Swansea University
Prifysgol Abertawe

FACULTY OF SCIENCE AND ENGINEERING

STUDENT HANDBOOK

MSc ADVANCED SPORT PERFORMANCE SCIENCE (FHEQ LEVEL 7)

SUBJECT SPECIFIC
PART TWO OF TWO
MODULE AND COURSE STRUCTURE
2022-23

DISCLAIMER

The Faculty of Science and Engineering has made all reasonable efforts to ensure that the information contained within this publication is accurate and up-to-date when published but can accept no responsibility for any errors or omissions.

The Faculty of Science and Engineering reserves the right to revise, alter or discontinue degree programmes or modules and to amend regulations and procedures at any time, but every effort will be made to notify interested parties.

It should be noted that not every module listed in this handbook may be available every year, and changes may be made to the details of the modules. You are advised to contact the Faculty of Science and Engineering directly if you require further information.

The 22-23 academic year begins on 26 September 2022

Full term dates can be found here

DATES OF 22-23 TERMS

26 September 2022 – 16 December 2022

9 January 2023 – 31 March 2023

24 April 2023 – 09 June 2023

SEMESTER 1

26 September 2022 – 27 January 2023

SEMESTER 2

30 January 2023 – 09 June 2023

SUMMER

12 June 2023 – 22 September 2023

IMPORTANT

Swansea University and the Faculty of Science of Engineering takes any form of **academic misconduct** very seriously. In order to maintain academic integrity and ensure that the quality of an Award from Swansea University is not diminished, it is important to ensure that all students are judged on their ability. No student should have an unfair advantage over another as a result of academic misconduct - whether this is in the form of **Plagiarism**, **Collusion** or **Commissioning**.

It is important that you are aware of the **guidelines** governing Academic Misconduct within the University/Faculty of Science and Engineering and the possible implications. The Faculty of Science and Engineering will not take intent into consideration and in relation to an allegation of academic misconduct - there can be no defence that the offence was committed unintentionally or accidentally.

Please ensure that you read the University webpages covering the topic – procedural guidance here and further information here. You should also read the Faculty Part One handbook fully, in particular the pages that concern Academic Misconduct/Academic Integrity. You should also refer to the Faculty of Science and Engineering proof-reading policy and this can be found on the Community HUB on Canvas, under Course Documents.

Welcome to the Faculty of Science and Engineering!

Whether you are a new or a returning student, we could not be happier to be on this journey with you.

This has been a challenging period for everyone. The COVID-19 pandemic has prompted a huge change in society as well as how we deliver our programmes at Swansea University and the way in which you study, research, learn and collaborate. We have been working hard to make sure you will have or continue to having an excellent experience with us.

We have further developed some exciting new approaches that I know you will enjoy, both on campus and online, and we cannot wait to share these with you.

At Swansea University and in the Faculty of Science & Engineering, we believe in working in partnership with students. We work hard to break down barriers and value the contribution of everyone. Our goal is an inclusive community where everyone is respected, and everyone's contributions are valued. Always feel free to talk to academic staff, administrators, and your fellow students - I'm sure you will find many friendly helping hands ready to assist you.

We all know this period of change will continue and we will need to adapt and innovate to continue to be supportive and successful. At Swansea we are committed to making sure our students are fully involved in and informed about our response to challenges.

In the meantime, learn, create, collaborate, and most of all – enjoy yourself!

Professor Johann (Hans) Sienz
Interim Pro-Vice Chancellor/Interim Executive Dean
Faculty of Science and Engineering

Faculty of Science and Engineering	
Interim Pro-Vice Chancellor/Interim Executive Dean	Professor Johann Sienz
Head of Operations	Mrs Ruth Bunting
Associate Dean – Student Learning and Experience (SLE)	Professor Paul Holland
School of Engineering and Applied Sciences **Head of School: Professor Serena Margadonna**	
School Education Lead	Professor Simon Bott
Head of Sport and Exercise Sciences	Professor Liam Kilduff Dr Laura Mason
Sport and Exercise Sciences Programme Director	Dr Nick Owen n.j.owen@swansea.ac.uk
Sport and Exercise Sciences Course Coordinator	Professor Liam Kilduff L.Kilduff@Swansea.ac.uk

STUDENT SUPPORT

The Faculty of Science and Engineering has two **Reception** areas - Engineering Central (Bay Campus) and Wallace 223c (Singleton Park Campus).

