# DOCTOR OF SPORT SCIENCE IN SPORT SCIENCE AND DATA ANALYTICS (HYBRID)

## Overview

The Doctorate in Sports Science and Data Analytics prepares students to collect athlete data using cutting edge instrumentation and use statistical software for data analysis in efforts to optimize human performance while limiting injury risk. Students will analyze and compile datasets for reporting to Athletes, Sport coaches, and Medical staff. Additionally students will learn to perform complete needs analyses of various positions within the sport, identify common injuries and KPIs associated with athlete success.

## Admission Requirements (https://www.edu.miami.edu/admission/graduate/masters-app-process/)

This program accepts applications on a rolling basis for Spring, Summer, or Fall admissions. The following is a list of admission requirements for the Doctor of Sport Science in Sport Science and Data Analytics application.

- Completed application submitted through the Graduate School's application portal (https://applygrad.miami.edu/portal/application/)
- A bachelor's degree in Exercise Science or related field from a regionally accredited institution is required.
  - Pre-req Coursework - Anatomy, Physiology, and Exercise Physiology or equivalents
  - Submit official transcripts from each post-secondary institution (college or university) you attended, even if you did not earn a degree
  - Send electronic eScripts to sehdgradadmissions@miami.edu. If electronic delivery is not available at your institution, mail official transcripts to: SEHD Graduate Admissions, 1507 Levante Ave., Suite 311, Coral Gables, FL 33146
- 3.0 or Higher GPA
- Provide three letters of recommendation. Letters of recommendation should address your academic strengths, so it is best to request them from professors or academic advisors. If you have been out of school for some time and are no longer in contact with former faculty, letters from employment supervisors may be accepted
- Statement of Purpose. Applicants should describe why they are applying to the graduate program in the School of Education and Human Development at the University of Miami, what they hope to achieve during their studies, and their post-graduation goals. The statement should highlight personal and professional experiences and qualities that are relevant to the field and the specific degree program to which the applicant is applying. Applicants may also address any circumstances that affected their academic performance or test scores and explain why they would be a strong candidate for the program
- Resume
- International applicants. In addition to all the above admissions requirements, they must provide the following:
  - International credentials must be evaluated by a NACES member to confirm degree and GPA equivalences
  - Acceptable scores from one of the following English proficiency exams are required for international applicants whose native language is not English:
    - TOEFL (iBT): minimum score of 80 (before January 21, 2026) or 4.5 (after January 21, 2026)
    - IELTS (Academic): minimum score of 6.5
    - Duolingo English Test: minimum score of 125
- Copy of passport
- Copy of diploma with English translation for degrees earned outside of the United States
- Official and original transcripts with English translation

We encourage candidates to upload unofficial transcripts and test scores with their application to help expedite the review process while official documents are being processed.

### Admission Decision

Once an applicant has been admitted to graduate study, that individual should meet with the faculty advisor who was appointed to serve in that capacity and whose name appears in the admissions letter. This advisor will help the student enroll in courses that are appropriate to the program; to develop and to refine a Program of Study that must be on file in the Academic Affairs I Graduate Studies Office by the end of the first year of enrollment.

## Handbook of Policies and Procedures

The School of Education and Human Development follows the Graduate School's Honor Code. All students are required to review the Graduate Student Honor Code and the School of Education and Human Development's Handbook of Policies and Procedures for Graduate Students and submit the signed Acknowledgement of Receipt located on page 3 by the end of their first semester of enrollment.

**HAVE QUESTIONS?**

Connect with a School of Education and Human Development graduate studies Applicant Journey Representative at (305) 284-SEHD (7343), or by email atsehd_admissions@miami.edu.

