School of Sport, Exercise & Rehabilitation Sciences

Modules Open to Incoming/Exchange Students (2014-15)

Year 1 (Level C)	
Semester 1 Only	
23646 Psychological Foundations: Sport & Exercise – Dr Maria Kavussanu An appreciation for the various personality and social-psychological factors that underlie participation, adherence, and performance in physical activity contexts is an important aspect of Sport and Exercise Science. This module offers a broad survey of the sport and exercise psychology literature. The module examines individual participants in sport and exercise including personality, motivation and anxiety, groups, group processes, and intergroup relations including coaching efficacy and effectiveness, , morality in sport, and on the effects of exercise on psychological health and well-being. ***Tues 2-4 & Weds 11-12 & Fri 3-4***	20 credits
20422 Human Physiology – Dr George Balanos An introductory course of lectures in human physiology covering the functions of the nervous, cardiovascular and respiratory systems, the kidney, fluid balance and thermoregulation. ***Mon 9-11 & Tues 9-10 & Fri 4-5***	20 credits
Semester 1 & 2	
20423 Anatomy & Biomechanics in Sport – Dr Rob Gray This module focuses upon the complementary sciences of Biomechanics and Functional Anatomy in examining the behaviour of the musculo-skeletal system in the performance of sport. ***Semester 1: Tues 4-5 & Fri 2-3*** ***Semester 2: Mon 9-10 & Fri 2-3***	20 credits Sem 1 & 2 *(10 credit version available 26692)*
Semester 2 only	
23607 Biochemistry & Cell Physiology - Dr Sarah Aldred This module provides a sound basis in biochemistry and cell physiology which covers: the structure and function of important biomolecules including carbohydrates, fats, proteins and nucleic acids; the structure and function of organelles; the biochemical characteristics of muscle fibres; the structure and function of muscle fibres; membrane transport; proteins as enzymes, receptor, antibodies; major pathways of energy metabolism and how these are regulated; the mobilisation and utilisation of fuels for exercise and the hormonal responses to exercise; examples of important techniques in biochemistry. ***Mon 10-11 & Weds 11-12 & Fri 3-4***	20 credits
23858 Introduction to Sport Policy and Management – Dr Lesley	20 credits

Phillpots This is the first of a new sport policy strand that will run through the three years of the programme. The module will introduce students to key aspects of sport and leisure management policy in the UK. It will develop students' knowledge and understanding of key government policies focusing upon community, elite and school sport. Students will be introduced to the fundamental issues associated with the management of sport and will examine the 'place' of sport and leisure within British society. ***Mon 11-1 & Tues 2-4***	
23660 Introduction to Sport and Exercise Pedagogy – Dr Frank Herold Students will be introduced to the concept of pedagogy in physical education, sport and exercise and will increase their knowledge and understanding of pedgogical frameworks that have shaped values, beliefs and behaviours in these fields. Students will be introduced to sport pedagogy, psychology, physiology, coaching, sociology and nutrition in the form of applied case studies. A critical analyses of diverse fields tht comprise the area of sport and exercise pedagogy will be undertaken focusing on the interelated dimensions of pedagogy; knowledge in context; learners and learning; and teaching/coaching. The implications of being a professional in youth sport contexts will be also analysed. ***Thurs 2-4 & Fri 12-2***	20 credits