Standard Reception opening hours are Monday-Friday 9am-5pm.

The **Student Support Team** provides dedicated and professional support to all studentsin the Faculty of Science and Engineering. Should you require assistance, have any questions, be unsure what to do or are experiencing difficulties with your studies or in your personal life, our team can offer direct help and advice, plus signpost you to further sources of support within the University. There are lots of ways to get information and contact the team:

Email: studentsupport-scienceengineering@swansea.ac.uk (Monday–Friday, 9am–5pm)

Call: +44 (0) 1792 295514 and 01792 6062522 (Monday-Friday, 10am–12pm, 2–4pm).

Zoom: By appointment. Students can email, and if appropriate we will share a link to our Zoom calendar for students to select a date/time to meet.

The current student **webpages** also contain useful information and links to otherresources:

https://myuni.swansea.ac.uk/fse/coe-student-info/

READING LISTS

Reading lists for each module are available on the course Canvas page and are also accessible via http://ifindreading.swan.ac.uk/. We've removed reading lists from the 22-23 handbooks to ensure that you have access to the most up-to-date versions. Access to print material in the library may be limited due to CV-19; your reading lists will link to on-line material whenever possible. We do not expect you to purchase textbooks, unless it is a specified key text for the course.

THE DIFFERENCE BETWEEN COMPULSORY AND CORE MODULES

Compulsory modules must be **pursued** by a student.

Core modules must not only be **pursued**, but also **passed** before a student can proceed to the next level of study or qualify for an award. Failures in core modules must be redeemed.

Further information can be found under "Modular Terminology" on the following link - https://myuni.swansea.ac.uk/academic-life/academic-regulations/taught-guidance/essential-info-taught-students/your-programme-explained/

MSc (FHEQ Level 7) 2022/23
Advanced Sport Performance Science
MSc Advanced Sport Performance Science

Coordinator: Prof LP Kilduff

<table>
<tr><th>Semester 1 Modules</th><th>Semester 2 Modules</th></tr>
<tr><td>SR-M14
Advanced performance testing, measurement and reporting
20 Credits
Dr M Waldron/Mr LM Davies/Mr C Vassallo</td><td>SR-M13
Principles of Measurement and Data Analysis
20 Credits
Prof HD Summers/Prof NE Bezodis</td></tr>
<tr><td>SR-M16
Current Concepts in Advanced Sport Performance Science
20 Credits
Prof LP Kilduff/Dr D Hill/Prof CJ Knight/Mr C Vassallo/...</td><td></td></tr>
<tr><td colspan="2">SR-M15
Placement
60 Credits
Prof LP Kilduff/Prof CJ Knight/Dr L Mason/Mr C Vassallo</td></tr>
<tr><th colspan="2">Dissertation</th></tr>
<tr><td colspan="2">SR-D00
SPEX M Level Dissertation
60 Credits
Dr L Mason/Prof NE Bezodis/Prof LP Kilduff/Mr C Vassallo/...</td></tr>
<tr><th colspan="2">Total 180 Credits</th></tr>
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SR-D00 SPEX M Level Dissertation

Credits: 60 Session: 2022/23 June-September

Pre-requisite Modules:

Co-requisite Modules:

Lecturer(s): Dr L Mason, Prof NE Bezodis, Prof LP Kilduff, Mr C Vassallo, Dr M Waldron

Format: A combination of lectures (where appropriately identified), guided independent learning, and supervision with a dissertation tutor. Contact hours will be delivered through a blend of live activities online and on-campus, and may include, for example, lectures, seminars, practical sessions and Academic Mentoring sessions.

