MODULE **DESCRIPTOR**

MODULE TITLE	**Research Methods for Sport, Exercise & Nutritional Sciences**		
MODULE CODE	**XS4000 (L7)**	CREDIT VALUE	20 ECTS
SCHOOL	SCHOOL OF SCIENCE		

MODULE **AIMS**

This module will provide an introduction to higher level research methods. Firstly, to develop a critical appreciation of the ethical considerations needed to implement sport and exercise science investigations. In addition, you will study the role of differing research paradigms, allied to quality, structured, research study design and implementation. Students will be skilled in a wide range of statistical analysis relevant to Sport and Exercise Science. In addition, students will be informed of the peer review process of scientific communication, how to present work in both paper and non-paper based formats, the appraisal of empirical studies and meta-analyses and the use of electronic and paper-based literature sources, in written presentation and citation skills.

MODULE **CONTENT**

Ethical considerations
Ethical issues surrounding testing
Gaining ethical approval for research/support testing
Informed consent and guidance
Confidentiality of data

Research paradigms

Applying research paradigms in creating focussed and applied research.
Epistemological inquiry.

Literature Appraisal & Review:
Locating scientific information. Electronic searching systems.
Using primary sources; planning and preparation; note-taking, analysis and interpretation; critiques and reviews (traditional and systematic); the importance of personal input and the avoidance of plagiarism.
Citations - Rules and regulations. Use of information technology (e.g. Reference Manager or EndNote) to help in the organisation and presentation of citations.
Scientific publication. Submission of manuscripts and the peer review processes. Journal Impact values, assessment of research quality and its relevance on scientific publication. Publication of review articles and book chapters.

Statistical analysis:

Review of: Sampling and variability. Simple probability. Significance testing: The Null hypothesis. The Normal distribution and transformations. Testing for differences between means. Non-parametric testing. Analysing relationships. Regression. Significance tests on

more than two means. Validity, reliability and objectivity. Power analysis, analytical method comparisons.

Research Designs:
Longitudinal v cross-sectional designs.
Crossover investigations.
Establishing sample size**.**

INTENDED **LEARNING OUTCOMES**
On successful completion of this module a student will be able to:

1. Make effective use of and critically review scientific literature, including use of a wide range of electronic searching systems, to locate specific information of relevance to particular topics in sport and exercise science.
2. Evaluate critically and reflect on the need to undertake ethical approval prior to testing.
3. Choose and conduct appropriate statistical procedures.
4. Discuss the nature and usefulness of a variety of research paradigms.

TEACHING METHODS

This module will be taught year long, through a series of lecture sessions and practical's. Practical sessions are designed to develop an understanding and competence in a variety of fitness testing and prescription modalities. To facilitate the achievement of the learning outcomes listed, students will need to take a pro-active role in their own learning. Students will be expected to work on their own initiative in the development of appropriate skills, taking a critical appreciation of their progress. eLearn resources will be utilised to support student learning. The students are advised to use independent study to develop themselves as independent learners, including revision and preparation of assessments. The students are advised to engage in library work, directed reading, reflection (e.g. on feedback), preparation for class and preparation for assessment. By developing these skills as independent learners, it will allow for graduate skills acquisition and contribute towards future employability. This will also include observation and reflection on practical sessions that they will have observed. Additional work tasks will be provided via eLearn.

ASSESSMENT METHODS

This module is assessed through an ethical approval processes (30%), a research proposal (35%) and a statistical analysis portfolio allied to workshops and labs (35%).