



KIN 4042

Sports Informatics

Department of Kinesiology and Health Sciences

Number of Units: 1

Fall 2026

[Download Course Syllabus Here](#)

Meeting days: Asynchronous	Instructor: Arnel Aguinaldo, PhD, ATC, CPSS ("Dr. A")
Meeting times: Asynchronous	Phone: 619-849-3007
Meeting location: Online	Email: aaguinal@pointloma.edu
Final Exam: Capstone (Due 12/17/2026)	<u>Office Hours</u> (Virtual)

PLNU Mission

To Teach ~ To Shape ~ To Send

Point Loma Nazarene University exists to provide higher education in a vital Christian community where minds are engaged and challenged, character is modeled and formed, and service is an expression of faith. Being of Wesleyan heritage, we strive to be a learning community where grace is foundational, truth is pursued, and holiness is a way of life.

COURSE DESCRIPTION

This course provides an in-depth exploration of information systems and data analytics commonly used in sport science. Students will learn how to apply technologies such as wearables, GPS monitoring systems, motion capture, force plates, and other biomechanical



assessment tools to collect and interpret data related to athletic performance and health. Emphasis will be placed on data management, analysis, visualization, and the integration of technology to optimize training, prevent injury, and improve recovery.

COURSE LEARNING OUTCOMES

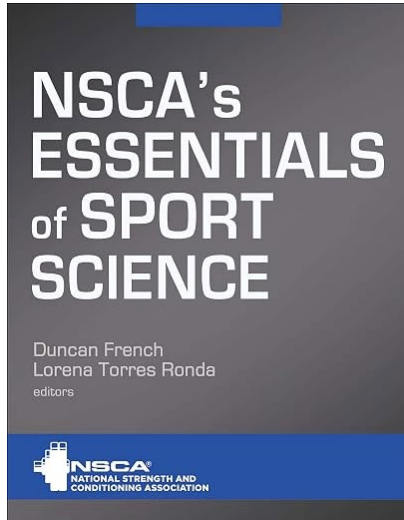
At the end of this course, students will be able to:

1. **Explain** how sport science technologies are used to assess biomechanical, physiological, and recovery-related aspects of athletic performance.
2. **Import, organize, and analyze** data from sources such as wearables, GPS, force plates, motion capture systems, and physiological monitoring tools.
3. **Calculate and interpret** key metrics related to external load, internal load, neuromuscular performance, movement mechanics, recovery, and injury risk.
4. **Apply** descriptive statistics, frequentist methods, and machine learning to assess data quality, reliability, validity, and utility in applied sport science testing and monitoring.
5. **Create** visualizations and summary reports that communicate biomechanical and physiological data clearly to sport scientists, coaches, and clinicians.
6. **Integrate** multiple sport science data streams to make evidence-based recommendations related to performance optimization, injury prevention, rehabilitation, and return to performance.

REQUIRED TEXTS AND RECOMMENDED STUDY RESOURCES

Students are responsible for having the required course textbooks prior to the first day of class.

All supplemental materials posted on this course site (including articles, book excerpts, or other documents) are provided for your personal academic use. These materials may be protected by copyright law and should not be duplicated or distributed without permission of the copyright owner.



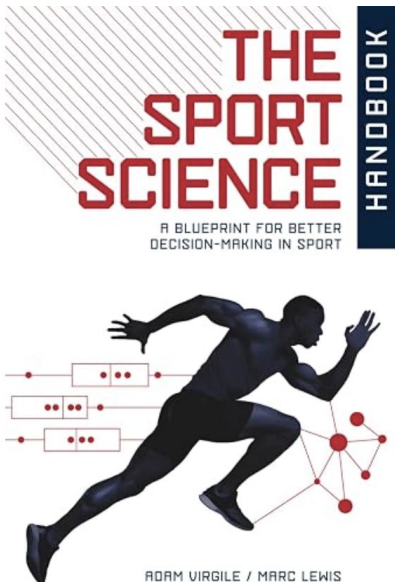
⚙️ **Required**

French, D., & Torres Ronda, L. (Eds.). NSCA's Essentials of Sport Science. Human Kinetics.

