Bachelor of Clinical Exercise Physiology (HM44)

Year offered: 2011
Admissions: Yes
CRICOS code: 070085K
Course duration (full-time): 4 years
Domestic Fees (indicative): 2011: CSP $3,878 (indicative) per semester
International Fees (indicative): 2011: $12,000 (indicative) per semester
Domestic Entry: February
International Entry: February
QTAC code: 425422
Past rank cut-off: 86
Past OP cut-off: 8
OP Guarantee: Yes
Assumed knowledge: English (4, SA) and Maths B (4, SA) and at least one of: Chemistry, Physics, or Biological Science (4, SA)
Preparatory studies: For information on acquiring assumed knowledge visit http://www.qut.edu.au/assumed-knowledge
Total credit points: 384
Course coordinator: Enquiries to enquirieshms@qut.edu.au or phone: 07 3138 4697
Campus: Kelvin Grove

Overview
The Bachelor of Clinical Exercise Physiology provides students with both foundation knowledge in the exercise and movement sciences and the skills to apply this knowledge to a range of disorders.

Accredited exercise physiologists enjoy dynamic careers working as specialists in rehabilitation, injury prevention, clinical diagnostics and exercise programming.

Recommended Study
Health Education or Physical Education.

Pathways
Students wishing to pursue higher degree studies may apply for the Master of Applied Science (Research) and progress to doctoral studies.

Professional recognition
This new course has been assigned provisional accreditation by Exercise and Sports Science Australia (ESSA) for 2011. This will enable graduates to work as Accredited Exercise Physiologists in clinical settings. Full accreditation processing continues in 2011.

Deferment
Domestic students can defer their offer in this course for one year. In exceptional circumstances up to 12 months of additional deferment may be granted.

Find out more on deferment.

Further information
For information about this course, please call the School of Human Movement Studies on +61 7 3138 4697 or email enquirieshms@qut.edu.au

Course structure - for students commencing 2011 or later

<table>
<thead>
<tr>
<th>Year 1, Semester 1</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>HMB171</td>
<td>Fitness Health and Wellness</td>
</tr>
<tr>
<td>LSB111</td>
<td>Understanding Disease Concepts</td>
</tr>
<tr>
<td>LSB131</td>
<td>Anatomy</td>
</tr>
<tr>
<td>PYB007</td>
<td>Interpersonal Processes and Skills</td>
</tr>
<tr>
<td>PYB100</td>
<td>Foundation Psychology</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 2, Semester 1</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>HMB271</td>
<td>Nutrition and Physical Activity</td>
</tr>
<tr>
<td>HMB274</td>
<td>Research in Human Movement</td>
</tr>
<tr>
<td>LSB231</td>
<td>Physiology</td>
</tr>
<tr>
<td>PYB007</td>
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<thead>
<tr>
<th>Year 1, Semester 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MAB105</td>
<td>Preparatory Mathematics</td>
</tr>
<tr>
<td>(equiv. to Maths B) for students without sound achievement or higher in Maths B</td>
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<tr>
<td>OR</td>
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<tr>
<td>SCB113</td>
<td>Chemistry for Health and Medical Science</td>
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<tr>
<td>(for students with sound achievement or higher in Maths B)</td>
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<tr>
<th>Year 2, Semester 2</th>
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<tbody>
<tr>
<td>INB102</td>
<td>Emerging Technology</td>
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<td>(for students with sound achievement or higher in Maths B AND Chemistry)</td>
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Principles and theory of behaviour change are employed.

**Credit points:** 12    **Contact hours:** 3-4 per week    **Campus:** Kelvin Grove    **Teaching period:** 2011 SEM-1

**HMB172 NUTRITION AND PHYSICAL ACTIVITY**
This unit is an introduction to principles of nutrition in relation to the physical activity setting, and the role of nutrition and physical activity in weight management. This unit also covers the essential elements of child growth and development (auxology) in relation to nutrition and health. The unit is designed to underpin studies in exercise physiology and sports nutrition.

**Credit points:** 12    **Contact hours:** 3 per week    **Campus:** Kelvin Grove    **Teaching period:** 2011 SEM-1 and 2011 SEM-2

**HMB271 FOUNDATIONS OF MOTOR CONTROL, LEARNING AND DEVELOPMENT**
This unit introduces students to the behavioural and neural bases of movement control through an examination of the central nervous and neuromuscular systems, hierarchical control, human information processing and dynamical systems. It covers elements of sensory mechanisms related to movement. Foundations of motor learning and adaptation are introduced, linking underlying mechanisms of learning with principles that may be applied in teaching, coaching and rehabilitation.

