

BUS107 Quantitative Methods

Level: 1

Credit Units: 5 Credit Units

Language: ENGLISH

Presentation Pattern: EVERY SEMESTER

BUS107 is presented in two (2) versions: BLENDED Learning or ONLINE Learning. Students will need to choose one version when they register for the course.

BUS107 - BLENDED Learning version: In the blended learning version, the course is conducted with the flip-classroom approach. Students will have face-to-face classroom sessions and these will be supported by online using interactive study materials found on Canvas, SUSS' learning management system. Students will get themselves prepared for the face-to-face classroom sessions by reading and interacting with the online study materials and chunked lectures. They will then attend the face-to-face classroom sessions where they will apply what they learn online in classroom activities and instructors will facilitate discussions. If the course has an exam component, this will be administered on-campus.

BUS107 - ONLINE Learning version: In the online learning version, the course is done EXCLUSIVELY online, using interactive study materials made available on Canvas, SUSS' learning management system. Students receive guidance and support from online instructors via weekly synchronous sessions, discussion forums and emails. If the course has an exam component, this will be administered on-campus.

Synopsis:

BUS107 Quantitative Methods introduces the essential concepts of quantitative methods that are commonly practiced in business and management for decision-making and resource planning purposes. It examines a series of quantitative techniques that are of interest and relevance to practitioners and researchers in this field. The underlying theme behind each quantitative technique is the formulation of an appropriate quantitative model. Students studying this course will learn the technique of quantitative model formulation and processing, using relevant computer software to solve practical business problems. The critical skills of data analysis and interpretation for decision making will also be taught in this course. Students will learn to work in teams to solve cases as well as present the findings in class.

Topics:

- Introduction to Quantitative Analysis
- Introduction to Linear Programming
- Linear Programming Sensitivity Analysis
- Linear Programming Applications
- Time Series & Smoothing Methods in Forecasting
- Trend Projection and Seasonal Components
- Problem Formulation & Decision-Making with/without Probabilities
- Decision Analysis with Sample Information

- Simulation Modelling and Applications
- Network Modelling

Textbooks:

Wayne L. Winston and S. Christian Albright,; Practical Management Science 6th Cengage ISBN-13: 9789814844925

Wayne L. Winston and S. Christian Albright,; Practical Management Science 6th Cengage ISBN-13: 9789814844925-AA

Learning Outcome:

- Describe the management science/operations research approach to decision making.
- Apply linear programming models for simple problems.
- Interpret the solution of a linear programming problem for business decision-making.
- Compare the techniques of classical time series modelling.
- Use classical time series modelling to predict future aspects of business operations.
- Analyze a simple decision analysis problem from both a payoff table and decision tree point of view as to develop a risk profile and interpret its meaning for business decision-making.
- Define what simulation is and explain how it aids in the analysis of a problem.
- Construct network and linear programming models for the minimal-spanning tree, the maximum- flow and the shortest-route problems.
- Illustrate how to use suitable computer software to construct and process quantitative models for result generation and reporting.
- Identify alternatives to decision-making problems through data analysis and interpretation of the results derived from the quantitative model.
- List decision alternatives in a logical and concise manner.
- Develop the essential knowledge and interpersonal skills to work effectively in a team.
- Explain the results of various areas related to Quantitative Methods in class.

Assessment Strategies:

A – Blended Version

Continuous Assessment Component	Weightage (%)
PRE-COURSE QUIZ	2
PRE-CLASS QUIZ	2
PRE-CLASS QUIZ	2
PARTICIPATION	6
GROUP BASED ASSIGNMENT	38
Sub-Total	50

Examinable Component	Weightage (%)
Written Exam	50
Sub-Total	50

Weightage Total 100

B - Online Version

Continuous Assessment Component	Weightage (%)
PRE-COURSE QUIZ	1
PRE-CLASS QUIZ	1
PRE-CLASS QUIZ	1
PRE-CLASS QUIZ	1
PRE-CLASS QUIZ	1
GRADED DISCUSSION	7
GRADED DISCUSSION	8
GROUP-BASED ASSIGNMENT	30
Sub-Total	50

Examinable Component	Weightage (%)
Written Exam	50
Sub-Total	50

Weightage Total **100**