[Available on Amazon here](#)

Data processing methods will be developed and implemented in R and Python coding environments. Students will be required to use the following cloud-based services to parse, analyze, and visualize player performance and biomechanical data:

- [Posit Cloud](#) (RStudio Cloud)
- [Google Colab](#) (Python)



📖 **Recommended**

Virgile, A., & Lewis, M. The Sport Science Handbook: A Blueprint for Better Decision-Making in Sport. Imprint.

[Available on Amazon here](#)

NOTE: Students are responsible to have the required textbooks prior to the first day of class. Students are also encouraged to begin reading the books in preparation for the class as soon as possible.

This course also utilizes the following online tools (free of charge for students) to facilitate student engagement and enhance your learning experience:



COURSE CREDIT HOUR INFORMATION

In the interest of providing sufficient time to accomplish the stated Course Learning Outcomes, this class meets the PLNU credit hour policy for a 1 unit class delivered over 15 weeks. Specific details about how the class meets the credit hour requirement can be provided upon request. (Based on 37.5 hours of student engagement per credit hour.)

Category	Time Expectation in Hours
Online Participation in Discussions, Groups, etc.	7.5
Reading Assignments	5
Written Assignments	7.5
Other Assignments & Learning Activities	7.5
Quizzes, Projects	10
Total Hours	37.5

ASSESSMENT AND GRADING

- **Assignments:** There will be six lab assignments worth to be scheduled throughout the semester. These assignments will vary in difficulty depending on the module covered that week and will involve data parsing, analysis, and visualizations in Python and R.
- **Mid-Term Exam:** A mid-term exam will be administered via Canvas on the date noted below in the course schedule. It will consist of multiple choice, T/F questions, and coding challenges covering the material from the first unit (4 modules).
- **Capstone:** As part of an effort to gain experience in applied biomechanics and sport performance, each student will be required to complete a capstone project involving a data-driven report on player health and performance using the tools and skills learned in this course. The capstone should include data visualizations, regression tables, and actionable insights organized and submitted as a markdown notebook in R or Python.



- **In-Video Quizzes:** All module lectures will be shown through weekly in-video quizzes, which are interactive videos each embedded with 3-5 questions relevant to the content. If you do not complete any in-video quizzes, you receive 0 points for that module.
- **Participation:** Participation will be measured using module and podcast discussions that require you to post a response to the prompts and replies to at least two of your peers. Your posts should be substantive in nature and foster a healthy dialogue between peers about the material. Your initial video post should be 5-10 minutes in length while written replies to peers should be at least 100 words.

ASSESSMENT	PERCENT	COURSE OBJECTIVES
Assignments	30	1-6
Mid-Term Exam	20	1,2,3,6
Capstone	30	1-6
In-Video Quizzes	10	1-6
Participation	10	1,3,6
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Total	100	



PERCENT	GRADE	POINTS	GRADE
93-100	A	73-76	C
90-92	A-	70-72	C-
87-89	B+	67-69	D+
83-86	B	63-66	D
80-82	B-	60-62	D-
77-79	C+	0-59	F

FINAL EXAMINATION POLICY

Successful completion of this class requires taking the final examination on its scheduled day. The final examination schedule is posted on the [Traditional Undergraduate Records: Final Exam Schedules](#) site. If you find yourself scheduled for three (3) or more final examinations on the same day, you are authorized to contact each professor to arrange a different time for one of those exams. However, unless you have three (3) or more exams on the same day, no requests for alternative final examinations will be granted.

STATE AUTHORIZATION

State authorization is a formal determination by a state that Point Loma Nazarene University is approved to conduct activities regulated by that state. In certain states outside California, Point Loma Nazarene University is not authorized to enroll online (distance education) students. If a student moves to another state after admission to the program and/or enrollment in an online course, continuation within the program and/or course will depend on whether Point Loma Nazarene University is authorized to offer distance education courses in that state. It is the student's responsibility to notify the institution of any change in his or her physical location. Refer to the map on [State Authorization](#) to view which states allow distance education outside of California.