**Prerequisites:** LSB131 or LSB231 or LSB255    **Credit points:** 12    **Contact hours:** 4 per week    **Campus:** Kelvin Grove    **Teaching period:** 2011 SEM-1

**HMB272 BIOMECHANICS**
This unit includes the application of mechanics as they apply to Human Movement including: kinematics and dynamics of human body models; quantitative analysis; impact; work and power; fluid dynamics; material properties. 

**Prerequisites:** LSB131    **Credit points:** 12    **Contact hours:** 4 per week    **Campus:** Kelvin Grove    **Teaching period:** 2011 SEM-2

**HMB273 EXERCISE PHYSIOLOGY 1**
This unit describes the immediate physiological responses to exercise, and the adaptations that occur with long-term exercise training. Exercise places a demand on the human body to provide sufficient energy to perform. The metabolic, hormonal, cardiovascular and pulmonary systems must adapt to meet the challenge of homeostasis. The active skeletal muscle must increase extraction and utilisation of oxygen and other fuels, the cardiovascular system must respond to improved gas and fuel transport, and lung function must change to facilitate increased respiratory gas exchange.

**NOTE for Summer Semester students:** Teaching will not commence until January 2010, but some unit information
will be available from 16 November 2009.

Students wishing to enrol up to the beginning of January will need to email enquirieshms@qut.edu.au

Prerequisites: LSB231 or LSB142  Credit points: 12
Contact hours: 4 per week  Campus: Kelvin Grove
Teaching period: 2011 SEM-2

HMB274 FUNCTIONAL ANATOMY
This unit includes the following: surface anatomy of the trunk and upper and lower limb; morphological and mechanical properties of bone, muscle-tendon units with implications for physical activity; joint structure and function; analyses of movement tasks including walking and running; cinematography and electromyography in functional anatomy of movement tasks.

Prerequisites: LSB131 or LSB255  Credit points: 12
Contact hours: 4 per week  Campus: Kelvin Grove
Teaching period: 2011 SUM-2 and 2011 SEM-1

HMB275 EXERCISE AND SPORT PSYCHOLOGY
This unit includes the following: introduction to the psychological factors which influence performance, participation and adherence to both sport and exercise programs; personality and the athlete; attention and arousal; relaxation theory and practice; aggression and psychosocial development; leadership and team cohesion.

Prerequisites: PYB100 or PYB012 or EDB002  Credit points: 12
Contact hours: 3 per week  Campus: Kelvin Grove
Teaching period: 2011 SEM-2

HMB276 RESEARCH IN HUMAN MOVEMENT
This unit includes principles of research: purposes, philosophy, applications. It addresses quantitative research including basic statistics, descriptives, ANOVA, correlation, regression and non-parametrics, and basic research design hypothesis testing. Qualitative research includes methodology, data collection, and theory building. Research presentation includes: writing a research report and developing conclusions. This unit also considers application of research, examples in human movement, related literature, computer data analysis, and information retrieval.

Credit points: 12
Contact hours: 3 per week  Campus: Kelvin Grove
Teaching period: 2011 SEM-2

HMB277 EXERCISE AND SPORT NUTRITION
This unit considers the relationship between nutrition and exercise and physical activity. Areas covered include dietary and energy requirements in exercise and sport and substrate utilisation at the cellular level during exercise. The influence that nutrition has on performance via changes in body composition, fuel utilisation, blood biochemistry and ergogenic aids will also be covered. Nutritional supplements and water and electrolyte balance in exercise and sport are also part of this unit.

Prerequisites: HMB172 or PUB201  Credit points: 12
Contact hours: 4 per week  Campus: Kelvin Grove
Teaching period: 2011 SEM-1

HMB282 RESISTANCE TRAINING
This unit aims to equip students with the basic knowledge, skills and competencies required for exercise prescription in resistance training for muscular fitness. Students build on prior knowledge of biomechanics, anatomy, physiology and motor control to develop understanding of the mechanical and physiological determinants of muscular fitness. The unit incorporates a blend of theoretical background, practical knowledge and skills in the main areas of muscular hypertrophy, strength, power and endurance. This understanding is then used to critically analyse resistance training programs.

Prerequisites: LSB131  Credit points: 12
Contact hours: 4 per week  Campus: Kelvin Grove
Teaching period: 2011 SEM-2

HMB361 FUNCTIONAL ANATOMY 2
This is a project-based unit designed to enable students with a background in functional anatomy to develop greater expertise in one or a combination of the following areas: electromyography; orthopaedic biomechanics; kinesiology of sport and work; comparative functional anatomy; locomotion and posture; research techniques in functional anatomy.

