Course information 2026-27

ST2187 Business analytics, applied modelling and prediction

General information

MODULE LEVEL: 5

CREDIT: 30

NOTIONAL STUDY TIME: 300 hours

MODE: Locally Taught, Independent Learner Route and Online Taught

Summary

This course develops the quantitative skills essential for effective decision-making in business, economics and the social sciences. It emphasises the value of mathematical and statistical modelling as tools for enhancing precision, critical thinking, and data-driven insight. Aimed at strengthening and expanding students' existing knowledge, the course introduces a range of applied modelling techniques and their practical uses in the increasingly data-driven field of management. Students will learn how to build, interpret and apply models to support informed, analytical decision-making in real-world business contexts.

Conditions

Please refer to the relevant programme structure in the EMFSS Programme Regulations to check:
- where this course can be placed on your degree structure; and
- details of prerequisites and corequisites for this course.

You should also refer to the Exclusions list in the EMFSS Programme Regulations to check if any exclusions apply for this course.

Aims and objectives

The objectives specifically include:

- the mechanics of building applied business models

- managerial decision-making

- producing and critiquing forecasts and predictions.

Learning outcomes

At the end of this course and having completed the essential reading and activities students should be able to:
- apply modelling at varying levels to aid decision-making
- understand basic principles of how to analyse complex multivariate datasets with the aim of extracting the important message contained within the large amount of data which is often available
- demonstrate the wide applicability of mathematical models while, at the same time, identifying their limitations and possible misuse.

Employability skills

Below are the three most relevant employability skills that students acquire by undertaking this course which can be conveyed to future prospective employers:
1. Decision making
2. Digital skills
3. Complex problem solving

Essential reading

Abdey, J. *Business Analytics: Applied Modelling and Prediction* (SAGE Publications, 2023) first edition [ISBN 9781529774092].

Assessment

This course is assessed by an individual case study piece of coursework (30%) and a three-hour and fifteen-minute closed-book written examination (70%).

Syllabus

Topics to be covered each week:
1. Decision-making under uncertainty.
2. Descriptive statistics.
3. Data visualisation.
4. Probability.
5. Probability distributions.
6. Decision tree analysis and game theory.
7. Sampling and sampling distributions.
8. Estimation.
9. Hypothesis testing.
10. Bivariate analysis.
11. Analysis of variance.
12. Linear regression.
13. Multiple regression
14. Time-series analysis and forecasting.
15. Constrained optimisation models.
16. Monte Carlo simulation.