

MARTIN TUCHMAN SCHOOL OF MANAGEMENT

NEW JERSEY INSTITUTE OF TECHNOLOGY

Instructor: Jorge E. F	Sport Management and Analytics	
Office: 4030 CAB	Phone: 973-596-8569 (office)	MIS 423-002
Office Hours: W (CA	Spring 2025	
Email: <u>fresneda@njit</u> .	edu (the best way to contact me)	
Class Time & Locati	on: Mondays & Wednesdays 1:00 pm – 2:20 pm, CAB 3052	
Credit Hours: 3	Course Prerequisites: MGMT 116 and MGMT 21	16
(Instructor's persona https://njit-edu.zoom	l Zoom room: .us/j/3714287486?pwd=TlIwYjBOanRpUjljUnpDcHJoNU9	90dz09)

Course Description

This course concentrates on the world of sports performance management through the lens of business intelligence, including descriptive and predictive analytics, and related support technologies and tools, to analyze, and manage performance data in sport. Overall, this course focuses on teaching knowledge and analytics skills to better manage sport data and sport related enterprises. The course materials focus on three fundamental aspects of sport management, including: (1) assessment and forecasting performance data of players and teams, (2) decision analysis and strategic planning of sport-related organizations, and (3) statistical forecasting in sports betting. In addition, the course offers students opportunities to produce their own results using a hands-on approach in a fast-moving and highly stochastic ecosystem of sports. Thus, students will gain practical skills in data management and analytics skills to support informed decision-making for sports management and coaching.

Course Objectives:

Upon completion of this course, students should be able to:

- 1. Enhance their general problem-solving and critical thinking skills, fostering an improved capacity for analytical reasoning.
- 2. Attain comprehension of fundamental statistical concepts and their practical applications within the realm of sports, facilitating a solid foundation in sports analytics.
- 3. Acquire a comprehensive overview of methodologies employed in the acquisition, processing, analysis, visualization, and implementation of sports data, ensuring a broad understanding of the data-driven aspects of the sports industry.
- 4. Cultivate the capability to identify, formulate, and analyze decision-making processes in sports, empowering students to assess and contribute to strategic choices within the sporting context.

Course Materials:

Textbook (Mandatory)

"Introduction to Sports Analytics using \mathbb{R} ", by Ryan Elmore and Andrew Urbaczewski (2025). Prospect Press. ISBN: 978-1-958303-06-1 (eTextbook); ISBN: 978-1-958303-07-8 (Paperback). Students will be required to read book chapters and familiarize themselves with the corresponding R code before class, as specified in the class schedule. Students can order the textbook through the following website:

https://www.prospectpressvt.com/textbooks/elmore-sports-analytics

Course Software:

The majority of computing in the course will be done using R (in some cases MS Excel may be used as well). This will include in-class demonstrations and tutorials on how to use R.

Recommended Materials:

- "*R for Beginners*", by Emmanuel Paradis (Free Download: <u>https://cran.r-project.org/doc/contrib/Paradis-rdebuts_en.pdf</u>).
- "An Introduction to R: Notes on R' by W. N. Venables, D. M. Smith, and the R Core Team (Free Download: <u>https://cran.r-project.org/doc/manuals/r-release/R-intro.pdf</u>).
- "*R Programming for Data Science*", by Roger Peng (Free Download: <u>https://leanpub.com/rprogramming</u>).
- "Storytelling with Data: A Data Visualization Guide for Business Professionals", by Cole Nussbaumer Knaflic (2015). Wiley, 1st ed. ISBN: 978-1119002253.
- "*Marketing Research: An Applied Orientation*", by N. K. Malhotra (2009). Prentice Hall, 6th ed. ISBN: 978-0136085430.

Course Website

Please go to <u>https://canvas.njit.edu/</u>. The Canvas site is where most of the course materials are posted. Make sure you have an NJIT UCID and password so that you are able to access Canvas. I will use Canvas to post announcements and supplemental materials throughout the semester. **Please be sure to check the site** (canvas.njit.edu) frequently. **Please contact helpdesk (973-596-2900) for problems associated with Canvas**.

Course Deliverables/ Final Grade Components

Your grade for this course will be based on the following components:

Component	Effort	Weight
6 x Homework Assignments	Individual	$6 \ge 10$ points = 60 points
Article Presentation	Individual 10 p	
E-Sports Project Final Presentation	Group	10 points
E-Sports Project Paper	Group	20 points
TOTAL	100 points	

Homework Assignments

The main purpose of the homework is to strengthen your problem-solving abilities. The homework should also prepare you for the E-Sports Final Project. Approximately every two weeks, students will complete a homework assignment. The assignments will typically direct students to develop R code to address specific questions/problems. Students may be required to provide an interpretation of the results obtained through the R code developed as part of the assignment. Homework will be available on Canvas. Homework is available on **Mondays at 12 AM and is due on Sunday by 11:59 PM**, unless otherwise specified on the schedule or on Canvas.

Missed homework will be excused only under extraordinary, week-long circumstances such as medical or family emergencies, at the discretion of the instructor and with appropriate documentation at the time of the missed assignment. A missed homework without prior approval and without legitimate reason will not receive credit.

