Department of Applied Physiology and Kinesiology
College of Health and Human Performance
UNIVERSITY of FLORIDA

Data Science & Analytics for Athlete Optimization

APK4905c | Class # 16652 | 3 Credits | Summer A 2022

Course Info

INSTRUCTOR	**Garrett Beatty, Ph.D.** Email: Utilize the UF E-Learning mailto:jahlgren@ufl.eduInbox for course related correspondence. Video Conferencing available upon request
OFFICE HOURS	Available by appointment when scheduled at least 1 business day in advance
ACCESS	Access course through Canvas on UF e-Learning (**https://elearning.ufl.edu/**) & the Canvas mobile app by Instructure

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 human performance, health, and well-being.

REQUIRED AND RECOMMENDED MATERIALS

Materials will be assigned and available through the UF E-Learning course shell.

COURSE FORMAT

The course is organized into 5 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. There is a single summative project that will be due in the 6th week of this course.

COURSE LEARNING OBJECTIVES:

1. Identify the aspects of sports improved with technological implementation
2. Describe principles of good data hygiene
3. Explain the characteristics of tracking and load monitoring systems
4. Describe the protocols used to collect data with relevant sport science technology
5. Analyze data collected with relevant sport science technology
6. Interpret the results of data analyzed from relevant sport science technology
7. Recommend strategies to improve athlete health, well-being, or performance based on the interpretation of data analyses.
8. 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.

EXAM MAKE-UP POLICY

Missed examinations and non-submitted or late assignments will be not be evaluated and will be assigned a grade of 0, unless excused based on University policies published in the UF Catalog:
https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/

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.
A student experiencing an illness should visit the UF Student Health Care Center or their preferred healthcare provider to seek medical advice and obtain documentation. If you have an illness, family emergency or death, please contact the Dean of Students Office (**www.dso.ufl.edu**) and follow the DSO Care Team procedures for documentation and submission of a request for make-up assignment (**https://care.dso.ufl.edu/instructor-notifications/**). The DSO will contact the instructor. Do not provide any documentation to the instructor regarding illness or family emergency. This is your personal and protected information. The DSO is qualified to receive and verify the documents you provide. The instructor will follow the recommendations from the DSO.

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. Students must submit this documentation prior to submitting assignments or taking the quizzes or exams. 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/**.

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 and UF. 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.

PRIVACY

Students engaging in this course will develop multimedia content including audio and video presentations that will be accessed by all members of the class. Our class sessions may also be audio/visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students enrolled in this course are agreeing to have their video or audio content accessible to the members of this course, in this semester. Recordings will not be available to members outside of this course, or in future semesters. As in all UF courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited. Students are prohibited from sharing any content from this course without first obtaining explicit, written consent from the University and the individuals identified within course content to be shared.

Getting Help

UF International Center Study Abroad:
352-273-1539

CISI:
For 24/7 emergency assistance, call AXA ASSISTANCE at (855) 327-1411 (in U.S.); (312) 935-1703 (toll collect from outside US)

HEALTH & WELLNESS
- Counseling and Wellness Center: **https://counseling.ufl.edu/**, 352-392-1575
- University Police Department, 392-1111 (or 9-1-1 for emergencies) http://www.police.ufl.edu/
- U Matter, We Care: If you or a friend is in distress, please contact **umatter@ufl.edu** or 352 392-1575

ACADEMIC RESOURCES
- Contact My Instructor Service: **https://care.dso.ufl.edu/instructor-notifications/**
- E-learning technical support, 352-392-4357 (select opti on 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/**

INCLUSION, DIVERSITY, EQUITY, AND ACCESSIBILITY RESOURCES
For suggestions or concerns related to IDEA, please reach out to any of the following:
- Dr. Linda Nguyen, APK IDEA Liaison, **linda.nguyen@hhp.ufl.edu**
- Dr. Rachael Seidler, APK Graduate Coordinator, **rachaelseidler@ufl.edu**
- Dr. Joslyn Ahlgren, APK Undergraduate Coordinator, **jahlgren@ufl.edu**

Grading

Student learning will be evaluated through a Final Project and course activities. Specific assignment details and grading rubrics will be provided on the course website **https://lss.at.ufl.edu/**.

- **Course Engagement:** Each student is expected to attend and engage in all class sessions and excursions in the program.

- **Final Project:** Students' knowledge of course content and demonstration of competency across the course's learning objectives will be evaluated through a final project which will be compiled throughout the course and submitted in the final week of the term. The project will be a group project.

Final grade composition:
- Course Engagement: 15%
- Final Project: 85%

Notes:
- Grades will not be rounded
  - e.g. a 92.9$\overline{9}$% will not 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.

Course letter grades based on cumulative grade percentages:

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

Grade Breakdown

25%

85%

■ Course Engagement 15%   ■ Final Project 85%
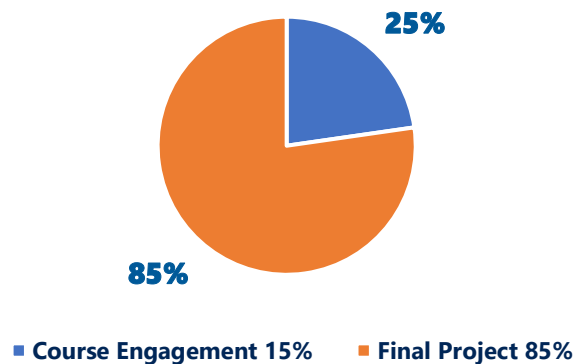
Weekly Course Schedule

CRITICAL DATES & UF OBSERVED HOLIDAYS
- May 30: Memorial Day (Monday)
- Complete list available here: **https://catalog.ufl.edu/UGRD/dates-deadlines/2022-2023/#summerac22text**

WEEKLY SCHEDULE

Week	Dates	Assigned Module & Schedule Notes	Assessments Due
1	May 9 - 13	Module 1 – Module 1 – Technology & Data in Human Performance	
2	May 16 - 20	Module 2 – Athlete Tracking Systems and Load Monitoring	See Program Schedule for Excursions & Class Meetings
3	May 23 - 27	Module 3 – Strength Tracking & Analysis; HR & HRv	See Program Schedule for Excursions & Class Meetings
4	May 30 - June 3	Module 4 – Injury Risk Model	See Program Schedule for Excursions & Class Meetings
5	June 6 - 10	Module 5 – Data Mining & Nonlinear Data Analysis	See Program Schedule for Excursions & Class Meetings
6	June 13 – 17	Module 6 – Information Dissemination	**June 14** Final Project Due