ACADEMIC CATALOG
2026-2027



MIDWAY
UNIVERSITY

Midway University Course Catalog - Data Analytics

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Bachelor of Science in Data and Sport Analytics

The data and sport analytics program will equip students at Midway with skills for navigating data-driven professional environments. The major is taking an interdisciplinary approach recognizing that data exists in many fields and students from variety of majors will befit from studying analytics.

Program Learning Outcomes

1. Demonstrate the ability to gather, clean, and preprocess raw data from multiple sources.
2. Apply statistical techniques to analyze data and draw meaningful insights.
3. Create clear, effective data visualizations and present data-driven findings to non-technical audiences.
4. Apply ethical principles in the collection, analysis, and presentation of data, ensuring privacy, transparency, and fairness.

General Education Hours - 40

Total Hours to Complete - 120

Requirements

Courses Required

CSE 200 - Computer Programming I - 3 hours

CSE 250 - Database Systems - 3 hours

CSE 410 - Mobile Computing - 3 hours

IDS 490 - IDS Capstone - 3 hours

STA 210 - Regression/ANOVA - 3 hours

STA 310 - Data Visualization - 3 hours

STA 320 - Forecasting - 3 hours

STA 410 - Structural Equation Modeling - 3 hours

Complete four additional courses from the same program area

Choose One Research Methods course from the following:

SCI 405 - Introduction to Biological Research - 3 hours

BUS 319 - Business Research Methods - 3 hours

CRJ 498 - Research Methods in Criminal Justice - 3 hours

MCO 480 - Marketing Research - 3 hours

PSY 355 - Research Methods - 3 hours

Courses

STA 210 - Regression/ANOVA

This course introduces regression analysis and analysis of variance (ANOVA), two essential techniques in statistical modeling. Students will learn to build, interpret, and assess linear regression models, exploring concepts such as parameter estimation, hypothesis testing, and diagnostics. The course also covers the application of ANOVA for comparing means across multiple groups, with an emphasis on experimental design and model assumptions.

Grade Basis: L
Credit hours: 3.0
Lecture hours: 3.0

Prerequisites:

- MTH 139 - Introduction to Statistics
- MTH 245 - Probability and Statistics

STA 310 - Data Visualization

This course introduces the theory and practice of data visualization, teaching students how to effectively communicate data insights through visual representations. Focusing on the design and interpretation of graphs, charts, and dashboards, students will learn key principles such as clarity, accuracy, and aesthetics. The course covers a range of visualization techniques for different data types, including categorical, time series, geospatial, and multivariate data.

Grade Basis: L

Credit hours: 3.0
Lecture hours: 3.0

STA 320 - Forecasting

This course explores statistical techniques used to make accurate predictions based on historical data, with a focus on time series analysis and forecasting methods. Students will learn how to identify patterns, trends, and seasonal effects in time series data, and apply models such as moving averages, exponential smoothing, and ARIMA (Autoregressive Integrated Moving Average) to forecast future values. Emphasis will be placed on model selection, evaluation, and refinement to improve prediction accuracy. Through practical applications using statistical software, students will gain hands-on experience in developing forecasts for real-world.

Grade Basis: L
Credit hours: 3.0
Lecture hours: 3.0

Prerequisites:

- MTH 139 - Introduction to Statistics
- MTH 245 - Probability and Statistics

STA 410 - Structural Equation Modeling

This course provides an in-depth introduction to Structural Equation Modeling (SEM), a powerful multivariate statistical technique used to analyze complex relationships between observed and latent variables. Students will learn the fundamentals of SEM, including model specification, identification, estimation, and evaluation. The course covers both confirmatory factor analysis (CFA) and path analysis, with applications in social sciences, behavioral research, education, and health sciences.

Grade Basis: L
Credit hours: 3.0
Lecture hours: 3.0

Prerequisites:

- MTH 139 - Introduction to Statistics
- MTH 245 - Probability and Statistics

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