Delivery Method: The module is delivered primarily as an individual project. The student is expected to liaise with the supervisor(s) on a regular basis, with a minimum University requirement of three formal meetings for full-time students. In the case of part-time students, it is recommended that a minimum of four meetings are held over the project duration. Ideally, contact should be more regular, with at least one meeting a fortnight to discuss the development and progress of the project. Depending on the project the student would be expected to carry out this project individually and to complete the necessary ethical consideration and application, risk assessments and training required to work in a professional environment or within laboratory facilities of the University.

Module Aims: Study for the dissertation, which may comprise systematic evaluation of literature, the conduct of research, evaluation of professional practice, or any combination of these through discussion with their project supervisor. Although preparatory work on the dissertation may take place during TB1 and 2 of the programme, the research project will be primarily carried out over TB3 with the dissertation being submitted at the end of September.

In this module the student will be exposed to all aspects of modern information retrieval processes, the organisation and resourcing of research, advanced time management, and the organising and presentation of data. The student must make inferences on conclusions, based on the evidence generated and supported by the empirical evidence. Furthermore, they must assess the significance of this work in relation to the field and make suggestions about how further work could improve or clarify the research problem. The results of the project will be disseminated in a dissertation report/thesis demonstrating the student's ability to research a subject, in-depth, as well as via an infographic demonstrating the ability to disseminate to a variety of audiences and stakeholders.

The student will meet regularly with their supervisor(s) to ensure that the project is well developed, organised, and executed. Progress will be monitored formally through a project proposal presentation.

Module Content: MSc level research project including:
Critically reviewing contemporary literature
Planning and executing an independent research project
Producing a written report and presentation of a research project

Intended Learning Outcomes: On successful completion of this module, students will have the ability to:
Formulate appropriate research or practice driven questions and translate theoretical understanding into practice.
Carry out research work - undertake a literature search, a field-, laboratory- or computer-based investigation or a combination of these.
Investigate a research topic in detail.
Systematically critique scientific research across various sport performance science domains.
Research and assess theories, principles, concepts and data, and apply such skills creatively to problem solve.
Use appropriate analytical approaches in the interpretation of diverse data sets and information.
Effectively communicate findings clearly and precisely to a range of audiences.

Assessment: Report (60%)
Viva (25%)
Presentation (15%)

Assessment Description: Progress report presentation (pass/fail component) 15%
Dissertation Report (paper style report) (6,000 words) 60%
Oral presentation (viva) - Poster/Infographic 25%

Moderation approach to main assessment: Second marking as sampling or moderation

Assessment Feedback: Progress report presentation/Oral Presentation (Viva) - Students will receive verbal feedback within 3-weeks.
Dissertation Report - Students will receive written feedback on their final submission within 3-weeks but will have opportunities to receive formative feedback on a draft of each section during the semester.

Failure Redemption: Candidates who fail the dissertation are given an opportunity to resubmit the dissertation within 3 months of the result of the examination if a full-time student or 6 months for part-time students. Such students will be given one formal feedback session, including written feedback on the reasons for failure, immediately following confirmation of the result by the University Postgraduate Taught Examination Board. The opportunity to resubmit will only be offered to students who submit a dissertation and are awarded a fail. Those candidates who do not submit a dissertation will not be offered a resubmission opportunity

Additional Notes: The Faculty of Science and Engineering has a ZERO TOLERANCE policy for late submission of coursework, unless extenuating circumstances have been approved.

SR-M13 Principles of Measurement and Data Analysis

Credits: 20 Session: 2022/23 January-June

Pre-requisite Modules:

Co-requisite Modules:

Lecturer(s): Prof HD Summers, Prof NE Bezodis

Format: Lectures (2 hours) and interactive workshops/practical classes (2 hours) per week.

Delivery Method: This module will be delivered face-to-face using a mixture of lectures, interactive workshops/practical classes, and independent study across an 11-week teaching block.

