MSDS660_Syllabus

REGIS UNIVERSITY
ANDERSON COLLEGE OF BUSINESS AND COMPUTING

MSDS 660 - Statistical Methods and Experimental Design: Syllabus

Instructor Information

Refer to Discussion Forum, Facilitator Introduction and Expectations

Course Title

MSDS 660 - Statistical Methods and Experimental Design

Course Description

Examines the statistical techniques creating models from data using linear regression and multiple linear regression. Continues with an examination determining the statistical variability between populations using ANOVA. Concludes with an analysis of information gather techniques.

Prerequisite Courses

MT 470A Introduction to probability and statistics or equivalent

Course Outcomes

Upon completion of this course, learners should be able to:

1. Investigate the relationships between variables graphically (e.g. using scatter diagrams).
2. Verify the assumptions under regression analysis, and ANOVA.
3. Define parameters of interest and hypotheses using words/notations.
4. Conduct testing using statistical software to verify the model (e.g. linear regression, multiple linear regression, logistic regression).
5. Conclude and summarize model fitting.
6. Conduct nonparametric statistical test.
7. Illustrate guidelines of statistical communications with different audiences.
8. Describe the common mistakes in statistical usage.
9. Awareness of ethical issues in statistics.

Course Materials

Required Texts

None

Required Resources

- “From the Expert” presentations linked within each week and also provided in Course Resources folder.
- "Reading list" provided each week.

Technology Tools

technical specifications

Pre-Assignment

See Course Assignments and Activities table below.

Course Assignments and Activities

Assignments for Online Course

Week	Readings	Graded Assignments or Assessments (Percentage)
1: Basic Concepts	*From the Expert *Reading list	Introduction- initial post required by Wednesday of Week1 Discussion Questions/threads (1.5%) Familiarize yourself with Statistics using R Exercise (3%)
2: Linear Regression	*From the Expert *Reading list	Discussion Questions/threads (1.5%) Exercise (10%)
3: Multiple Linear Regression	*From the Expert *Reading list	Discussion Questions/threads (1.5%) Project (15 %)
4: One-way ANOVA	*From the Expert *Reading list	Discussion Questions/threads (1.5%) Exercise (10%)
5: Two-way ANOVA	*From the Expert *Reading list	Discussion Questions/threads (1.5%) Project (15%)

6: Logistic, Multinomial, Polynomial	*From the Expert *Reading list	Discussion Questions/threads (1.5%) Exercise (10%)
7: Nonparametric Statistics	*From the Expert *Reading list	Discussion Questions/threads (1.5%) Exercise (10%)
8: Common Mistakes in Using Statistics	*From the Expert *Reading list	Discussion Questions/threads (1.5%) Project (15%)

Summary of Assignments and Percentage Weight:

Assignments	Weighted Percentage
Discussion Questions (8 at 1.5% each)	12%
Exercises (4 Exercises at 10%, 1 Exercise at 3%)	43%
Projects (3 projects at 15%)	45%
TOTAL	100 %

Regis University Policies

Review the Regis University Policies on the Regis University website.

Attendance policy for in-person courses

Students taking in-person courses are expected to attend all classes for a course during the term. Missing classes may result in a failing grade or substantial grade penalties, at the discretion of the course instructor. Class absences should be discussed in advance with the course instructor.

OTHER INFORMATION

NOTE TO LEARNERS: On occasion, the course facilitator may, at his or her discretion, alter the Learning Activities shown in this Syllabus. The alteration of Learning Activities may not, in any way, change the Learner Outcomes or the grading scale for this course as contained in this syllabus. Examples of circumstances that could justify alterations in Learning Activities could include number of learners in the course; compelling current events; special facilitator experience or expertise; or unanticipated disruptions to class session schedule.

Activity Details

Task: View this topic