Minor in
ANALYTICS IN SPORT

Minor in Analytics in Sport

Program Description

The Minor in Analytics in Sport program will provide students with a solid foundation in the theories and methods of data analytics as they apply to the sports industry.

Teams and organizations are constantly collecting data on player performance, fan engagement, and other factors that influence the success of a sports franchise. This program will provide students with the skills and knowledge necessary to interpret and make decisions based on this data.

The program consists of a combination of core coursework and electives. Students will begin with foundational courses in statistics and data analysis, including topics such as probability theory, regression analysis, and data visualization. They will also take courses in programming languages commonly used in data analysis, such as Python or R, and database management.

In addition to these core courses, students will have the opportunity to take elective courses in sports analytics, covering topics such as player evaluation, team strategy, and fan engagement. These courses will provide students with a deep understanding of the unique challenges and opportunities that arise when applying data analytics to the sports industry.

Throughout the program, students will also have the opportunity to work on real-world projects, either individually or in teams. These projects will allow students to apply the theories and methods they have learned to real-world problems in the sports industry, and to develop the practical skills necessary to work effectively in this field.

Upon completion of the program, students will be well-prepared to pursue careers in sports analytics, either within sports organizations or with consulting firms that specialize in sports analytics. They will also have a solid foundation in data analytics that can be applied in a wide range of industries beyond sports.

PROGRAM GOALS

1. Develop foundational knowledge in statistics and data analysis: Students will learn the fundamental theories and methods of statistics and data analysis, including probability theory, regression analysis, and data visualization. This will enable them to understand the statistical principles underlying data analytics and apply them to sports-related data.
2. Acquire practical skills in data analysis and programming: Students will learn to use programming languages such as Python or R to collect, clean, and analyze sports-related data. They will also develop skills in database management and data visualization, enabling them to extract meaningful insights from data and communicate their findings effectively.
3. Apply data analytics to sports-related problems: Students will apply the theories and methods they have learned to real-world problems in the sports industry, such as player evaluation, team strategy, and fan engagement. They will develop the ability to identify relevant data sources, collect and analyze data, and draw actionable insights from their analysis.
4. Develop critical thinking skills: Through their coursework and projects, students will develop critical thinking skills, including the ability to evaluate the quality and relevance of data, assess the strengths and weaknesses of analytical methods, and apply data-driven decision-making principles to sports-related problems.
5. Understand the ethical implications of data analytics in sport: Students will learn to recognize and navigate the ethical challenges and implications of data analytics in sport. They will develop an understanding of data privacy, data security, and data bias, and how these issues can impact the validity and ethical use of sports-related data.

COURSES

The minor in Analytics in Sport requires 12 hours.

- CIS 220 Introduction to Sport Analytics
- CIS 354 Sports Data Management and Analysis
- CIS 411 Sports Performance Analytics
- CIS 412 Sports Venue Analytics

Course Descriptions:

CIS 220 Introduction to Sport Analytics: This course provides an overview of the theories and methods of data analytics as they apply to the sports industry. Students will learn about a range of techniques and applications for extracting insights and making informed decisions from data.

CIS 354 Sports Data Management and Analysis: This course focuses on the management of sports data and its analysis using statistical and machine learning techniques. Students will learn how to collect, clean, and organize data from various sources, and how to use analytical tools to extract meaningful insights and make data-driven decisions in sports.

CIS 411 Sports Performance Analytics: This course explores the use of analytics in measuring and improving sports performance. Students will learn how to collect and analyze performance data from athletes, teams, and games, and how to use this information to identify strengths, weaknesses, and opportunities for improvement.

CIS 412 Sports Venue Analytics: This course introduces students to the use of analytics in managing sports venues. Students will learn how to use data to optimize stadium and arena operations, including parking, concessions, and crowd management. The course also covers the use of technology, such as Wi-Fi and mobile apps, to enhance the fan experience and collect data on fan behavior.

PROGRAMMATIC OUTCOMES:

Students will develop the following outcomes:

- **Proficiency in foundational statistical concepts and data analysis techniques:** Students will be able to demonstrate proficiency in foundational statistical concepts and data analysis techniques, including probability theory, hypothesis testing, regression analysis, and data visualization.
- **Proficiency in programming languages and data management:** Students will be able to demonstrate proficiency in programming languages commonly used in data analytics, such as Python or R, as well as database management tools. They will be able to collect, clean, and analyze sports-related data using these tools.
- **Application of data analytics to sports-related problems:** Students will be able to apply the theories and methods of data analytics to sports-related problems, including player evaluation, team strategy, and fan engagement. They will be able to identify relevant data sources, collect and analyze data, and draw actionable insights from their analysis.
- **Effective communication of data-driven insights:** Students will be able to communicate their findings effectively, using clear and compelling visualizations and narratives to convey data-driven insights to stakeholders in the sports industry.
- **Ethical awareness and responsibility**: Students will be able to recognize and navigate the ethical challenges and implications of data analytics in sport, including issues related to data privacy, data security, and data bias. They will be able to apply ethical principles to their work in sports analytics, and to communicate effectively about ethical issues with stakeholders in the industry.