Athabasca University

Mathematics (MATH) 315

Methods in Applied Statistics (Revision 1)

Delivery mode:	Individualized study online
Credits:	3
Area of study:	Science
Prerequisites:	MATH 215 or MATH 216 or MGSC 301 or SOCI 301 or any equivalent introductory quantitative statistical methods course
Precluded:	MGSC 312 (MATH 315 may not be taken for credit if credit has already been obtained for MGSC 312.)
Challenge:	MATH 315 is not available for challenge.
Faculty:	Faculty of Science and Technology
Status:	Replaced with new revision, see the course listing for the current revision
Notes:	This course requires the use of the statistical package IBM® SPSS® Statistics Standard GradPack 22 (or higher). Students must lease this

proprietary software independently from a reliable source.

Overview

Mathematics 315: Methods in Applied Statistics is designed to enable students to develop familiarity with various parametric and nonparametric tests and to gain the knowledge and skills needed to apply statistical concepts to solve applied problems. Students will learn the logic, the procedures and the use of common statistical techniques using one of the most commonly used statistical packages - SPSS for Windows.

Outline

Mathematics 315 consists of the seven units listed below:

- Unit 1: Introduction to Research Design Concepts
- Unit 2: Nonparametric Tests
- Unit 3: Analysis of Variance (AOV) and Multiple Comparison Procedures
- Unit 4: Simple Linear Regression and Correlation
- Unit 5: Multiple Linear Regression and the General Linear Model
- Unit 6: More on One-way AOV (Completely Randomized Designs)
- Unit 7: Analysis of Variance for Blocked Designs

Objectives

After completing this course, a student will have

- an in-depth knowledge of basic statistical principles;

- a basic understanding of experimental design;
- facility with a wide range of statistical tests, including correlation, simple and multiple linear regression models, single and two factor analysis of variance and logistic regression; and
- proficiency in the analysis of a wide range of data sets selected from the biological, physical and social sciences, and from business applications.

Evaluation

To **receive credit** for MATH 315, you must achieve a mark of at least 50 per cent on each of the following: the midterm examination, the final examination and achieve a composite course grade of **D (50 percent)** . The weighting of the composite grade is as follows:

Activity	Weight
TME 1	5%
TME 2	5%
TME 3	5%
Midterm Exam	30%
TME 4	5%
TME 5	5%
TME 6	5%
Final Exam	40%
Total	**100%**

To learn more about assignments and examinations, please refer to Athabasca University's **online Calendar** .

Materials

Methods in applied statistics: Custom text for Math 315, Athabasca University (2012). Toronto: Nelson Education. (Print)

Methods in applied statistics: Custom solutions manual for Math 315, Athabasca University (2012). Toronto: Nelson Education. (Print)

Other Materials

The course materials also include an online study guide, course manual and SPSS instructional manual.

Special Course Features

You will need to purchase or lease a license for IBM® SPSS® Statistics Standard GradPack 22 (or higher) to complete this course. The IBM® SPSS® Statistics Standard GradPack (omit 22) includes: Statistics Base, Advanced Statistics, and Regression. Sources for this software include, but are not limited to the **AU Bookstore** , **OnTheHub eStore** , **Student Discounts.com** , and **amazon.com** .

Be aware that any **non-programmable**, **non-graphing calculators** may be taken into the exam rooms.

However, students are **NOT** allowed to bring a programmable or graphing calculator (with or without installed statistical applications), a cell phone, a digital camera, a PDA, an iPod or any similar electronic device into the examination rooms. Computers of any sort are permitted except under specially approved circumstances (i.e., for some students with disabilities). Students are also **NOT** allowed to consult with any person when writing the examinations for this course.

Important links

- Academic advising
- Program planning
- Request assistance
- Support services

Athabasca University reserves the right to amend course outlines occasionally and without notice. Courses offered by other delivery methods may vary from their individualized study counterparts.

Opened in Revision 1, July 30, 2013

Updated March 15, 2022, by Student & Academic Services