Year 2 (Level I)	
<u>All</u> modules run across both Semesters	
23609 Applications of Sport Psychology – Dr Jennifer Cumming A sound understanding of psychological theories and the ability to critically evaluate relevant empirical evidence are important prerequisites for successful application of psychological knowledge in sport and exercise sciences. This module provides an overview of various sport psychology topics at an intermediate undergraduate level. The significant role of individual characteristics and social processes when designing interventions to enhance sport performance and participation is explained. ***Semester 1: Mon 3-4 & Thurs 10-11*** ***Semester 2: Mon 3-4 & Thurs 10-11***	20 Credits *(Already split to 10 credits – 25542)*
19172 Exercise Metabolism – Dr Andy Blannin This module builds on the first year module *Biochemistry and Cell Physiology* and provides the basis for the biochemistry orientated modules in the third year: *Sports Nutrition* and *Mechanisms of Adaptations to Training*. In this module students will examine the mechanisms that activate fuel mobilisation, transport and oxidation and of pathways activated during exercise. The module will also focus on methods to study metabolism from whole body to the molecular level as well as analytical skills. Then with the basic knowledge of metabolic pathways and the available methods the final part of the autumn term will explore the metabolic interactions of different organs. The regulation and mechanisms for the response to exercise and adaptations to exercise training will be examined. The module will evaluate the exercise signals and molecular signalling routes by which strength training leads to muscle hypertrophy and endurance training to mitochondrial biogenesis. The module will also explore the health benefits of regular activity and the underlying mechanisms. The final part of the module will introduce reactive oxygen and nitrogen species, as well as components of the immune system and how they are affected by exercise. At the end of the module the students should be able to present an integrative overview of the mechanisms by which metabolism is regulated during exercise and the molecular adaptation in the muscle as well as whole body metabolism in response to chronic exercise. ***Semester 1: Thurs 11-12 & Fri 9-10*** ***Semester 2: Thurs 11-12 & Fri 9-10***	20 Credits *(10 credit version available 25544)*
23647 Exercise Physiology – Dr James Fisher This module builds on the knowledge and understanding provided by level 1 modules in Human Physiology and Biochemistry. The responses of the major physiological systems of the body to exercise and environment are studied. The integrative nature of the neural, muscular, metabolic, respiratory and cardiovascular responses is	20 Credits *(10 credit version available 26034)*

examined in some detail. ***Semester 1: Mon 12-1 & Weds 9-10 & Thurs 12-1*** ***Semester 2: Weds 9-10 & Thurs 11-12***	
20105 Sensation and Movement – TBC This module forms a link between the introductory material on the nervous system in year one and many of the modules and research projects in year three. We look at how the nervous system responds to the external world, processes information and produces appropriate outputs. The course is mainly based on two textbooks and the lectures are intended to add interest and originality to the core material covered by these books. The module covers selected aspects of the physiological operation of the nervous system and also acts as an introduction into the higher order processes linking information to action. ***Semester 1: Weds 10-11 & Thurs 9-10*** ***Semester 2: Weds 10-11 & Thurs 9-10***	20 Credits *(10 credit version available 25680)*
23862 Innovation and Professional Practice in Sport – Dr Mark Griffiths The module adopts a model-based approach to sports instruction. Drawing from theories of learning, students will be encouraged to consider critically a range of instructional models (e.g. TGFU, Sport Education) and how these might be applied. A model based approach offers a framework within which to consider pedagogical approaches to sport, and students will be expected to identify, plan, adapt and apply teaching/coaching models to a variety of sporting contexts. ***Semester 1: Thurs 1-4 & Thurs 3-6 & Fri 12-3*** ***Semester 2: Thurs 1-3 & Thurs 3-4***	20 credits *(10 credit version TBC)*
23864 Sports Development – Dr Lesley Phillpots This module focuses upon policy, process and practice in sports development. It will develop students' knowledge and understanding of youth sport development, community sports development (social inclusion and health), elite sport development and sporting events. ***Semester 1: Mon 1-3*** ***Semester 2: Mon 1-3***	20 credits *(10 credit version TBC)*

