



RICE SOCIAL SCIENCES

## Department of Sport Management

**Course:** SMGT 434 – Football Analytics

**Term:** Fall 2025

**Class:** 12:00 – 12:50 p.m. Mon

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### INSTRUCTOR CONTACT INFORMATION

**Instructor:** Scott Powers

**Office:** Kraft 246

**Email:** [scott.powers@rice.edu](mailto:scott.powers@rice.edu)

**Office Hours:** 12:00 – 12:50 p.m. and 2:30 – 3:20 p.m. on Tuesdays and Thursdays

If you plan to attend my office hours, please email me in advance to confirm I will be there.

### REQUIRED TEXTS AND MATERIALS

**Class Website:** <https://canvas.rice.edu>

**Required Material:** None

### COURSE OVERVIEW

This is a project-based course built around the NFL Big Data Bowl. The Big Data Bowl is an annual competition hosted by the National Football League in which they release player tracking data and a high-level theme to inspire research projects. This is a valuable opportunity to develop your technical skills using cutting-edge data and potentially to make yourself stand out to hiring managers in football analytics and across all of sport analytics.

The core of what I expect you to do for this course is to complete an actual submission to the Big Data Bowl. Because we expect the NFL to release the data and theme around the midterm recess, we will use the first half of the course to review past Big Data Bowls and to practice skills for working with tracking data so you are prepared to hit the ground running. The second half of the course will be all about completing your project.

You are expected to attend all class periods. If you will miss a class, please notify me via email at least one hour before class starts.

### COURSE OBJECTIVES AND LEARNING OUTCOMES

After successfully completing this course, you will be able to:

- Apply statistical models to raw player tracking data.
- Propose unique research questions useful to NFL teams.
- Identify appropriate statistical models for research questions.
- Compose easy-to-follow reports with clearly defined motivation.
- Develop data visualizations that are accessible, accurate and innovative.
- Explain how neural networks work and why they are useful in football analytics.

## HOW YOUR GRADE IS DETERMINED

Your grade is based on your percentage earned of available points.

		[93%, $\infty$ )	→	A	[90%, 93%)	→	A-		
[87%, 90%)	→	B+		[83%, 87%)	→	B	[80%, 83%)	→	B-
[77%, 80%)	→	C+		[73%, 77%)	→	C	[70%, 73%)	→	C-
[67%, 70%)	→	D+		[63%, 67%)	→	D	[60%, 63%)	→	D-
		[0%, 60%)	→	F					

There are five assignments, each worth 20% of the course grade. We will randomly assign groups for each of the first three assignments, which will be graded for completion. You get to pick your squad (the maximum team size is 4) for the final two assignments, which will be graded for quality.

1. Past Finalist Review
2. Play Animation
3. Past Finalist Reproduction
4. Progress Report
5. Big Data Bowl Submission

**Late Work.** You may submit late work subject to a 10% score deduction for each late day.

**Absence Policy.** If you notify me of your absence before the beginning of class, you will receive an opportunity to make up your absence.

## TENTATIVE SCHEDULE

Assignment Due	Week	Game Plan	Notes
Past Finalist Review	Week #1 (Aug 25)	Introduction	
	Week #2 (Sep 1)	BYE	
	Week #3 (Sep 8)	Past Finalist Presentations	
	Week #4 (Sep 15)	Neural Network Discussion #1	
Play Animation	Week #5 (Sep 22)	Neural Network Discussion #2	
	Week #6 (Sep 29)	Neural Network Discussion #3	
Past Finalist Reproduction	Week #7 (Oct 6)	Guest Speaker?	
	Week #8 (Oct 13)	BYE	Big Data Bowl 2026 Released?
	Week #9 (Oct 20)	Idea Day!	
Pick Your Squad!	Week #10 (Oct 27)	Working Session #1	
	Week #11 (Nov 3)	Working Session #2	
	Week #12 (Nov 10)	Working Session #3	
Progress Report	Week #13 (Nov 17)	Show and Tell #1	
	Week #14 (Nov 24)	Show and Tell #2	
	Week #15 (Dec 1)	Show and Tell #3	
	Week #16 (Dec 8)	N/A	
Big Data Bowl Submission	Week #17 (Dec 15)	N/A	

## **RICE HONOR CODE**

In this course, all students will be held to the standards of the Rice Honor Code, a code that you pledged to honor when you matriculated at this institution. If you are unfamiliar with the details of this code and how it is administered, you should consult the Honor System Handbook at <http://honor.rice.edu/honor-system-handbook/>. This handbook outlines the University's expectations for the integrity of your academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process.

**AI Policy.** You are allowed to use AI in any way that adheres to the rules of the Big Data Bowl.

## **DISABILITY RESOURCE CENTER**

If you have a documented disability or other condition that may affect academic performance you should: 1) make sure this documentation is on file with the Disability Resource Center (Allen Center, Room 111 / [adarice@rice.edu](mailto:adarice@rice.edu) / x5841) to determine the accommodations you need; and 2) talk with me to discuss your accommodation needs.

## **MENTAL HEALTH POLICY**

The wellbeing and mental health of students is important; if you are having trouble completing your course-work, please reach out to the Wellbeing and Counseling Center. Rice University provides cost-free mental health services through the Wellbeing and Counseling Center to help you manage personal challenges that threaten your personal or academic well-being. If you believe you are experiencing unusual amounts of stress, sadness, or anxiety, the Student Wellbeing Office or the Rice Counseling Center may be able to assist you. The Wellbeing and Counseling Center is located in the Gibbs Wellness Center and can be reached at 713-348-3311 (available 24/7).

## **TITLE IX RESPONSIBLE EMPLOYEE NOTIFICATION**

At Rice University, unlawful discrimination in any form, including sexual misconduct, is prohibited under Rice Policy on Harassment and Sexual Harassment (Policy 830) and the Student Code of Conduct.

Please be aware that all employees of Rice University are “mandatory reporters”, which means that if you tell me about a situation involving sexual harassment, sexual assault, dating violence, domestic violence, or stalking, I must share that information with the Title IX Coordinator.

Although I have to make that notification, you will control how your case will be handled, including whether or not you wish to pursue a formal complaint. Our goal is to make sure you are aware of the range of options available to you and have access to the resources you need.

To report sexual harassment, please contact the Title IX Coordinator at [titleix@rice.edu](mailto:titleix@rice.edu). To explore supportive measures and other resources that are available to you, please visit the Office of Interpersonal Misconduct Prevention and Support at [safe.rice.edu](http://safe.rice.edu).

**This syllabus is only a guide for the course and is subject to change with advance notice.**