Apploed Sport Science

APK5702 | 29864 | 3 Credits | Spring 2024

Course Info

INSTRUCTOR	**Garrett Beatty, Ph.D., M.Ed.** Email: gbeatty@ufl.edu
OFFICE HOURS	Listed in Canvas Course (UF eLearning)
COURSE ACCESS	Access course through Canvas on UF eLearning **https://elearning.ufl.edu/**

COURSE DESCRIPTION

Examines fundamental concepts related to the acquisition, analysis, and interpretation of data relevant to the outcome of human performance across myriad physical and cognitive domains including sport, exercise, tactical operations, and medical professions. Addresses the use of statistics and broader fields of data science, artificial intelligence, analytics, and technology management necessary to evaluate performance and strategically adjust training methods to enhance performance.

PREREQUISITE KNOWLEDGE AND SKILLS

Students must hold Graduate Student classification based on the UF Registrar's class student Classifications system (**https://catalog.ufl.edu/UGRD/academic-regulations/student-classifications/**). Or, students must acquire instructor approval.

REQUIRED AND RECOMMENDED MATERIALS

Textbook: Textbook: French, D. and Ronda, L.T. (Eds). NSCA's Essentials of Sport Science. Human Kinetics. 2022. ISBN: 9781492593355

- Additional materials from the UF Library and web sources will be assigned and available through the UF E-Learning course shell.

COURSE FORMAT

The course is organized into 12 modules. Within each module, students will have the opportunity to engage in course content and graded learning activities. The learning activities are designed to catalyze student achievement of the following course goals and objectives.

COURSE LEARNING OBJECTIVES:

- Identify the aspects of sports improved with technological implementation
- Describe principles of good data hygiene
- Explain the characteristics of tracking and load monitoring systems
- Describe the protocols used to collect data with relevant sport science technology
- Analyze data collected with relevant sport science technology
- Interpret the results of data analyzed from relevant sport science technology
- Recommend strategies to improve athlete health, well-being, or performance based on the interpretation of data analyses.
- Develop material to disseminate data analyses and subsequent recommendation

Course & University Policies

ATTENDANCE POLICY

Requirements for class attendance (participation) and make-up exams, assignments, and other work in this course are consistent with university policies
https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx.

PERSONAL CONDUCT POLICY

Students are expected to exhibit behaviors that reflect highly upon themselves and the University. UF students are bound by The Honor Pledge which states:

We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code.

On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied:

On my honor, I have neither given nor received unauthorized aid in doing this assignment.

The Honor Code (http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Students are obliged to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult the instructor, graduate assistant, or teaching assistant in this class.

The utilization of Artificial Intelligence tools IS permitted in this course with the explicit understanding that students must cite all sources and tools utilized to support their work. Students are responsible for all content (accuracy, subjects, themes, etc.) submitted in their name regardless of where the content was generated. All submitted work/content must comply with UF's Honor Code.

COPYRIGHT STATEMENT

The materials used in this course are copyrighted. Course content is the intellectual property of Garrett Beatty, and property of the University of Florida. Course content may not be duplicated in any format without explicit permission from the College of Health and Human Performance, UF, and Garrett Beatty. Course content may not be used for any commercial purposes. Individuals violating this policy may be subject to disciplinary action or legal litigation from the University and other injured parties.

EXAM MAKE-UP POLICY

Unless excused based on University policies (**https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx**), missed examinations and non-submitted or late assignments will be not be evaluated and will be assigned a grade of 0.

Obtaining approval for make-up exams or make-up assignments is the responsibility of the student. Students with medically or emergency related circumstances should utilize the UF Care Team's Contact My Instructor service (**https://care.dso.ufl.edu/instructor-notifications/**) provided by the UF Dean of Students Office.

Any non-medical or emergency related circumstances require students to submit a written request explaining why an exception is being requested. The written request must include official documentation that provides proof that the missed coursework was due to acceptable reasons outlined by University policy.

ACCOMMODATING STUDENTS WITH DISABILITIES

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the Disability Resource Center by visiting their Get Started page at https://disability.ufl.edu/students/get-started/. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester. Accommodations are not retroactive, therefore, students should contact the office as soon as possible in the term for which they are seeking accommodations.

