 and 3)
4. Exhibit improved information literacy skills to source, evaluate, and summarise appropriate information on a given subject or topic in operations and supply chain management areas. (Capability 4.2 and 5.1)
5. Present and articulate opinions both in class exercises and for your own models on key modelling assumptions and other modelling concepts (Capability 4.1 and 5.1)
6. Work in a team to complete an open-ended modelling project (Capability 3 and 4.3)

Assessments

Assessment Type	Percentage	Classification
Assignments	25%	Individual Coursework
Discussions	5%	Individual Coursework
Project	20%	Group Coursework
Final Exam	50%	Individual Examination
4 types	100%	

Assessment Type	Learning Outcome Addressed					
	1	2	3	4	5	6
Assignments	✔	✔	✔	✔		
Discussions	✔	✔			✔	
Project	✔	✔	✔	✔	✔	✔
Final Exam	✔	✔	✔			

Workload Expectations

This course is a standard 15 point course and students are expected to spend 10 hours per week involved in each 15 point course that they are enrolled in.

For this course, you can expect 3 hours of lectures, a 2 hour tutorial/lab, 2 hours of reading and thinking about the content and 3 hours of work on assignments and/or test preparation.

Delivery Mode

Campus Experience

Attendance is [required/expected] at scheduled activities including [labs/tutorials/studios/clinics] to [complete/receive credit for] components of the course.
Lectures will be available as recordings. Other learning activities including [seminars/tutorials/labs/studios] will [be available/not be available] as recordings.
The course [will/will not] include live online events including [group discussions/tutorials].
Attendance on campus is [required/not required] for the [test/exam].
The activities for the course are scheduled as a [standard weekly timetable/block delivery].

Learning Resources

The recommended textbook for this course is: Powell, S.G., and K.R. Baker (2018) Business Analytics: The Art of Modeling with Spreadsheets (5th Ed.). Wiley, NJ.

Student Feedback

At the end of every semester students will be invited to give feedback on the course and teaching through a tool called SET or Qualtrics. The lecturers and course co-ordinators will consider all feedback and respond with summaries and actions.

Your feedback helps teachers to improve the course and its delivery for future students.

Class Representatives in each class can take feedback to the department and faculty staff-student consultative committees.

Other Information

The anticipated class size should not exceed 20 students. The class will meet for three hours each week. Class time will be used for a combination of in class exercises, lectures, and applied discussions of case studies and/or research papers in the mathematical modelling of Operations and Supply Chain Management. Students are expected to be active and participate in class. There will also be a weekly lab that will provide practice in the modelling tools covered in class.

Digital Resources

Course materials are made available in a learning and collaboration tool called Canvas which also includes reading lists and lecture recordings (where available).

Please remember that the recording of any class on a personal device requires the permission of the instructor.

Academic Integrity

The University of Auckland will not tolerate cheating, or assisting others to cheat, and views cheating in coursework as a serious academic offence. The work that a student submits for grading must be the student's

own work, reflecting their learning. Where work from other sources is used, it must be properly acknowledged and referenced. This requirement also applies to sources on the internet. A student's assessed work may be reviewed against online source material using computerised detection mechanisms.

Inclusive Learning

All students are asked to discuss any impairment related requirements privately, face to face and/or in written form with the course coordinator, lecturer or tutor.

Student Disability Services also provides support for students with a wide range of impairments, both visible and invisible, to succeed and excel at the University. For more information and contact details, please visit the Student Disability Services' website http://disability.auckland.ac.nz

Special Circumstances

If your ability to complete assessed coursework is affected by illness or other personal circumstances outside of your control, contact a member of teaching staff as soon as possible before the assessment is due.

If your personal circumstances significantly affect your performance, or preparation, for an exam or eligible written test, refer to the University's aegrotat or compassionate consideration page https://www.auckland.ac.nz/en/students/academic-information/exams-and-final-results/during-exams/aegrotat-and-compassionate-consideration.html.

This should be done as soon as possible and no later than seven days after the affected test or exam date.

Learning Continuity

In the event of an unexpected disruption we undertake to maintain the continuity and standard of teaching and learning in all your courses throughout the year. If there are unexpected disruptions the University has contingency plans to ensure that access to your course continues and your assessment is fair, and not compromised. Some adjustments may need to be made in emergencies. You will be kept fully informed by your course co-ordinator, and if disruption occurs you should refer to the University Website for information about how to proceed.

Student Charter and Responsibilities

The Student Charter assumes and acknowledges that students are active participants in the learning process and that they have responsibilities to the institution and the international community of scholars. The University expects that students will act at all times in a way that demonstrates respect for the rights of other students and staff so that the learning environment is both safe and productive. For further information visit Student Charter https://www.auckland.ac.nz/en/students/forms-policies-and-guidelines/student-policies-and-guidelines/student-charter.html.

Disclaimer

Elements of this outline may be subject to change. The latest information about the course will be available for enrolled students in Canvas.

In this course you may be asked to submit your coursework assessments digitally. The University reserves the right to conduct scheduled tests and examinations for this course online or through the use of computers or other electronic devices. Where tests or examinations are conducted online remote invigilation arrangements may be used. The final decision on the completion mode for a test or examination, and remote invigilation arrangements where applicable, will be advised to students at least 10 days prior to the scheduled date of the assessment, or in the case of an examination when the examination timetable is published.