

MTH308 Applications of Regression Analysis

Level: 3

Credit Units: 5 Credit Units

Language: ENGLISH

Presentation Pattern: EVERY JAN

Synopsis:

MTH308 is the second of two sequential courses on applied regression analysis (the first one is MTH307: Principles of Regression Analysis). It will focus on the treatment of practical and application issues pertinent to regression analysis. Topics include model building & variable screening, deviations from standard assumptions, and residual analysis.

Topics:

- Model building and variable screening.
- Models with one, two, three and more qualitative independent variables.
- Models with both quantitative and qualitative independent variables.
- All-possible-regression selection procedure.
- Practical Issues in regression.
- Data transformations.
- Residual Analysis.
- Detecting unequal variances.
- Checking the normality assumption.
- Detecting residual correlation: the Durbin-Watson test.
- Piecewise linear, logistic and ridge regression.
- Robust regression.

Textbooks:

William Mendenhall, Terry L. Sincich.: Second Course Statistics – Regression Analysis 7th edition
Pearson Education International, Prentice-Hall (PNIE)
ISBN-13: 9781292042909

William Mendenhall, Terry L. Sincich.: Second Course Statistics – Regression Analysis 7th edition
Pearson Education International, Prentice-Hall (PNIE)
ISBN-13: 9781292042909-AA

Learning Outcome:

- Apply statistical concepts in regression analysis.
- Analyze the number of variables in regression models, including variable screening.
- Use transformations of data to better fit regression models.
- Verify conclusions from residual analysis, including verification with F and t-tests.
- Test of variety of general regression models, including nonparametric models.
- Apply regression models, including those involving binary data.
- Construct a range of mathematical techniques to solve a variety of quantitative problems.
- Formulate solutions to problems individually and/or as part of a group.
- Analyze and solve a number of problem sets within strict deadlines.
- Verify solutions related to regression analysis using IT.

Assessment Strategies:

Continuous Assessment Component	Weightage (%)
COMPUTER MARKED ASSIGNMENT	10
COMPUTER MARKED ASSIGNMENT	10
COMPUTER MARKED ASSIGNMENT	10
Sub-Total	30

Examinable Component	Weightage (%)
Written Exam	70
Sub-Total	70

Weightage Total **100**