Year 3 (Level H)	
Semester 1 Only	
23652 Applied Motor Control - Dr François-Xavier Li The way complex movements are coordinated has been the object of research for nearly a century. Although much progress has been made, this is still a very active field of research with debates on how the brain is controlling our movements. This debate will be the topic of the first third of the module. The second third will investigate how we can apply the current knowledge to help adult sport persons improving their motor coordination and efficiency. Finally the last part of the module will investigate how to control their movements. ***Tues 12-2 & Thurs 2-4***	20 Credits *Group A*
20102 The Psychology of Lifestyle Physical Activity – Dr Frank Eves Lifestyle physical activity such as personally powered transport (walk or cycle to work, stair climbing etc) is the current target of public health. Current approaches to physical activity promotion are based within the Socio-Ecological model. Such an approach recognises that the environment and policy decisions can have major impacts on physical activity, in addition to the effects of intrapersonal and interpersonal factors. This course takes an inclusive approach to the issue. Hence it outlines the energy minimization of locomotion, the perceptual processes that govern ego-motion and the fit of this perception with the environment. Following this, the social and environmental determinants of lifestyle physical activity are outlined. Thus issues about the development of habitual behaviour, and effect of social and environmental constraints on that behaviour are covered. The course ends with a series of lectures on interventions based on the nascent Socio-Ecological model of lifestyle physical activity. ***Tues 12-1 & Thurs 2-4 & Fri 11-12***	20 Credits *Group A*
22473 Sport Psychophysiology – Professor Chris Ring This module examines key topics in the psychology of sport (e.g., anxiety and performance, competition, emotion, aggression) and exercise (e.g., cognitive function, pain, mood) from a psychophysiological perspective. ***Mon 11-12 & Mon 1-2 & Thurs 4-5 & Fri 12-1***	20 Credits *Group B*
23519 Techniques in Neuroscience – Dr Raymond Reynolds This module will cover a variety of techniques used to investigate the role of the nervous system in controlling human behaviour, with an emphasis on neural control of movement. ***Mon 11-1 & Fri 12-2***	20 Credits *Group B*
19176 Exercise and Behavioural Immunology – Dr Vikki Burns This module examines how exercise and psychological factors	20 Credits

influence immune function and what consequences these alterations may have for health. It includes developing an understanding of basic and neuroendocrine immunology, and applying this to athletic, healthy, older, and patient populations. Topics include the role of the immune system in overtraining, how stress and exercise influence wound healing and vaccination responses, and the role of stress and exercise in the progression of HIV and cancer. Students will learn to critically evaluate the existing literature, design plausible proposals for future research, and how to convey the findings of research to a lay audience. ***Mon 11-12 & Thurs 4-5 & Fri 12-2***	*Group B*
26381 Character Development in Sport & Exercise – Dr Ian Boardley This module builds on some of the psychology elements from the Year 2 SPECS Sport Science in Movement and Year 1 SES Foundations of Sport & Exercise Psychology modules. More specifically, it focuses on the elements of these modules relevant to morality and ethics in sport and exercise. The primary aim is to explore how sport and exercise can be used most effectively to develop desirable behaviours such as fair play and prosocial behaviour in participants. In addition, the module will also consider the effects of sport and exercise participation on character traits that extend beyond sport and exercise participation. ***Mon 11-12 & Fri 12-3***	20 Credits
22048 Politics and Sport – Dr Jonathan Grix This module explores the key political issues and controversies of sport in contemporary society. The study of sport cuts across many critical issues and core themes including the meaning of sport, the politics of sport, approaches to the study of sport, the commercialisation of sport (in particular sponsors, owners and promoters), global sport (e.g. the Olympic Games), the instrumentalisation of sport for political purposes (including studying other countries and their sports systems), sports policy processes in the UK, sports development and the leveraging of sports mega-events for social, economic, political and reputational benefits. ***Mon 3-4 & Tues 3-5***	20 credits
Semester 2 Only	
23649 Human Cardiovascular Control in Exercise – Dr Mike White This module will examine the control of cardiac output, blood pressure and blood flow, and the central / peripheral cardiovascular interactions during exercise that limit performance. One focus will be on afferent signals generated within exercising muscles that drive and modulate cardiovascular reflexes. Another will investigate how central command associated with voluntary exercise can initiate and adjust blood pressure and heart rate responses. The factors that	20 Credits *Group C*