CONTENT WARNING



I acknowledge that each of you comes to PLNU with your own unique life experiences. This contributes to the way you perceive various types of information. In [class name], all of the class content, including that which may be intellectually or emotionally challenging, has been intentionally curated to achieve the learning goals for this course. The decision to include such material is not taken lightly. These topics include [list topics]. If you encounter a topic that is intellectually challenging for you, it can manifest in feelings of discomfort and upset. In response, I encourage you to come talk to me or your friends or family about it. Class topics are discussed for the sole purpose of expanding your intellectual engagement in the area of [subject/major], and I will support you throughout your learning in this course.

TRIGGER WARNING

I acknowledge that each of you comes to PLNU with your own unique life experiences. This contributes to the way you perceive several types of information. In [class name], we will cover a variety of topics, some of which you may find triggering. These topics include [list topics]. Each time this topic appears in a reading or unit, it is marked on the syllabus. The experience of being triggered versus intellectually challenged are different. The main difference is that an individual must have experienced trauma to experience being triggered, whereas an intellectual challenge has nothing to do with trauma. If you are a trauma survivor and encounter a topic in this class that is triggering for you, you may feel overwhelmed or panicked and find it difficult to concentrate. In response, I encourage you to take the necessary steps for your emotional safety. This may include leaving class while the topic is discussed or talking to a therapist at the Counseling Center. Should you choose to sit out on discussion of a certain topic, know that you are still responsible for the material; but we can discuss if there are other methods for accessing that material, and for assessing your learning on that material. Class topics are discussed for the sole purpose of expanding your intellectual engagement in the area of [subject/major], and I will support you throughout your learning in this course.

INCOMPLETES AND LATE ASSIGNMENTS

All assignments are to be submitted/turned in by the beginning of the class session when they are due, including assignments posted in Canvas. Incompletes will only be assigned in extremely unusual circumstances.

GRADE GRUBBING AND EXTRA CREDIT

Your final grade at the end of the semester is what you earned and is non-negotiable. Any requests for “rounding up” grades will be ignored. However, I certainly will fix any clerical errors on my part that may have negatively impacted your grade. In addition, you will have



opportunities to earn up to 5% above your total grade in extra credit over the course of the semester. Your extra credit contributions will be reflected in your final grade after the last day of the semester.

PLNU COPYRIGHT POLICY

Point Loma Nazarene University, as a non-profit educational institution, is entitled by law to use materials protected by the US Copyright Act for classroom education. Any use of those materials outside the class may violate the law.

PLNU RECORDING NOTIFICATION

In order to enhance the learning experience, please be advised that this course may be recorded by the professor for educational purposes, and access to these recordings will be limited to enrolled students and authorized personnel.

Note that all recordings are subject to copyright protection. Any unauthorized distribution or publication of these recordings without written approval from the University (refer to the Dean) is strictly prohibited.

PLNU ACADEMIC HONESTY POLICY

Students should demonstrate academic honesty by doing original work and by giving appropriate credit to the ideas of others. Academic dishonesty is the act of presenting information, ideas, and/or concepts as one's own when in reality they are the results of another person's creativity and effort. A faculty member who believes a situation involving academic dishonesty has been detected may assign a failing grade for that assignment or examination, or, depending on the seriousness of the offense, for the course. For all student appeals, faculty and students should follow the procedures outlined in the University Catalog. See [Academic Policies](#) for definitions of kinds of academic dishonesty and for further policy information.

PLNU ACADEMIC BEHAVIOR POLICY

Both faculty and students at Point Loma Nazarene University have the right to expect a safe and ordered environment for learning. Students are expected to take the initiative to learn and conduct themselves in a mature and civil manner in the classroom environment. Any student behavior that is disruptive or threatening is a serious affront to Point Loma Nazarene University as a learning community. Students who fail to adhere to these behavioral standards may be subject to disciplinary action, including removal from class or further university sanctions. For a



full definition of disruptive behavior, response procedures, and the appeal process, please consult the [Academic Behavior Policy](#) in the [University Catalog](#).

