Prifysgol Wrecsam
Wrexham University

Module specification

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Module Code	SIR702
Module Title	Data Management & Handling
Level	7
Credit value	20
Faculty	FSLS
HECoS Code	100098
Cost Code	GACM
Pre-requisite module	N/A

Programmes in which module to be offered

Programme title	Core/Optional/Standalone
MSc Strength & Conditioning	CORE

Breakdown of module hours

Learning and teaching hours	8 hrs
Placement tutor support hours	0 hrs
Supervised learning hours e.g. practical classes, workshops	13 hrs
Project supervision hours	0 hrs
Active learning and teaching hours total	**21** hrs
Placement hours	0 hrs
Guided independent study hours	179 hrs
Module duration (Total hours)	200 hrs

Module aims

- Develop students' ability to critically evaluate and select appropriate data collection methods for strength and conditioning, ensuring validity and reliability in applied practice.
- Enhance students' proficiency in organising, storing and data handling effectively, fostering efficient data management.
- Equip students with the skills to perform basic statistical analysis and apply data visualisation techniques to interpret performance metrics.
- Enable students to translate data insights into actionable recommendations for optimising training programmes and athlete performance.
- Develop students' ability to present data findings clearly and concisely, fostering effective communication with coaches, athletes, and other stakeholders.

Module Learning Outcomes

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

1	Select the most appropriate data manipulation methods
2	Organise large sets of raw data effectively.
3	Utilise data insights to optimise program design for athlete development
4	Effectively communicate key data findings appropriately
5	Design informative and creative data feedback

Assessment

Indicative Assessment Tasks:

This section outlines the type of assessment task the student will be expected to complete as part of the module. More details will be made available in the relevant academic year module handbook.

Students will be provided with a large set of raw data and required to create and submit a portfolio covering key principles related to this handling, interpreting and disseminating data.

The assessment requires the student to demonstrate data analysis and interpretation skills, as well as the ability to utilise data insights to inform practice. The portfolio should include:

Part 1: Data Analysis and Interpretation (500 words)

1. **Data Cleaning and Preparation:** The student should concisely describe any data cleaning steps performed to ensure data accuracy and consistency (e.g., identifying and addressing outliers, missing data points).
2. **Descriptive Statistics:** Calculate appropriate descriptive statistics (e.g., mean, standard deviation, quartiles) to summarise the key GPS metrics within the dataset.
3. **Data Visualisation:** Create informative data visualisations (charts, graphs) to represent the distribution of key GPS metrics for:
    - A single session for the team
    - A 7 day period for a group e.g. all players from a certain position
    - A 28 day period for a single player

Part 2: Program Modification and Justification (1000 words)

1. **Data Interpretation and Athlete Progress (500 words):** Analyse the data and interpret the findings. What does the GPS data reveal about the team for example, the high-intensity running performance in the data. Has the training program achieved the desired improvements? Explain and rationalise using specific data points and trends.
2. **Program Modification Recommendations (500 words):** Based on the data analysis and interpretation, the student will propose the next 7 days of training. Detail should include guidelines and targets for key metrics such as total distance, high speed distance, sprint distance, accelerations and decelerations. The student should justify any recommendations by explaining how the modifications address any identified performance limitations or gaps revealed by the data.

Assessment number	Learning Outcomes to be met	Type of assessment	Duration/Word Count	Weighting (%)	Alternative assessment, if applicable
1	1-5	Portfolio	1500	100	N/A

Derogations
N/A

Learning and Teaching Strategies
This module will cover a range of learning strategies. Students will be required to attend interactive lectures as well as applied workshops. This provides students with the opportunity to work both individually and also in collaboration with other practitioners which closely replicates real-world employment. Additionally, a large focus of this module relates to data management and the integration of technology skills to applied practice. There would be a requirement for students to adopt the necessary and appropriate self-directed learning.

Welsh Elements
The programmes will be delivered through the medium of English. Students are entitled to submit assessments in the medium of Welsh. If students wish to converse in Welsh, they will be assigned a Welsh speaking personal tutor. Support can also be made available for Welsh language students via Coleg Cymraeg Cenedlaethol where students can present their research at their conferences through the Welsh Language. Students will be sign posted to relevant opportunities via the VLE and MS Teams page.

Indicative Syllabus Outline

- Data handling
- Data management
- Data wrangling
- Data visualisation
- Communication of results and findings
- Goal setting
- Reflective practices

Indicative Bibliography:
Please note the essential reads and other indicative reading are subject to annual review and update.

Essential Reads

McGuigan, M. (2017), *Monitoring training and performance in athletes*. Champaign, IL: Human Kinetics.

Other indicative reading

Comfort, P., Jones, P.A. and Mahon, J.J. (2018), *Performance Assessment in Strength and Conditioning*. London: Routledge.

Lythe, J. (2024), *Excel Tricks for Sports*. Available from: https://www.youtube.com/user/ExcelTricksforSports/videos . [Accessed 24th June 2024].

Vincent, W.J. and Weir, J.P. (2012), *Statistics in Kinesiology*. 4th edition. Champaign, IL: Human Kinetics.

Virgile, A. (2024), *Sports Science made Easy*. Available from: https://www.youtube.com/@AdamVirgile34 . [Accessed 24th June 2024].

Winter, E.M., Jones, A.M., Davison, R.C.R., Bromley, P.D. and Mercer, T.H. (2007), *Sport and Exercise Physiology Testing Guidelines: Volume 1 – Sport Testing*. British Association of Sport and Exercise Sciences Guide. London: Routledge.

Administrative Information

For office use only	
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