# Curriculum Requirements

| Code | Title | Credit Hours |
|---|---|---|
| **Required Courses** | | |
| KIN 636 | Strength and Conditioning I | 3 |
| KIN 637 | Strength and Conditioning II | 3 |
| KIN 642 | Strength and Conditioning | 3 |
| KIN 646 | Elite Conditioning I | 3 |
| KIN 647 | Elite Conditioning II | 3 |
| KIN 667 | Elements of Sports Psychology | 3 |
| KIN 669 | The Foundations of Exercise Programming | 3 |
| KIN 670 | Advanced Programming | 3 |
| KIN 690 | Special Topics in Kinesiology and Sport Sciences | 3 |
| KIN 746 | Research Methods in Kinesiology and Sport Sciences | 3 |
| EPS 702 | Quantitative Methods II | 3 |
| EPS 704 | Computer Applications in Educational and Behavioral Science Research | 3 |
| PTS 681 | Biomechanics for Sports Science | 3 |
| EPS 719 | Capstone Project 2: Data Analysis to Communication | 3 |
| PTS 682 | Functional Anatomy | 3 |
| PTS 680 | Common Injuries | 3 |
| PTS 702 | Performance Rehabilitation: Integrating Advanced Sports Science | 3 |
| **Professional Project in Sport Science** | | |
| KIN 795 | Graduate/Clinical Field Experience in Kinesiology and Sport Sciences | 3 |
| KIN 799 | Special Project | 3 |
| KIN 800 | Supervised Practicum | 3 |
| **Total Credit Hours** | | **60** |

# Curriculum Requirements

## For Students Entering with the University of Miami MSEd in Applied Physiology*

| Code | Title | Credit Hours |
|---|---|---|
| **Required Courses** | | |
| EPS 702 | Quantitative Methods II | 3 |
| EPS 704 | Computer Applications in Educational and Behavioral Science Research | 3 |
| EPS 711 | Advanced Topics in Research, Measurement, and Evaluation | 3 |
| PTS 681 | Biomechanics for Sports Science | 3 |
| PTS 682 | Functional Anatomy | 3 |
| PTS 680 | Common Injuries | 3 |
| PTS 702 | Performance Rehabilitation: Integrating Advanced Sports Science | 3 |
| **Professional Project in Sport Science** | | |
| KIN 795 | Graduate/Clinical Field Experience in Kinesiology and Sport Sciences | 3 |

| | | |
|---|---|---|
| KIN 799 | Special Project | 3 |
| KIN 800 | Supervised Practicum | 3 |
| **Total Credit Hours** | | **30** |

* Students entering with other master's degrees may be able to apply up to 30 credits toward the 60-credit hours required for the DSS.

# Sample Plan of Study

| | | |
|---|---|---|
| **Year One** | | |
| **Fall** | | **Credit Hours** |
| KIN 636 | Strength and Conditioning I | 3 |
| KIN 646 | Elite Conditioning I | 3 |
| KIN 669 | The Foundations of Exercise Programming | 3 |
| | **Credit Hours** | **9** |
| **Spring** | | |
| KIN 637 | Strength and Conditioning II | 3 |
| KIN 647 | Elite Conditioning II | 3 |
| KIN 642 | Strength and Conditioning | 3 |
| | **Credit Hours** | **9** |
| **Summer** | | |
| KIN 690 | Special Topics in Kinesiology and Sport Sciences | 3 |
| PTS 702 | Performance Rehabilitation: Integrating Advanced Sports Science | 3 |
| | **Credit Hours** | **6** |
| **Year Two** | | |
| **Fall** | | |
| KIN 667 | Elements of Sports Psychology | 3 |
| KIN 746 | Research Methods in Kinesiology and Sport Sciences | 3 |
| KIN 795 | Graduate/Clinical Field Experience in Kinesiology and Sport Sciences | 3 |
| | **Credit Hours** | **9** |
| **Spring** | | |
| EPS 702 | Quantitative Methods II | 3 |
| KIN 670 | Advanced Programming | 3 |
| PTS 680 | Common Injuries | 3 |
| | **Credit Hours** | **9** |
| **Summer** | | |
| EPS 704 | Computer Applications in Educational and Behavioral Science Research | 3 |
| KIN 799 | Special Project | 3 |
| | **Credit Hours** | **6** |
| **Year Three** | | |
| **Fall** | | |
| PTS 681 | Biomechanics for Sports Science | 3 |
| PTS 682 | Functional Anatomy | 3 |
| | **Credit Hours** | **6** |
| **Spring** | | |
| EPS 719 | Capstone Project 2: Data Analysis to Communication | 3 |
| KIN 800 | Supervised Practicum | 3 |
| | **Credit Hours** | **6** |
| | **Total Credit Hours** | **60** |