regulate local blood flow, in particular the vascular endothelium, will be studied in the context of distribution of cardiac output to active and inactive tissues during exercise. All these systems and their role in cardiovascular health will be emphasised by studying alterations to training and in diseases such as heart failure, hypertension and diabetes. Interactions between central cardiovascular control mechanisms, peripheral vascular control and the respiratory system during exercise will be discussed in a systems physiology approach. ***Mon 11-12 & Tues 12-1 & Thurs 2-3 & Fri 1-2***	
~~**23656 Behavioural Medicine – Dr Anna Phillips**~~ ~~The module will address the major issues in Behavioural Medicine from the contribution of psychological, behavioural, and physiological factors and processes to health and illness to the application of psychological theories and techniques to the prevention and amelioration of illness and the promotion of health.~~ ~~***Tues 12-2 & Thurs 4-6***~~ **NO LONGER AVAILABLE FOR 2014-15**	~~20 Credits~~ ~~Group C~~
20101 Sports Nutrition – Dr Gareth Wallis This module provides a biochemical and physiological explanation of nutrition requirements of different types of exercise and sports. Particular note is taken of the interaction between nutrition and exercise performance. You will be expected to draw on your knowledge of physiology and biochemistry, interpret scientific studies after critical reading and analysis and should be able to translate the theory into practical advises for athletes. ***Tues 12-2 & Thurs 2-4***	20 Credits *Group C*
26481 Public Health Nutrition – Prof Janice Thompson The aim of this module is to examine the concepts and controversies within Public Health Nutrition. The importance of nutrition-related concepts in the prevention and management of lifestyle-related diseases will also be explored. Topics to be examined include: linking food, function and health; dietary recommendations; designing a healthful diet; digestion, absorption and metabolism of nutrients; the role of carbohydrates, fat and protein; nutrients involved in energy metabolism, fluid and electrolyte balance, antioxidant function, and bone and blood health; achieving and maintaining a healthful body weight; and the links between nutrition and physical activity. ***Tues 12-2 & Thurs 2-4***	20 credits Group C
24983 Skill Acquisition and Motor Learning – TBC Skill acquisition and motor learning encompasses an area of study that explains how we acquire, develop and retain new movement skills. The first part of the module, will explore the key concepts and theoretical frameworks for understanding how performers progress from novices with low levels of proficiency to experts who have mastered their skills. In the second part of the module students will learn how to assess motor skill proficiency and design training	20 Credits Group C

programs that optimise the quality and speed of skill acquisition. ***Tues 12-2 & Thurs 2-4 & Thurs 4-6***	
23610 Motivation in Sport & Exercise Settings – Professor Joan Duda The overall purpose of this module is to foster an in-depth understanding of the motivation-related determinants of participation, performance, and persistence in sport and exercise activities. In this module, the major theoretical frameworks and empirical findings related to the study of motivation in the physical domain will be examined. The implications of this body of literature for sound interventions focused on the enhancement of physical activity will also be addressed. ***Mon 12-2 & Fri 11-1***	20 Credits Group D
23945 Neuroplasticity & Neurorehabilitation – Dr Michael Grey Recent advances in neuroscience demonstrate how the central nervous system (CNS) has a remarkable capacity to adapt and change over the course of one's life or after injury. Activity-dependent neuroplasticity is the adaptation that occurs in the CNS as an individual learns new motor skills or relearns previously acquired movements. Principles of neuroplasticity, movement science, and learning provide a foundation for innovation in rehabilitation therapies. This course will examine the mechanisms of plasticity from the cellular to system level. The course will cover the basic science of neuroplasticity relevant to the normal CNS as it develops and ages; and the how it contributes to the recovery of function following injury to the nervous system. We will review mechanisms of plasticity from the synaptic level to the brain. We will examine how advances in neuroplasticity and neurorecovery have influenced rehabilitation. The format of this course will utilize formal lectures on current theories of neuroplasticity and class discussion on current literature in each of these areas. Case studies will be utilized to apply current theories to practical application. ***Mon 12-2 & Thurs 10-1 & Fri 11-2***	20 Credits Group D
23944 Oxidative Stress in Exercise, Aging & Disease – Dr Sarah Aldred This module will examine current research and knowledge in 3 main areas: 1) Oxidative stress and the exercise paradox – radical release in exercise, 2) The Free radical theory of ageing examining average lifespan and maximum lifespan, 3) Diseases associated with oxidative stress examining linked pathologies. ***Mon 12-2 & Fri 11-1***	20 Credits Group D
23653 Respiratory Control During Exercise - Dr Mike Parkes Although breathing must increase during exercise, the exact mechanisms that cause it to increase, and to increase by a precise amount, are unclear. This module will study the experimental	20 Credits Group D