Module Aims: The aim of this module is to introduce the science of measurement and explain the potential and the limitations of sensors commonly used in performance sports applications. Throughout the module, foundational principles will be explained using sporting examples of data analysis, with a particular focus on time-series data. A core principle of the module is that the process of measurement must be understood before applied studies are designed and data analysis is undertaken. The limits to measurement and the errors that can exist in a dataset have to be appreciated in the context of performance sport applications. The origin of the data also has to be considered as there are often hidden assumptions influencing its acquisition and pre-processing built into sensors. The aim here is to educate students about where their data comes from and to encourage them to critically assess the conditions under which valid measurements can be obtained in applied performance environments.

Module Content: • Introduction to sensors and the process of transduction - error, accuracy, precision, resolution, reliability
• Measurement units - scalar and vector quantities, units, absolute and relative measures, calibration
• Limitations to measurement - noise and drift, sensitivity and duration, averaging, noise and SNR
• Basic statistics of measurement - measurement ensembles and value distributions, mean, median, mode, standard deviation and variance
• Graphical analysis - scatter plots and data regression, interpolation and extrapolation, non-linear fitting
• Time-series data - time and frequency domain descriptions, sampling frequency and variance, basic signal manipulation
• Advanced manipulation - correlation, convolution, dynamic time warping
• Frequency analysis – Fourier transforms
• Dealing with multiple variables - dimensional reduction, PCA, stochastic neighbour embedding, cluster analysis
• Machine learning - basic concepts, ground truth, categorisation, model training, demonstration of application using decision trees
• Visualisation techniques for time series data – customisation for specific requirements of different sports
• Data Information Knowledge - understanding the differences and appreciating the wider epistemology, truth/falsehood, measures of statistical certainty, false positive and negative measurements, introduction to Bayesian statistics

Intended Learning Outcomes: On successful completion of the module, students will have the abilty to:
Critically appraise the capabilities and limitations of relevant sensors in delivering accurate and repeatable measurements.
Demonstrate an in-depth knowledge of the fundamental concepts of data analysis techniques relevant to performance science.
Use appropriate analytical approaches in the interpretation of diverse data sets and information.
Research and assess theories, principles, concepts and data, and apply such skills creatively to problem solve.
Accurately analyse and interpret data from real-world performance tests.
Effectively communicate the findings clearly and precisely to a range of audiences.

Assessment: Report (50%)
Report (50%)

Assessment Description: Coursework 1: Timed data analysis and coach report (3 hours) 50%
Coursework 2: Application of analytics to performance science Report (2000 words)

Moderation approach to main assessment: Second marking as sampling or moderation

Assessment Feedback: Coursework 1 - Students will receive written feedback on their report within 3-weeks.
Coursework 2 - Students will receive written feedback on their final submission within 3-weeks

Failure Redemption: Students can redeem a failure via re-assessment on the failed element in a re-sit period.
Additional Notes: The Faculty of Science and Engineering has a ZERO TOLERANCE policy for late submission of coursework, unless extenuating circumstances have been approved.

SR-M14 Advanced performance testing, measurement and reporting

Credits: 20 Session: 2022/23 September-January

Pre-requisite Modules:

Co-requisite Modules:

Lecturer(s): Dr M Waldron, Mr LM Davies, Mr C Vassallo

Format: This module will be delivered face-to-face using a mixture of lectures, interactive workshops, practical classes and independent study hours.

Delivery Method: This module will be delivered face-to-face using a mixture of lectures, interactive workshops, practical classes and independent study hours.

Module Aims: This module provides students with the knowledge and skills to reliably conduct, interpret and communicate the results of performance tests in real-world sport science settings. Focus is placed on developing the necessary skills required to accurately disseminate results to a range of audiences within a high-performance environment (e.g., athletes, coaches, managers, performance directors). It challenges students to critically appraise the underpinning theories of current laboratory and field-based methods used to evaluate sports performance and provides contemporary practitioner insights regarding their application with athletes. Through this module, students will draw upon advanced performance science concepts to develop in-depth theoretical knowledge of testing and data interpretation and understand the ways to apply this across a range of athletes.

