

MTH358 Applied Regression Analysis II

Level: 3

Credit Units: 5 Credit Units

Language: ENGLISH

Presentation Pattern: EVERY JULY

Synopsis:

MTH358 will be a continuation to MTH357 and provide students with an understanding of more advanced regression models and techniques used in analytics and artificial intelligence. The course gives a comprehensive introduction to more advanced topics such as nonlinear regression, logistic regression and generalized linear models. Additionally, the course covers how the algorithms are implemented using the software R. MTH358 will be paired with MTH357 so that students upon the completion of both courses will have a better understanding of the contents in the field of regression analysis.

Topics:

- Model-Building
- Variable Selection
- Validation Techniques
- Nonlinear Regression Models
- Transformation to a Linear Model
- Statistical Inference in Nonlinear Regression
- Logistic Regression Models
- Generalized Linear Models
- Regression Analysis of Time Series Data
- Robust Regression
- Bootstrapping in Regression
- Neural Networks

Textbooks:

Introduction to Linear Regression Analysis 6th Douglas C. Montgomery, Elizabeth A. Peck, G. Geoffrey Vining John Wiley
ISBN-13: 9781119578758

MTH358 Study Guide (UDC - SUSS) SUSS
ISBN-13: SG-1761

Learning Outcome:

- Apply nonlinear regression models and generalized linear models.
- Interpret regression model parameters from data.
- Implement regression diagnostics to validate regression models.
- Use resampling algorithms for estimation of the regression model predictive accuracy.
- Analyze data with regression models.
- Assess the fit of a regression model to data.

Assessment Strategies - Regular Semester (Evening Class):

Components	Description	Weightage Allocation (%)
Overall Continuous Assessment	COMPUTER MARKED ASSIGNMENT 1	10
	TUTOR-MARKED ASSIGNMENT 1	20
Overall Examinable Components	Written Exam	70
Total		100

*The information listed is subject to review and change.