# Sample Plan of Study

## For Students Entering with a Relevant Master's Degree*

| | | |
|---|---|---|
| **Year One** | | |
| **Fall** | | **Credit Hours** |
| EPS 711 | Advanced Topics in Research, Measurement, and Evaluation | 3 |
| KIN 795 | Graduate/Clinical Field Experience in Kinesiology and Sport Sciences | 3 |
| | **Credit Hours** | **6** |
| **Spring** | | |
| EPS 702 | Quantitative Methods II | 3 |
| PTS 680 | Common Injuries | 3 |
| | **Credit Hours** | **6** |
| **Summer** | | |
| EPS 704 | Computer Applications in Educational and Behavioral Science Research | 3 |
| KIN 799 | Special Project | 3 |
| | **Credit Hours** | **6** |
| **Year Two** | | |
| **Fall** | | |
| PTS 681 | Biomechanics for Sports Science | 3 |
| PTS 682 | Functional Anatomy | 3 |
| | **Credit Hours** | **6** |
| **Spring** | | |
| PTS 702 | Performance Rehabilitation: Integrating Advanced Sports Science | 3 |
| KIN 800 | Supervised Practicum | 3 |
| | **Credit Hours** | **6** |
| | **Total Credit Hours** | **30** |

* The specific courses needed will vary depending on the student's master's coursework.

# Mission

The mission of program in Sports Science and Data Analytics is to equip individuals with the knowledge skills and ethical framework to optimally prepare for successful careers in college, professional sports and sports organizations.

# Goals

Develop strong foundations in movement science and the development of programs for advanced human performance

Master the ability to collect, analyze, and interpret sports-related data and apply it to programmatic schemes for specific physiological adaptations.

Develop proficiency across multiple technical platforms and programming languages

Establish leadership qualities to oversee programmatic development for athlete health, injury mitigation and return to play scenarios.

This program is designed to prepare students to meet the competencies required by the National Strength and Conditioning Association for the Certified Performance and Sport Scientist exam.

1. Students will be able to acquire data from various sources, including athlete tracking systems, performance metrics, and game statistics, and prepare it for analysis by cleaning, structuring, and transforming the data.

2. Students will be able to use of various hardware/software for data collection including GPS (e.g. Catapult), VALD (I.e. Nordboard), Polar, ECG, VO2 max protocols, Timing Gates, and Force Plates.

3. Students will be able to apply various statistical techniques, including regression analysis, hypothesis testing, and predictive modeling, to analyze sports data and identify patterns and trends.

4. Students will be able to effectively communicate their findings through clear and concise written and oral presentations, using appropriate data visualization techniques to convey complex information to diverse audiences (e.g., coaches, athletes, team management).

5. Students will be able to utilize machine learning algorithms to analyze sports data, identify potential insights, and develop predictive models for performance optimization and injury prevention.

6. Students will be able to critically evaluate the ethical implications of data analysis in sports, ensuring responsible and transparent use of data.

7. Students will have a strong foundation in biomechanics, kinesiology, and exercise physiology, enabling them to understand the principles of human movement and their application to athletic performance.

8. Students will be able to program and train athletes with the strength and conditioning team to reach predetermined KPIs..

9. Students will be able to utilize data analysis to identify potential injury risks and develop strategies for injury prevention and rehabilitation.

10. Students will be able to develop and implement data-driven training plans and strategies to optimize athletic performance in various sports.

11. Students will be proficient in programming languages like Python and R, as well as statistical software packages, enabling them to manipulate, analyze, and visualize data effectively.

12. Students will be able to critically evaluate information, identify problems, and develop innovative solutions using data-driven approaches.

## Student Learning Outcomes

1. Students will demonstrate application of sports science principles in programming and training instruction.
2. Students will determine and track key performance indices based on the athlete and sport.
3. Students will analyze sports data to determine quantifiable actions to improve athletic performance, optimize team strategies, and enhance business operations within the sports industry.
4. Students will create statistical modeling from complex datasets for programming outcomes, and demonstrate effective interdisciplinary communication for actionable training decisions.