ARTIFICIAL INTELLIGENCE (AI) POLICY

You are allowed to use Artificial Intelligence (AI) tools (e.g., ChatGPT, Gemini Pro, GrammarlyGo, Perplexity, etc.) to generate ideas, as a learning tool, or in some cases generate portions of work you will submit. I will specify in individual assignments what constitutes appropriate use of AI for that assignment. Please use this [Purdue resource](#) to guide your citations when using AI.

PLNU ACADEMIC ACCOMMODATIONS POLICY

PLNU is committed to providing equal opportunity for participation in all its programs, services, and activities in accordance with the Americans with Disabilities Act (ADA). Students with disabilities may request course-related accommodations by contacting the Educational Access Center (EAC), located in the Bond Academic Center, [by email](#) or phone at 619-849-2533. Once a student's eligibility for an accommodation has been determined, the EAC will work with the student to create an Accommodation Plan (AP) that outlines approved accommodations. Professors are able to view a student's approved accommodations through Accommodate.

PLNU highly recommends that students speak with their professors during the first two weeks of each semester/term about the implementation of their approved accommodations in that particular course. Accommodations are not retroactive; as such, clarifying with the professor at the outset is one of the best ways to promote positive academic outcomes.

Students who need accommodations for a disability-related need should contact the EAC as early as possible (i.e., ideally before the beginning of the semester) to assure appropriate accommodations can be provided. In accordance with ADA, accommodations cannot constitute a fundamental alteration to course outcomes; therefore, planning ahead is vital in establishing appropriate accommodations for equal access to this course. It is the student's responsibility to make the first contact with the EAC. Students cannot assume that because they had accommodations in the past, their eligibility at PLNU is automatic. All determinations at PLNU must go through the EAC eligibility process. This is to protect the privacy of students with disabilities who may not want to disclose this information and are not asking for any accommodations.

PLNU ATTENDANCE AND PARTICIPATION POLICY



Regular and punctual attendance at all class sessions is considered essential to optimum academic achievement. If the student is absent for more than 10 percent of class sessions, the faculty member will issue a written warning of de-enrollment. If the absences exceed 20 percent, the student may be de-enrolled without notice until the university withdrawal date or, after that date, receive an “F” grade.

PLNU Course Modality Definitions*

1. Online Courses: These are courses with class meetings where all instruction and interaction is fully online.
 - a. Synchronous Courses: At least one class meeting takes place at a designated time.
 - b. Asynchronous Courses: All class meetings are asynchronous.
2. Hybrid Courses: These are courses with class meetings that take place both in the classroom and online synchronously and/or asynchronously.
3. In-Person Courses: These are courses that meet in person with the instructor and students in a physical classroom setting. With approval by the area dean, this may include up to 25% of qualified class interactions through a Learning Management System (such as Canvas).

In some courses, a portion of the credit hour content will be delivered asynchronously and attendance will be determined by submitting the assignments by the posted due dates. See [Academic Policies](#) in the Undergraduate Academic Catalog.

Asynchronous Attendance/Participation Definition

A day of attendance in asynchronous content is determined as contributing a substantive note, assignment, discussion, or submission by the posted due date. Failure to meet these standards will result in an absence for that day. Instructors will determine how many asynchronous attendance days are required each week.

SPIRITUAL CARE

Please be aware PLNU strives to be a place where you grow as whole persons. To this end, we provide resources for our students to encounter God and grow in their Christian faith.



If you have questions, a desire to meet with the chaplain or have prayer requests you can contact your professor or the [Office of Spiritual Life and Formation](#).

