

# Current Topics: Sport Performance Analytics

SPM 5936 | 3 credits | Fall 2025

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## Course Info

### INSTRUCTOR

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Preferred Method of Contact: Email

### OFFICE HOURS

FLG 308 MONDAY 3:00-4:00PM; THURSDAY 11:00AM-12:00PM

### MEETING TIME/LOCATION

FLG 225 MONDAY periods 3-5 (9:35AM – 12:35PM)

### COURSE DESCRIPTION

The techniques and tools of data analytics are transforming many industries, to include sports. This vertical has the advantage of being widely and closely followed, with large amounts of easily accessible real-world data. Topics for study in this course include how to evaluate players, create good teams, and enhance coaching strategies. Assignments involve the hands-on use of a variety of techniques and tools, including data collection and manipulation, probability, statistics, optimization, simulation, game theory. A basic knowledge of Excel, statistics, and sports (in particular, baseball, basketball, and football) is assumed. But you do not have to be a sports fanatic.

### PREREQUISITE KNOWLEDGE AND SKILLS

A basic knowledge of Excel, statistics, and sports (in particular, baseball, basketball, and football) is assumed. But you do not have to be a sports fanatic. You will be exposed to some coding languages, like R, Python, and SQL during the course.

### REQUIRED MATERIALS

- Winston, W. L., Nestler, S., & Pelechrinis, K. (2022). *Mathletics: How gamblers, managers, and fans use mathematics in sports* (2nd ed.). Princeton University Press. ISBN 978-0-6911-7762-5.
- Alamar, B. C. (2024). *Sports analytics: A guide for coaches, managers, and other decision makers* (2nd ed.). Columbia University Press. ISBN 978-0-231-20520-7.

***Instructional materials for this course consist of only those materials specifically reviewed, selected, and assigned by the instructor(s). The instructor(s) is only responsible for these instructional materials.***

## **COURSE FORMAT**

We will meet once per week for 3 hours, taking a short break somewhere in the middle of that time. There will be weekly reading assignments; it is expected that you complete these before coming to class, as we will discuss them. I may ask you to present some material from the readings. There will be a homework assignment roughly every 2 weeks, with course project requirements interspersed in between. There is one week where I will be away at a conference so we will have a guest speaker and some project time.

## **COURSE LEARNING OBJECTIVES**

The overarching objective of this course is for students to gain an understanding of how to use data and quantitative methods to measure performance and make decisions to gain advantage in the competitive sports arena.

Upon successful completion of this course, you will be able to:

- Recognize, formulate, and analyze decision-making opportunities in sports;
- Locate, acquire, process, visualize sports data for use in analysis;
- Choose and apply the appropriate tool (critical thinking, mathematical modeling, statistical analysis, predictive analytics, game theory, optimization, simulation, ...) in sports; and
- Devise and implement your own sports analytics analysis, alone or in groups or teams, to include interpreting, visualizing, and communicating results.

## **Course & University Policies**

### **UF POLICIES AND RESOURCES**

UF policies and resources can be found at: <https://go.ufl.edu/syllabuspolicies>.

### **ATTENDANCE**

Regular class attendance is absolutely expected and will not only facilitate your understanding of the material presented in the texts but also will better prepare you for the homework assignments and course project. Attendance is necessary for participation, but it is not sufficient for active participation.

## Grading

The following table shows the percent of the course grade allocated to each graded component.

<u>Evaluation Component</u>	<u>Percent of Course Grade</u>
Attendance & Participation	15%
Homework (6 @ 5% ea)	30%
Project Abstract / Proposal	5%
Draft Project Report	10%
Project Presentation	15%
Project Report	20%
Project Peer Evaluation	5%

**Exams & Quizzes** – There will be no exams or quizzes in this course. The project will substitute for a final exam.

**Class Participation** – Students can earn up to two points for participating in active learning sessions: one point is awarded for arriving on time and one point is awarded for actively participating in classroom discussions. Any point deductions will be notated in Canvas comments.

**Homework** – There will be six (6) homework assignments, usually due by the start of class on Mondays, as indicated on the schedule. These are individual assignments. That does not mean that you cannot ask your classmates for help, but please document any assistance that you received. Late submissions will not be allowed unless prior arrangements have been made with the instructor.