Article Presentation

Students will be requested to present one article in class addressing a relevant topic related to sport management, specifically to sport management issues such as **budget constraints**, **legal and ethical issues** (e.g., doping,

corruption, etc.), **governance issues** (e.g., gender in governance, conflicts of interests, merges and acquisitions, etc.), or **other diverse issues** such as head concussion issues, market competition, careers in sport management and sports analytics, etc. These articles will <u>selected by students</u>, <u>but the articles need to be approved in advance by the instructor</u>. Students will be allotted with 20 minutes to present the article and its key elements and discuss them with the audience. Presentations that allow/encourage audience participation will receive higher grades. Article presentations will take place on **Wednesdays**, as indicated in the class schedule.

E-Sports Project Paper

There will be one written project that is to be completed in groups of 2 and submitted via Canvas. The main purpose of the project is to demonstrate proficiency using R and apply what you have learned to real-world data for the purpose of decision making and problem solving within the area of e-sports. The project will assess your cumulative understanding of the concepts covered in class and course material and will evaluate your ability to apply these ideas to a real-world business scenario. Project directives and information can be found on Canvas. The instructor will provide the datasets by the end of week 6 and the students will decide the research question(s) for the project. By week 8, students will be requested to submit a draft of the project. They will receive feedback from the instructor within a week of the draft due date.

E-Sports Project Final Presentation

The group presentation demonstrates your understanding of the whole process of defining a business problem, matching it with the appropriate data, analyzing the data, and reporting and communicating your results for the purpose of decision making. Each group will prepare a presentation of the research project addressing this process.

Some important policies regarding this presentation are:

- 20 minute presentation
- Participation, including audience questions, is mandatory
- Business attire is expected
- Every group member must present

Suggested content of the presentation:

- Problem definition (provide extensive background about the problem and the purpose of your project)
- Data source(s) and data collection
- Data analysis (refer to the data analysis needs, do not provide your R code)
- Results and data result visualizations (identify and use the best available tools to communicate your results)
- Insights (provide a "business meaning" to your results and explain your suggestion to solve the problem)

Final Grades

Grades are a reflection of the level of understanding of course content. Therefore, <u>to achieve the grade of A or B in</u> <u>this class you need to</u>:

- Attend 100% of the classes. During class, new content is introduced, explained, and then applied for better understanding.
- Read and understand all the class materials. This will allow you to participate in class discussions, exercises, and activities to further understanding. Reading the assigned book chapters before class is a key element to achieve a good grade.
- Turn in all course deliverables in a timely and professional manner.
- Do not procrastinate. Do not develop any of the course deliverables when it is already at or past the due date.
- Be an active member of your group and contribute with new ideas and suggestions.

With less preparation and participation expect the grade of C or lower.

I have had students be very casual in taking a class for the first part of a term. Then, as the class nears the end, the student realizes a bad grade may be in the future and asks for additional extra-credit opportunities or extensions to due dates. This is usually done with a **sad face, a soft voice, and a remorseful heart**. Please know now that such

opportunities are not fair to the other students. As such, the grading system established in this syllabus is final and no other opportunities for points exist. This means that each student should take this class seriously from the first class.

Final course grades will be based on the following scale (there will be NO curve):

Grading Scale

Α	B+	В	C+	С	D	F
90%-100%	85%-89%	80%-84%	75%-79%	70%-74%	60%-69%	0%–59%

Program Learning Goals and Objectives (PLGO) and Program Learning Outcomes (PLO): BS in Business Program

Goal	Outcome
LG 1 – Develop an	LO 1 - Students will demonstrate knowledge in business concepts and an ability
understanding of	to apply these concepts to solve business problems
business concepts and LO 2 - Students will demonstrate an ability to solve business problem	
problem solving	current technology
IC2 Develop	LO 1 - Students will demonstrate the ability to deliver effective presentations
EG Z - Develop	enhanced by technology
Communication and	LO 2 - Students will demonstrate the ability to write clear and concise reports
La formation Literacy	that reflect "critical thinking"
Skille	LO 3 - Students will demonstrate the ability to search databases, locate, use and
SKIIIS	properly cite relevant information
LG 3 - Interact	LO 1 - Students will demonstrate the ability to understand and use team building
Effectively in Teams	behaviors to accomplish group tasks
LG 4 - Develop Ethical	LO 1 - Students will demonstrate the ability to identify ethical dilemmas and
Reasoning Skills	make decisions grounded in ethical principles
LG 5 - Acquire	LO 1 - Students will demonstrate the ability to use technology for effective
Technological Skills	project management
LG 6 - Understand the	IO1 Students will demonstrate the ability to understand the clobal context in
Global Context of	which business is conducted
Business	which busiless is conducted

Classroom Policies

Success in business depends on the combined performance of the professional team, not the self-centered interests of one individual. Similarly, a good learning environment is collectively created and requires the contribution of ALL students within the class. To maximize classroom learning:

- **Engage in learning**. Being attentive during class. Giving class your undivided attention and actively contributing to discussion, exercises, and projects.
- Show respect. Listening attentively to others' thoughts and ideas.