COURSE EVALUATIONS

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at https://gatorevals.aa.ufl.edu/public-results/.

PRIVACY

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course Students enrolled in this course are agreeing to have their video or audio content accessible to the members of this course, enrolled in this semester. All class meetings will be recorded and provided to the class for asynchronous access. Students engaging in this course will also develop multimedia content including audio and video presentations that will be accessible to all members of the class. Recordings will not be available to members outside of this course.

Per the State of Florida's House Bill 233, students are also permitted to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A "class lecture" is defined as an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams),

field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To "publish" means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code

Getting Help

HEALTH & WELLNESS
- U Matter, We Care: If you or a friend is in distress, please contact umatter@ufl.edu or 352 392-1575
- Contact My Instructor Service: https://care.dso.ufl.edu/instructor-notifications/
- Counseling and Wellness Center: https://counseling.ufl.edu/, 352-392-1575
- Sexual Assault Recovery Services (SARS) - Student Health Care Center, 392-1161
- University Police Department, 392-1111 (or 9-1-1 for emergencies) http://www.police.ufl.edu/

ACADEMIC RESOURCES
- E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. https://lss.at.ufl.edu/help.shtml
- Career Connections Center, Reitz Union, 392-1601. Career assistance and counseling. https://career.ufl.edu/
- Library Support, http://cms.uflib.ufl.edu/ask. Various ways to receive assistance with respect to using the libraries or finding resources.
- Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. http://teachingcenter.ufl.edu/
- Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers. http://writing.ufl.edu/writing-studio/
- Student Complaints:
  - On-Campus: https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/
  - On-Line Students Complaints: http://distance.ufl.edu/student-complaint-process/

Grading

Student learning will be evaluated through module quizzes, data-based assignments, and three exams. Specific assignment details and grading rubrics will be provided on the course website https://lss.at.ufl.edu/.

- **Quizzes**: Each course module includes multiple choice quizzes aimed at guiding and enhancing engagement in learning opportunities.

- **Assignments:** Each student will be graded on assignments throughout the course in which students will apply course concepts to actual human performance related data sets. Assignment tasks will include the acquisition, processing, cleaning, statistical analysis, interpretation, and presentation of relevant data sets.

- **Exams**: Students' knowledge of course content will be evaluated on two multiple choice exams. Questions will require the application of course material or knowledge of basic scientific principles covered throughout the course. Exam questions are generated by the course instructor and are randomly selected from a test bank. Students should prepare for the exam by completing all weekly course readings, watching all course lectures, consuming all course media, and completing and module quizzes prior to the exam.

Final grade composition:
- Quizzes: 10%
- Exams: 20%
    - Exam 1: 10%
    - Exam 2: 10%
- AI & Sport Science Assignments: 70%

Notes:
- Grades will not be rounded
- e.g. a 92.99% will <u>not</u> be rounded to a 93.00%.
- Grades of "I", "X", "H", or "N" will not be given except in cases of a documented, catastrophic occurrence.

Grading scale:

Grade	Percentage	Grade Points
A	93 - 100 %	4.00
A-	90 - 92.99 %	3.67
B+	87 - 89.99 %	3.33
B	83 - 86.99 %	3.00
B-	80 - 82.99 %	2.67
C+	77 - 79.99 %	2.33
C	73 - 76.99 %	2.00
C-	70 - 72.99 %	1.67
D+	67 - 69.99 %	1.33
D	63 - 66.99 %	1.00
D-	60 - 62.99 %	0.67
E	0 - 59.99 %	0.00

More detailed information regarding current UF grading policies can be found here: https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/.