Module Content: Principles of testing
Measurement error
Theory and practice of testing strength athletes
Theory and practice of testing sprint athletes
Theory and practice of testing agility
Theory and practice of testing intermittent/multiple-sprint athletes
Theory and practice of testing endurance athletes
Basic data analyses
Report writing and feedback to coaches and athletes

Intended Learning Outcomes: On successful completion of the module, students will have the ability to:
Demonstrate a detailed knowledge of how to assess multiple components of athletic performance.
Proficiently conduct a variety of laboratory and field-based assessments.
Apply a critical and systematic understanding of the current concepts, theories, and practices relevant to advance sports performance science.
Use appropriate analytical approaches in the interpretation of diverse data sets and information.
Accurately analyse and interpret data from real-world performance tests.
Effectively communicate the findings clearly and precisely to a range of audiences.

Assessment: Practical (50%)
Report (50%)

Assessment Description: Practical testing and measurement error report (2000 words) 50%
Timed data analysis and coach report (3 hours) 50%

Moderation approach to main assessment: Second marking as sampling or moderation

Assessment Feedback: Practical Testing - Students will receive written and/or verbal feedback on their report within 3-weeks. Students will also receive formative feedback during practical teaching sessions.
Timed data analysis and coach report - Students will receive written feedback on their report within 3-weeks.

Failure Redemption: Students can redeem a failure via re-assessment on the failed element in a re-sit period.

Additional Notes: The Faculty of Science and Engineering has a ZERO TOLERANCE policy for late submission of coursework, unless extenuating circumstances have been approved.
Module only available to students study MSc in Advanced Sport Performance Science.

SR-M15 Placement

Credits: 60 Session: 2022/23 Academic Year

Pre-requisite Modules:

Co-requisite Modules:

Lecturer(s): Prof LP Kilduff, Prof CJ Knight, Dr L Mason, Mr C Vassallo

Format: Taught/lecture content (pre-placement)
Regular supervisory meetings

Delivery Method: There will be an intensive period of taught delivery, covering the roles of a performance scientist, expectations of students during their placement, reflective practice, health and safety, environmental and ethical concerns, working practices and project / time / resource management. This will be followed by a work experience placement at an elite/professional/high-performance sport organisation with regular formal monitoring from the University supervisor.

Module Aims: This module will contribute to the student's preparation for a career related to the subject discipline by giving appropriate experience in a working environment. The placement experience will encompass as broad a range of activities as possible with the student gradually taking increasing responsibility for their own work as the placement matures. The placement host organisation will appoint a supervisor, who will be responsible for implementing the training programme agreed with the Department. The Department will appoint a link tutor for each student who will monitor progress and liaise with the nominated supervisor at placement host organisations.

Module Content: Reflective practice
Working in elite and high performance environments
Ethical considerations for advance performance scientists
Identification of performance problems

Intended Learning Outcomes: On successful completion of this module, students will have the ability to:
Co-create and deliver performance plans.
Critically evaluate current issues related to performance science in elite and professional sport
Demonstrate detailed knowledge of how to effectively communicate findings through a variety of means and to a wide range of audiences and stakeholders.
Demonstrate a detailed knowledge of how to assess multiple components of athletic performance.
Understand the wider context and requirements to adapt practice to meet the needs of different groups distinguished by, for example, physical, psychological, environmental, cultural or socioeconomic factors.
Formulate appropriate research or practice driven questions and translate theoretical understanding into practice.
Research and assess theories, principles, concepts and data, and apply such skills creatively to problem solve.
Accurately analyse and interpret data from real-world performance tests.
Effectively communicate the findings clearly and precisely to a range of audiences.
Practice within the legal and ethical boundaries of the discipline and in a non-discriminatory manner.