**Course Project** – The course project will be an in-depth investigation of a sports analytics topic. The focus can be on the use of analytics in a particular sport (e.g. baseball, football, basketball, etc.) or on a particular technology or decision opportunity. Project groups (of size 2-3, preferably 2) will be selected early in the course. A short (1-page) abstract will describe the data set to be used, questions to be investigated, and general approach. The project will culminate with a short presentation to the class and a 6-10 page (plus appendices as appropriate) written report. Due dates are included in the Weekly Course Schedule below and weights assigned to each portion of the project are in the table above.

### GRADING SCALE

The following is in accordance with the University's grading policy (available at: <https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>).

Letter Grade	Percent of Total Points Associated with Each Letter Grade	GPA Impact of Each Letter Grade
A	93.00-100%	4.0
A-	90.00-92.99%	3.67
B+	87.00-89.99%	3.33
B	83.00-86.99%	3.0
B-	80.00-82.99%	2.67

C+	77.00-79.99%	2.33
C	73.00-76.99%	2.0
C-	70.00-72.99%	1.67
D+	67.00-69.99%	1.33
D	63.00-66.99%	1.0
D-	60.00-62.99%	0.67
E	0-59.99%	0

## Weekly Course Schedule

### CRITICAL DATES & UF OBSERVED HOLIDAYS

- September 1: Labor Day (Monday)
- November 24 – 28: UF Thanksgiving Break (Monday - Friday)
- December 4 – 5: UF Fall Semester Reading Days (Thursday – Friday)

### WEEKLY SCHEDULE

*NOTE: 'M' indicates chapters to read in the Mathletics (Winston et. al) book; 'SA' indicates chapters to read in the Sports Analytics (Alamar) book. All readings are to be done before the class meeting.*

*Changes from earlier version of syllabus are highlighted in yellow.*

Week	Dates	Topic and Assignments	Due Dates
1	Aug 25	Course and Syllabus Overview Install and Test Software SA: 1	None
2	Sep 1	No Class (Labor Day Holiday)	None
3	Sep 8	Types of Sports Analytics Data Getting Sports Analytics Data Visualizing Data M: 51 SA: 2, 3, 4, 5	None
4	Sep 15	Key Performance Indicators Baseball Analytics, Part 1 M: 1, 2, 3, 6 SA: 6	Homework 1 – Sep 15 Project Proposal – Sep 15
5	Sep 22	Baseball Analytics, Part 2 M: 5, 8, 9, 17	Homework 2 – Sep 22
6	Sep 29	Football Analytics Play-by-Play Data	N/A

		M: 18, 19, 20, 21	
7	Oct 6	Basketball Analytics, Part 1 M: 28, 29, 30, 31	Homework 3 – Oct 6
8	Oct 13	Basketball Analytics, Part 2 M: 33, 36, 38	N/A
9	Oct 20	Tracking & GPS Data M: 27, 37	Homework 4 – Oct 20
10	Oct 27	Guest Speaker - TBD Project Work Session SA: 7, 8, 9	N/A
11	Nov 3	Fantasy Sports Team Formation M: 26, 32, 34, 60	Homework 5 – Nov 3
12	Nov 10	Analytics in Other Sports M: 39, 40, 41, 42	Draft Project Report – Nov 10
13	Nov 17	Streakiness, Clutch, & Changes Over Time M: 11, 13, 15, 16, 56 Rating and Ranking Teams M: 46, 47, 55	Homework 6 – Nov 17 Final Project Report – Nov 21 Presentation Slides – Nov 21
14	Nov 24	UF Thanksgiving Break (NO CLASS)	N/A
15	Dec 1	Project Presentations Course Wrap-Up	Project Presentation – Dec 1 Peer Evaluation – Dec 3

### **SUCCESS AND STUDY TIPS**

Analytics is NOT a spectator sport. To be successful in this course, you will need to get your hands “dirty” in the data. Please come see me during scheduled office hours (or find another time that works with your schedule). Choose a project topic that is of interest to you – that will make it easier to spend the necessary time to be successful with the analysis and presentation of your results.