# MSc /PG Diploma in Strength & Conditioning - Course Descriptions

**1a. Understanding Research Concepts**
This module reflects the need for students to understand fundamental concepts that underpin scientific research in order to be able to critically evaluate the strength of the research discussed throughout their programme of study. The module will contrast different philosophical approaches that epitomise quantitative and qualitative approaches and discuss fundamental issues that determine the quality of research articles and the conclusions drawn from them such as research biases, power, effect size, significance, credibility and trustworthiness of data.

**1b. Research Process**
This module requires students to understand the process required to formulate a research project. Central to this process is the need to be able to identify clear and precise research questions and to formulate scientifically rigorous designs and approaches to collecting information. Students will also develop an appreciation of the responsibilities associated with professional conduct in work of this nature and the conventions and recommendations that guide the presentation of scientific work. Whilst not all students will necessarily use this module to develop a proposal for their dissertation it is expected that all students completing postgraduate work should have an understanding of the research process and the opportunity to benefit from the potential transfer of the fundamental skills the process promotes.

**2. Professional Skills In Development Environments**
Professional Skills In Development Environments: Regardless of the professional domain in which students may ultimately operate, certain key, transferable skills are critical for effective performance. Students will be taught how to search for information efficiently and will examine approaches to communicate information convincingly in a variety of professional settings (written, meetings and formal presentations). Students will also be required to reflect on their own intended professional destination and analyse the skills and competencies required to operate successfully against which they will be required to plan their own continuing professional development.

**3. Physiology of Strength & Conditioning**
For both research & practical application a strong background in sports physiology is a necessity. This module will explore the physiological demands of, and limiting factors for, performance of a variety of sports. Furthermore, appropriate training techniques (including programme design) will be investigated in conjunction with the proposed physiological adaptations. Some of the range of physiological and performance tests available for use by strength & conditioning practitioners will also be evaluated.

**4. Physio-mechanical Aspects of Resistance Training**
Resistance training is a cornerstone of most sports training programmes, thus adequate knowledge of resistance training principles, as well as the practical aspects of resistance training, is paramount for the strength & conditioning practitioner. This module is concerned with improvement of athletic performance through resistance training. It will explore training

theory and methodologies for resistance training in combination with hands-on experience with various resistance training exercises and techniques.

**5. Nutritional Factors and Ergogenic Aids**
The interaction of diet and dietary factors with sports training can have a profound effect upon performance. This module will include a comprehensive overview of nutrition and metabolism. Food (protein, carbohydrates, fats) and nutritive factors including water, vitamins, minerals and their role in sport training and performance as well as the role of dietary manipulations for weight gain and loss in a sports context will be addressed. Identification of abnormal eating patterns and eating disorders such as anorexia, bulimia and obesity will be considered in the context of sport performance and physical fitness. The efficacy of nutritional and non-nutritional ergogenic aids will be examined.

**6. Paediatric & Environmental Factors for Training**
The strength & conditioning practitioner can find themselves working with different populations and in different environments. In relation to paediatric exercise, this module will consider the physical, physiological and psychological developmental aspects that impact on training and performance, including the possibility of injury or damage from early training. In relation to environmental factors, this module will address the differing physiological responses to exercise in extreme environments (hot, cold, humid and altitude) and how this must be accounted for in training and for sports performance through acclimatisation.

**The Dissertation**
The Dissertation is a major study demanding of the course member a high level of individual application and commitment to research and enquiry. It provides the course member with the opportunity to identify, reflect on and explore a topic that has implications for his/her own professional development. The Dissertation will involve a critical interrogation of the relationship between professional practice, academic theory and the design, ethics and interpretation of research.

Integral to the Dissertation is a taught component in which students are introduced to a range of techniques which are relevant to their chosen approach to enquiry. Students will be directed by their supervisor to select appropriate elements from a programme to introduce the necessary skills to collect information or data and apply effective approaches to analyse and interpret the information/data. It is expected that students will subsequently need to study and practice specific skills relating to their dissertation in greater detail and under the guidance of their dissertation supervisor.