LANGUAGE AND BELONGING

Point Loma Nazarene University faculty are committed to helping create a safe and hospitable learning environment for all students. As Christian scholars we are keenly aware of the power of language and believe in treating others with dignity. As such, it is important that our language be equitable, inclusive, and prejudice free. Inclusive/Bias-free language is the standard outlined by all major academic style guides, including MLA, APA, and Chicago, and it is the expected norm in university-level work. Good writing and speaking do not use unsubstantiated or irrelevant generalizations about personal qualities such as age, disability, economic class, ethnicity, marital status, parentage, political or religious beliefs, race, gender, sex, or sexual orientation. Your suggestions are encouraged and appreciated. Please let me know ways to improve the effectiveness of the course for you personally, or for other students or student groups. To help accomplish this:

- If you have a name and/or set of pronouns that differ from those that appear in your official PLNU records, please let me know!
- If you feel like your performance in the class is being impacted by your experiences outside of class, please don't hesitate to come and talk with me. I want to be a resource for you.
- I (like many people) am still in the process of learning about diverse perspectives and identities. If something was said in class (by anyone) that made you feel uncomfortable, please talk to me about it.

Inclusive language also avoids using stereotypes or terminology that demeans persons or groups based on age, disability, class, ethnicity, gender, race, language, or national origin. Respectful use of language is particularly important when referring to those outside of the religious and lifestyle commitments of those in the PLNU community. By working toward precision and clarity of language, we mark ourselves as serious and respectful scholars, and we model the Christ-like quality of hospitality.

If you (or someone you know) has experienced other forms of discrimination, you can find more information on reporting and resources via the [Nondiscrimination and Anti-harassment Policy](#).

SEXUAL MISCONDUCT AND DISCRIMINATION



In support of a safe learning environment, if you (or someone you know) have experienced any form of sexual discrimination or misconduct, including sexual assault, dating or domestic violence, or stalking, know that accommodations and resources are available through the [Title IX Office](#). Please be aware that under Title IX of the Education Amendments of 1972, faculty and staff are required to disclose information about such misconduct to the [Title IX Office](#).

If you wish to speak to a confidential employee who does not have this reporting responsibility, you can contact [Counseling Services](#) or [consult the list of campus pastors](#).

If you (or someone you know) has experienced other forms of discrimination or bias, you can find more information on reporting and resources via the [Nondiscrimination and Anti-harassment Policy](#).

USE OF TECHNOLOGY

In order to be successful in the online or hybrid environment, you'll need to meet the minimum technology and system requirements; please refer to the [*Technology and System Requirements*](#) information. Additionally, students are required to have headphone speakers, microphone, or webcams compatible with their computer available to use. Please note that any course with online proctored exams requires a computer with a camera (tablets are not compatible nor allowable) to complete exams online.

Problems with technology do not relieve you of the responsibility of participating, turning in your assignments, or completing your class work.

LOMA WRITING CENTER

Getting feedback from the Loma Writing Center while you're in the process of working on an assignment is a great way to improve the quality of your writing and develop as a writer. You are encouraged to talk with a trained writing consultant about getting started on an assignment, organizing your ideas, finding and citing sources, revising, editing for grammar, and polishing final drafts, and more.

Walk-ins are welcome, but we recommend making an appointment in advance. For information about how to make in-person or online appointments, see [Loma Writing Center webpage](#) or visit the Loma Writer Center on the first floor of the Ryan Library, room 221.

- [Appointment Calendar](#)
- [Website](#)



- [Email](#)

LOMABOOKS INSTRUCTIONS FOR STUDENTS

For both digital and print materials, please add these student instructions to your syllabus and Canvas Course. Prior to the start of class, the PLNU Bookstore will also be sharing student instructions in a standalone email on how to access their content.

This course is part of our course material delivery program, [LomaBooks](#). The bookstore will provide each student with a convenient package containing all required physical materials; all digitally delivered materials will be integrated into Canvas.

You should have received an email from the bookstore confirming the list of materials that will be provided for each of your courses and asking you to select how you would like to receive any printed components (in-store pick up or home delivery). If you have not done so already, please confirm your fulfillment preference so the bookstore can prepare your [LomaBooks](#) materials.

ASSIGNMENTS AT-A-GLANCE