evidence that attempts to explain how breathing is controlled during exercise. The module will also consider the respiratory control mechanisms during breath holding and during exercising or flying at altitude. Students will acquire a detailed understanding of current knowledge the mechanisms of controlling the respiratory system in these 3 conditions. This will take the form of lectures and seminars, studying the original scientific literature upon which this knowledge is based. Students will be given the opportunity to plan and undertake practical experiments on themselves to test some of the currently proposed mechanisms. ***Mon 12-2 & Fri 11-1***	
TBC **Exercise is Medicine – Dr Jet Veldhuijzen van Zanten** By the end of this module, students should be able to: discuss and design exercise regimes for (clinical) populations; discuss and design exercise promotions for (clinical) populations; discuss the physiological and psychological benefits of exercise; discuss the associations between physiological and psychological benefits of exercise. ***Mon 12-2 & Fri 11-1***	20 credits Group D
26424 Sociology of Sport: Participation & Performance – Dr Martin Toms This module will build upon the foundations of sociology explored in the year 1 module. It then explores a number of these concepts (for example interactionist and figurational theories and the work of theorists like Bourdieu, Elias and Foucault) as they apply to the spectrum of participation in sport (with a focus upon coaching). Students will be involved in the sociological analysis of issues such as (for example) talent identification; participant development; the coach athlete dyad; and the influence of the family on participation from the perspectives of key stakeholders, using the theoretical frameworks (e.g. social capital) to explore the meaning of participation at these levels. Theoretical analysis will be used to further develop depth and breadth of understanding of these issues and implications for teachers and coaches. Other areas that will be explored include (for example) power, social positioning and socialisation. All of these will be explored along the spectrum of participation to performance levels, with emphasis on the engagement of the students on theorising and reflecting upon their own developmental experiences. ***Mon 9-11 & Mon 2-5***	20 credits

*The following Third Year (Level H) modules are normally timetabled at the same time, so you may only be able to choose 1 from any Group:

Semester 1		Semester 2	
Group A	**Group B**	**Group C**	**Group D**
Applied Motor Control	Sport Psychophysiology	Human Cardiovascular Control in Exercise	Motivation in Sport and Exercise Settings
Psychology of Lifestyle & Physical Activity	Techniques in Neuroscience	Behavioural Medicine	Neuroplasticity and Neurorehabilitation
	Exercise and Behavioural Immunology	Sports Nutrition	Oxidative Stress in Exercise, Ageing and Disease
		Public Health Nutrition	Respiratory Control During Exercise
		Skill Acquisition and Motor Learning	Exercise is Medicine

Important Notes:
1. Module content, delivery & staffing maybe subject to change
3. Timetables are not confirmed until the start of term and may be subject to change due to unforeseen circumstances
2. Exchange students may be limited within certain modules through a numbers capping process
3. Students who attend in the Autumn term (October to December) may need to undertake slightly different assessments if a final exam is normally stipulated.
4. Students attending in the Spring term (January to April + exam period in May) are expected to attend the summer exams in May/June)