Mathematics (MATH) 315

Methods in Applied Statistics (Revision 3)

Status:	Replaced with new revision, see the **course listing** for the current revision
Delivery mode:	**Individualized study online**. Delivered via Brightspace.
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**
	This course requires the use of the statistical package IBM SPSS Statistics Standard

Notes:	GradPack 28 (or higher). Students must lease or purchase this proprietary software independently from a reliable source.
Professor:	**Dr. Julie Peschke**

Overview

Mathematics 315: Methods in Applied Statistics will enable you to develop familiarity with various research-oriented, data-driven experimental designs using both parametric and nonparametric tests. In addition, you will acquire the knowledge and skills needed to apply statistical theoretical concepts to solve practical problems across a variety of academic disciplines. You will learn the logic, procedures, and use of common statistical techniques using one of the most commonly used statistical packages: **IBM SPSS Statistics** .

Outline

MATH 315 consists of the seven units listed below:

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

Objectives

After completing this course successfully, you should be able to

- explain basic statistical principles.
- describe and make use of the components of statistical experimental design.
- apply, analyze, and evaluate a wide range of statistical tests, including correlation, regression and multiple regression, single-factor and two-factor analysis of variance, and logistic regression.
- analyze a wide range of data sets selected from the biological, physical, and social sciences; engineering; and the financial sector.

Evaluation

To **receive credit** for MATH 315, you must achieve a mark of at least 50% on both the midterm and final assessments and your composite course grade must be at least a **D (50%)** . The composite grade is broken down as follows:

Activity	Weight
Assignments 1–6 (5% each)	30%
Midterm (take-home)	30%
Final (take-home)	40%
Total	**100%**

Materials

Digital course materials

Links to the following course materials will be made available in the course:

Methods in applied statistics: Custom text for Math 315, Athabasca University. (2020). Cengage.

Methods in applied statistics: Custom solutions manual for Math 315, Athabasca University. (2020). Cengage.

Other Materials

The course materials also include an online study guide, a custom SPSS instructional manual, and supplementary resources such as instructional videos and review sessions.

Special Course Requirements

You will need to purchase or lease a licence for IBM SPSS Statistics Standard GradPack 28 (or higher) to complete this course. This software package includes Statistics Base, Advanced Statistics, and Regression. Sources for the software include, but are not limited to, **AU's web store** , **OnTheHub** , and **Student Discounts.com** .

Important links

- **Academic advising**
- **Program planning**
- **Request assistance**
- **Support services at AU**

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 3, September 10, 2024

Updated July 10, 2025

View **previous revision**