

THE INSTITUTE OF HUMAN PERFORMANCE**Introductory/Junior Level****PBSL1111 Kinetic anatomy (6 credits)**

This course provides an introduction to the gross anatomy of the human body, with an underlying emphasis on anatomy for human movement. Areas covered usually include the tissue types, the anatomical referencing system, the axial and appendicular skeleton, important nerves, blood vessels and skeletal muscles, and an overview of the heart, lungs and viscera.

PBSL1114 Physiology for human movement (6 credits)

The course is designed to provide students with an understanding of the underlying physiological processes enabling human movement. Topics normally covered include nutrition and energy, skeletal muscle function, neural control of movement, cardiovascular function, respiratory function and endocrine function.

PBSL1120 Foundations of exercise science (6 credits)

This course provides an introduction to exercise science as a field of study by providing an overview of (1) the sub-disciplines that provide the knowledge base for the discipline of exercise science and (2) the professions that depend on exercise science for their practice. Key biological themes related to adaptation and maturation will be used to exemplify the contributions that studies of the anatomical, mechanical, physiological, neural, and psychological and socio-cultural studies of human physical activity can make to human health and performance.

PBSL1121 Physical activity and health (6 credits)

This course investigates the role of physical activity in the maintenance of good physical health and avoidance of disease. The epidemiological evidence for physical inactivity as a causative factor in various lifestyle related disorders is introduced, and the use of physical activity and exercise as effective means of health management is investigated.

Advanced/Senior Level**PBSL2229 Exercise physiology (6 credits)**

This course provides an introduction to energy metabolism and the changes that occur in response to physical exercise. Emphasis is placed on the respiratory, cardiovascular and muscular systems, and the principles of exercise testing and prescription. Introductory level knowledge of physiology and biochemistry are highly recommended.

Note: It is highly recommended that students take BIOL1001 "Basic Biochemistry" or BIOL1125 "Introduction to Biochemistry" prior to PBSL2229.

PBSL2233 Biomechanics (6 credits)

Students will be provided with an in-depth understanding of the mechanical principles governing human movement and be introduced to the mathematical modelling of sports movement. The use of various measurement techniques for the biomechanical analysis of sport will be covered so that students should be able to collect data using video analysis and calculate kinematic and kinetic descriptors of human movement.

PBSL2234 Fundamentals of motor control and learning (6 credits)

The human brain has evolved to perform one major function, movement. Species that do not move do not have brains; species with larger brains have more intricate movement repertoires. Thus, the study of movement is an important aspect of understanding how the human brain works and what it means to be human. This course offers a broad overview of human movement control, learning, and development. Theoretical considerations are married with practical experience to promote a thorough understanding of human movement. Emphasis is placed on basic principals and their practical application to sport.

PBSL2235 Measurement and promotion of physical activity (6 credits)

The course aims to develop a critical understanding of how physical activity is assessed. Students will investigate the determinants of physical activity and begin to develop an understanding of how effective interventions can be designed and evaluated.

PBSL2236 Sport and exercise psychology (6 credits)

The course will introduce students to both theoretical and applied aspects of psychological phenomena in sport and exercise. Students will consider a broad range of topics that are key in the field, including unidimensional and multidimensional theories of stress and anxiety in performance, motivation and goal setting, team cohesion, cognitive control strategies and aggression, coaching practice and expert/novice differences. An introductory knowledge of psychology is highly recommended.

Note: It is highly recommended that students take PSYC1001 "Introduction to Psychology" prior to "PBSL2236" "Sport and exercise psychology".

PBSL2200 Summer internship (non-credit bearing)

The summer internship is designed to give students first-hand experience in the working-environment relevant to sport, recreation, health and physical activity. Each student will be placed in an approved institution (minimally 100 hours in total) in summer and will evaluate the appropriate skills and techniques utilized in specific settings.

PBSL3334 Advanced exercise physiology (6 credits)

This course provides a more advanced understanding of the respiratory and cardiovascular adaptations to physical exercise; plus areas of applied work physiology (e.g. diving, altitude, thermoregulation, water balance and ergogenics).

Note: Normally students will have completed PBSL2229 "Exercise physiology" or 12 credits of biological sciences prior to taking this course.

PBSL3335 Advances in skill learning (6 credits)

The course will introduce students to an in depth examination of both theoretical and applied aspects of skill learning. Students will trace the development of the field, from the early work in psychology and sport science through to contemporary developments in movement rehabilitation. A significant component of the course will be dedicated to experimental work, with students expected to develop and test empirically their own hypotheses.

Note: It is recommended that students complete PBSL2236 "Sports and exercise psychology" or 6 credits in psychology before taking this course.

PBSL3336 Exercise prescription and training (6 credits)

The course provides students with hands-on skills for fitness (wellness) coaching for a wide spectrum of athletes/ clientele. Students will explore the primary role exercise plays in the prevention of diseases. The course will provide students with the hand-on skills to plan, design, instruct and monitor a proper training program (exercise prescription) for the client. Basic knowledge of human anatomy and exercise physiology are highly recommended.

PBSL3337 Physical activity and disability (6 credits)

This course provides an overview of the relationship between physical/psycho-social health and physical activity in persons with disabilities. It also explores the current concepts and trends in adapted physical activity.

PBSL3338 Physical activity and diseases of inactivity (6 credits)

Obesity is emerging as one of the greatest threats to world public health. Obesity and several other serious diseases (coronary heart disease, diabetes, osteoporosis and some cancers) all have one thing in common – they are associated with physical inactivity. This course will examine the physiological bases upon which physical inactivity leads to disease and evaluate the role physical activity plays in the prevention and treatment of lifestyle diseases. An introductory knowledge of physiology is highly recommended.

PBSL3339 Public health promotion of physical activity (6 credits)

This course introduces the concepts and methods of using physical activity as a public health tool. The distribution of physical inactivity in the population will be discussed in context with the health of the population, and the evidence base for effective interventions will be reviewed. The course will also review how the evidence base informs national and international policy aimed at promoting physical activity.

PBSL3340 Special topics in exercise sciences (6 credits)

This course introduces the students into a current topic that is of special interest to the field of Exercise Sciences. The course focuses on one target article written by a leading expert in the field of exercise sciences. Instead of learning the facts, student will learn to form an educated opinion on the topic, both orally and in writing. To this end, students will conduct short literature searches to enhance their understanding of the key concepts that underlie the topic.

PBSL3998 Dissertation (12 credits)

The dissertation is an opportunity for students to undertake a significant independent piece of research work; to build and demonstrate knowledge and research skills in a particular sub-area of physical activity and exercise science, and to show ability in writing in the normal academic style of a journal article. Students taking the dissertation should have already completed a statistics course.