

SPORT DATA ANALYTICS - DSA

DSA 511 Data Stewardship: Preparation, Exploration and Handling of Big Data 3 Credits

This course introduces students to foundational and practical skills in data stewardship, with an emphasis on reproducible research and programming in R. Students will explore the data analysis process from data acquisition and cleaning to transformation, visualization, and documentation. Topics include tidy data principles, exploratory data analysis, clustering techniques, and the ethical handling of data. Students will gain hands-on experience using R and RStudio to manage large and complex datasets, utilize packages like dplyr and data.table, and produce publication-ready reports with R Markdown. The course also incorporates version control through Git and GitHub to promote collaborative and transparent workflows.

Offered: every fall & spring.

DSA 515 Advanced Data Visualization in Sports 3 Credits

This course explores advanced data visualization techniques specific to sports analytics, focusing on using R and Tableau. Students will learn to create interactive dashboards, employ visual storytelling, and effectively communicate insights from complex datasets. The course emphasizes creating compelling visualizations that aid in data-driven decision-making in sports.

Offered: every fall.

DSA 520 Sport Performance Analytics 3 Credits

This course delves into the application of statistical and machine learning techniques to analyze sports performance data. Students will learn to collect, process, and analyze various forms of performance data, including player tracking, biomechanics, and game statistics. The course emphasizes practical applications for optimizing individual and team performance, utilizing real-world data and case studies, with a focus on using R and Tableau for analysis and visualization.

Prerequisite: DAT 511 and DSA 515.

Offered: every spring.

DSA 525 Sports Betting Analytics 3 Credits

This course explores the application of data analytics in sports betting, focusing on statistical analysis, predictive modeling, and risk management. Students will learn to collect, process, and analyze betting data, develop models for predicting outcomes, and understand the intricacies of the sports betting market. The course emphasizes practical applications using R and Tableau, preparing students to make data-driven decisions in the sports betting industry.

Prerequisite: DAT 511 and DSA 515.

Offered: every spring.