Weekly Course Schedule

CRITICAL DATES & UF OBSERVED HOLIDAYS

- January 15: Martin Luther King, Jr. Day (Monday)
- March 9 – 16: UF Spring Break (Saturday - Saturday)
- April 25 – 26: UF Spring Semester Reading Days (Thursday – Friday)
- Complete list available here: https://catalog.ufl.edu/UGRD/dates-deadlines/2023-2024/#spring24text

WEEKLY SCHEDULE

Week	Dates	Assigned Module & Schedule Notes	Assessments Due
1	January 8 – 12	Course Introduction	
2	January 15 – 19	**UF Holiday: MLK Jr. Day – January 15**	**No Class Meeting**
3	January 22 – 26	Module 1 – Technology & Data in Human Performance Textbook Chapters: 7, 8	
4	January 29 – Feb 2	Module 2 – Athlete Tracking Systems and Load Monitoring Textbook Chapters: 9, 10	January 30 Module 1 – In Class Assignment
5	February 5 – 9	Module 3 – Kinematics, Kinetics, & Gait Analysis Textbook Chapters: 11, 12	February 6 Module 2 – In Class Assignment AI Project Assignment 1
6	February 12 – 16	Module 4 – Strength Tracking & Analysis; HR & HRv Textbook Chapters: 13, 14	February 13 Module 3 – In Class Assignment
7	February 19 – 23	Module 5 – EEG, EMG, & Biomarkers Textbook Chapters: 15, 16	**No Class Meeting** February 20 Module 4 – In Class Assignment AI Project Assignment 2
8	February 26 – Mar 1	Module 6 – Perception of Effort and Subjective Monitoring Textbook Chapters: 17	February 27 Module 5 – In Class Assignment
9	March 4 – 8	Exam 1 Week Exam 1 Available March 4 – 17 (1 attempt)	**No Class Meeting**
10	March 11 – 15	**UF Holiday: Spring Break** **March 9 - 16**	**No Class Meeting** March 17 Exam 1 Module 6 – In Class Assignment AI Project Assignment 3

11	March 18 – 22	Module 7 – Statistical Modeling Textbook Chapters: 18	
12	March 25 – 29	Module 8 – Injury Risk Model Textbook Chapters: 19	March 26 Module 7 – In Class Assignment AI Project Assignment 4
13	April 1 – 5	Module 9 – Operationalizing Data Textbook Chapters: 22	**No Class Meeting** April 2 Module 8 – In Class Assignment
14	April 8 – 12	Module 10 – Data Mining & Nonlinear Data Analysis Textbook Chapters: 20	April 9 Module 9 – In Class Assignment AI Project Assignment 5
15	April 15 – 19	Module 11 - Data Delivery & Reporting Textbook Chapters: 21	April 16 Module 10 – In Class Assignment
16	April 22 – 24	Module 12 – Information Dissemination Textbook Chapters: 31 **UF Reading Days: April 25 & 26** **Exam 2 Available: April 20 – May 1**	April 23 Module 11 – In Class Assignment AI Project Assignment 6 May 1 Exam 2 Module 12 – In Class Assignment AI Project Assignment 7

SUCCESS AND STUDY TIPS

Quizzes are designed as preparation tools for the course exams. Learning is a process that requires sustained, incremental advancements and occurs over time following neural adaptation. More simply stated, cramming may yield short-term results, but this strategy does not induce meaningful or lasting learning. Quizzes include questions reflective of the question styles included on the three exams.

Yellowdig is an asynchronous student engagement platform. Students should plan to participate weekly by posting course relevant thoughts, observations, questions; and responding to peers. Points are accrued on a weekly basis, so it is critical that students do not fall behind as it is nearly impossible to catch up on missed weeks.

AI & Global Case Studies assignments are designed to facilitate skill development in retrieving, consuming, and communicating scientific evidence to a broad audience. Case Studies require substantial preparation to execute successfully. Students should review the Assignment at the beginning of the semester and plan to work on these assignments incrementally each week throughout the semester.

Exams are designed as summative assessments (meaning, they test students to see what they learned and retained in the preceding module). All module materials, assignments, and the optional study guides are intentionally designed to help students prepare for the three course exams.

Optional Study Guides are exactly that—optional, and study guides. Note, the study guides are designed to facilitate learning, and not memorization. The study guides require critical thinking and problem solving utilizing the concepts presented within the module. Students should attempt to answer the study guide prompts without

using course materials to self-test their retention. When students hit a block and are unable to answer a study guide prompt, then they can reference course materials. Students would benefit from self-testing their ability to answer each prompt until they can do so without referencing course materials.