Disruptive behavior includes:

- Using any device that is distracting to others (including me).
- Engaging in side-conversations.
- Disrespecting others.
- Using language inappropriate to a professional work environment.
- Arriving late and departing before class is dismissed. (Being on time is an expectation. In the business arena, being late to a meeting or appointment is a cardinal sin. It can result in the loss of business, the loss of trust, and

sometimes the loss of a job. For this reason, it is important for a student to model the conduct expected in the NJIT after-life (your future job)).

Non-compliance:

- Exhibiting behavior that disrupts the class learning environment will result in a deduction of points. Students may also be asked to leave class.
- After continued non-compliance a student may be permanently removed from the class.

Email Etiquette

This is a business course and the expectation is that you will conform to appropriate business letter writing practice in all of your email to me. The following are the basics.

- Put the course name (e.g. MIS 423) in the subject line
- Identify the subject of the e-mail with a brief but descriptive summary of the topic: include a proper salutation (e.g. Professor Fresneda), and the assignment details such as the title, project report, or quiz.
- Proofread your e-mail for proper sentence structure, capitalization, spelling and punctuation.
- Conclude the e-mail message with a proper closing (e.g. Regards, Sincerely) and your full name.

(Note: Do not e-mail requests for additional grade points unless there is an error in the grading. Please note that any grade discrepancies must be addressed within 2 weeks of the assignment due date. Grades are not 'given out' by the professor; they are 'earned' by the student. So, make sure that you 'earn' a grade that you can live with.)

Late Assignments

Late assignments will not be accepted for grading unless there is a severe illness or an emergency situation. In these cases, legitimate documentation of the emergency must be presented and approved by the office of the Dean of Students before extensions will be granted.

Academic Integrity

Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at:

http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf.

Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university. If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu. I will submit your assignments to *Turnitin* to check for plagiarism if there are clear signs of cheating.

AI Use Policy

Unless explicitly indicated in an assignment, this course expects students to work without artificial intelligence (AI) assistance in order to better develop their skills in this content area. As such, AI usage is not permitted throughout this course under any circumstance unless explicitly indicated in the assignment.

Disability Accommodation

Educational access is the provision of classroom accommodations, auxiliary aids and services to ensure equal educational opportunities for all students regardless of their disability. If you are in need of accommodations due to a disability please contact Scott Janz (oars@njit.edu), Associate Director of the Office of Accessibility Resources & Services (OARS), Kupfrian Hall 201, to discuss your specific needs. A Letter of Accommodation Eligibility from the

OARS authorizing your accommodations will be required. Accommodations need to be requested in advance and will not be granted retroactively.

Final Comments

I reserve the right to change any aspect of this syllabus or the course schedule at any time, as the need arises. Changes would be appropriately communicated to students. Students registered for this course assume full responsibility for reading and understanding the course policies as stated above.

Week #	Week of:	Lecture Topics	Activities Due
1	Jan 21	-Course Logistics & Syllabus	
2	Jan 27	-Introduction to Sports Analytics/ Introduction to R	-Forming Groups (in class) -Article Presentation Assignment (in class)
3	Feb 03	-Introduction to R	-Article Presentation I (in class, Wednesday)
4	Feb 10	-Baseball	-Article Presentation II (in class, Wednesday)
5	Feb 17	-Baseball	-Article Presentation III (in class, Wednesday) -Homework I (due on Sunday 02/23 by midnight)
6	Feb 24	-Basketball	-Article Presentation IV (in class, Wednesday) -E-Sports Project Selection (in class, Wednesday)
7	Mar 03	-Basketball	-Article Presentation V (in class, Wednesday) -Homework II (due on Sunday 03/09 by midnight)
8	Mar 10	-Football	-Article Presentation VI (in class, Wednesday) -E-Sports Project Draft (due on Sunday 03/16 by midnight)
9	Mar 17		Spring Recess
10	Mar 24	-Football	-Article Presentation VII (in class, Wednesday) -Homework III (due on Sunday 03/30 by midnight)

11	Mar 31	-Hockey	-Article Presentation VIII (in class, Wednesday)	
12	Apr 07	-Soccer	-Article Presentation IX (in class, Wednesday) -Homework IV (due on Sunday 04/13 by midnight)	
13	Apr 14	-Golf	-Article Presentation X (in class, Wednesday)	
14	Apr 21	-Sports Wagering and Daily Fantasy Sports	-Article Presentation XI (in class, Wednesday) -Homework V (due on Sunday 04/27 by midnight)	
15	Apr 28	-Sports Wagering and Daily Fantasy Sports	-E-Sports Project Final Presentation (Wednesday)	
16	May 05	-Course Wrap-Up	-E-Sports Project Final Presentation (Monday)	
May 08	May 08 & May 09 Reading days		Reading days	
Final E (May 1	Exam Week 0 – May 16)		-Homework VI (due on Sunday 05/11 by midnight) -E-Sports Project Paper (due on Thursday 05/15 by midnight)	