Assessment: Presentation (60%)
Placement Learning Opportunity (40%)

Assessment Description: Individual presentation - (15-20 minutes plus 10 minutes for questions/defence) 60%
Placement Learning Opportunity - reflective analysis of their personal professional learning experiences over the placement period (1,500 words) 40%

Moderation approach to main assessment: Second marking as sampling or moderation

Assessment Feedback: Individual presentation - Students will receive verbal feedback will be received within 3-weeks
Reflective analysis - Students will receive verbal feedback will be received within 3-weeks on their final submission but will have the opportunity to discuss and refine their reflective analysis across the module.

Failure Redemption: Students can redeem a failure via re-assessment on the failed element in a re-sit period.

Additional Notes: The Faculty of Science and Engineering has a ZERO TOLERANCE policy for late submission of coursework, unless extenuating circumstances have been approved.
Module only available to students studying MSc in Advance Sport Performance Science.

SR-M16 Current Concepts in Advanced Sport Performance Science

Credits: 20 Session: 2022/23 September-January

Pre-requisite Modules:

Co-requisite Modules:

Lecturer(s): Prof LP Kilduff, Dr D Hill, Prof CJ Knight, Mr C Vassallo, Dr M Waldron

Format: This module will be delivered face-to-face using a mixture of lectures, interactive workshops/seminars, practical classes and study hours.

Delivery Method: This module will be delivered face-to-face using a mixture of lectures, interactive workshops/seminars, practical classes and study hours.

Module Aims: The aim of this module is to provide students with the knowledge, understanding and skills to plan and implement a performance solution driven programme within high performance settings. Through this module, students will be taught how to use key, current research and critical skills to develop performance solutions to a holistic range of performance issues encountered within elite and professional sport settings. In addition, students will draw upon advanced performance science concepts to develop in-depth theoretical and practical knowledge of advanced training modalities, competition demands, competition day strategies and recovery methods. In addition, a multidisciplinary approach to embedding these solutions into applied practice will be taught. The contents of this module will be centred around key performance issues currently faced by practitioners and athletes across a range of performance science disciplines and will also deal with performance challenges faced by practitioners when preparing athletes for major international tournaments.

Module Content: Theory of how to develop a Performance Plan using key performance science data streams
Understanding Competition demands using the latest research and technology
Competition Day Strategies for enhanced performance in a variety of competition and climatic conditions
Theory and Practice of advanced training methods for athlete preparation
Importance of Recovery and current concepts within the recovery literature
Performance Issues faced while competing at major international events (e.g., travel, altitude)
Basic data analyses
Report writing and feedback to coaches and athletes

Intended Learning Outcomes: On successful completion of this module, students will have the ability to:
Critically evaluate current issues related to performance science in elite and professional sport
Apply a critical and systematic understanding of the current concepts, theories, and practices relevant to advance sports performance science.
Systematically critique scientific research across various sport performance science domains
Effectively communicate the findings clearly and precisely to a range of audiences.
Understand the wider context and requirements to adapt practice to meet the needs of different groups distinguished by, for example, physical, psychological, environmental, cultural or socioeconomic factors.
Research and assess theories, principles, concepts and data, and apply such skills creatively to problem solve.
Effectively communicate the findings clearly and precisely to a range of audiences.

Assessment: Report (50%)
Blog 1 (50%)

Assessment Description: Practical Report (2000 words) 50%
4 short reports/Blogs/Podcasts (500-600 words (or equivalent) each. 2000-2400 total) 50%

Moderation approach to main assessment: Second marking as sampling or moderation

Assessment Feedback: Practical Report - Students will receive written feedback on their report within 3-weeks. Students will also receive formative feedback during practical teaching sessions.
4 short reports/Blogs/Podcasts - Students will receive written feedback on their final submission within 3-weeks but will have opportunities to receive formative feedback during the semester.

Failure Redemption: Students can redeem a failure via re-assessment on the failed element in a re-sit period.

Additional Notes: The Faculty of Science and Engineering has a ZERO TOLERANCE policy for late submission of coursework, unless extenuating circumstances have been approved.
Module only available to students studying MSc in Advanced Sport Performance Science.