Prerequisites: HMB274  Credit points: 12
Contact hours: 4 per week  Campus: Kelvin Grove

HMB362 BIOMECHANICS 2
This unit includes the following: measurement techniques within biomechanics; analysis of force systems; photographic, goniometric and electrographic analysis of movement; an introduction to viscoelasticity and biological materials; material properties; mass and inertial characteristics of the human body; applied aspects of biomechanics undertaken from a research project perspective.

Prerequisites: HMB272 and HMB274  Credit points: 12
Contact hours: 4 per week  Campus: Kelvin Grove
Teaching period: 2011 SEM-1

HMB371 MOTOR CONTROL AND LEARNING 2
This is an advanced unit which provides an in-depth view of theories and concepts in motor learning and control; how we control actions in both everyday and skilled behaviours, and how this capability is acquired. This course provides a multidisciplinary perspective, drawing on research from psychology, neuroscience, biomechanics, robotics, neural networks and medicine. The unit is organised around the theme of sensorimotor integration as related to posture and balance, locomotion and arm movements such as reaching, grasping and pointing.

Prerequisites: HMB271  Credit points: 12
Contact...
HMB381 EXERCISE PHYSIOLOGY 2
This unit examines the integrated regulation of the organ system examined in Exercise Physiology 1. Within this integrated perspective current research areas will be highlighted, including but not limited to (1) exercise performance and environmental stress, (2) special aids to exercise training and performance, and (3) limitations to exercise in healthy normal individuals, elite athletes and selected patient populations.

Prerequisites: HMB273  Credit points: 12
Contact hours: 3-4 per week  Campus: Kelvin Grove  Teaching period: 2011 SEM-1

HMB382 PRINCIPLES OF EXERCISE PRESCRIPTION
In this unit, students examine the physiological principles and methods used in training and conditioning programs at all levels of physical activity. The integration of fitness assessment and exercise prescription is a major component of the unit, introducing the student to these requirements in the context of aerobic conditioning, resistance training, weight loss and flexibility. There is a strong emphasis on putting theory into practice, including the development and utilisation of appropriate practical skills in both fitness assessment and exercise prescription.

Prerequisites: HMB273 and HMB282  Credit points: 12
Contact hours: 4 per week  Campus: Kelvin Grove  Teaching period: 2011 SEM-1

HMB470 PRACTICUM 1
In the first of the Human Movement dedicated practicum units, students undertake in-depth experience at two different workplaces (40 hours each) while maintaining ongoing involvement in the School's clinics (20 hours). The student is provided with an extended opportunity to apply classroom learned knowledge and skills under the supervision of Human Movement Practitioners. Workplace involvement is preceded by a vocational skill seminar and workshop program while an interactive analysis program is instigated post practicum. [Designated unit]

Prerequisites: HMB382 and HMB385. HMB385 can be taken in the same study period.  Credit points: 12
Campus: Kelvin Grove  Teaching period: 2011 SEM-1 and 2011 SEM-2

INB102 EMERGING TECHNOLOGY
The aim of this unit is to provide you with a conceptual framework so that you clearly identify Information Technologies and their purpose. This task will be fun as it covers a wide spectrum of ideas and allows us to examine some currently popular technologies. Information Technology has become so entwined with everyday life that identifying its scope is difficult, which also makes it difficult to identify opportunities where IT might further infiltrate into our daily lives for work and play. To achieve these aims, the unit introduces you to some of the theories and engineering practicalities that have already resulted in technological advances in the area of information technology. Concepts leading to existing technologies are introduced during lectures, which are followed by laboratory sessions where students will be encouraged to discuss social change, future information tools and explore the concepts required for constructing these technologies.

Equivalents: ITB005  Credit points: 12  Contact hours: 3 per week  Campus: Gardens Point  Teaching period: 2011 SEM-1 and 2011 SEM-2

LSB111 UNDERSTANDING DISEASE CONCEPTS
This unit introduces the structure and function of the body, reviews the body systems and links those to mechanisms of disease. Systems and topics covered are: integumentary, skeletal, muscular, nervous, endocrine, blood, heart and circulation, lymphatic, immune, respiratory, digestive (including nutrition and metabolism), urinary, reproductive, concepts of growth and development, genetics. Examples of diseases introduced are: heart disease and hypertension, cancers (lung, breast, skin, colon, prostate, testicular, cervical), diabetes, depression, Parkinson's disease, asthma and chronic obstructive lung diseases.

Antirequisites: LSB321, LSB365, LSB365, LSB475  Credit points: 12  Contact hours: 4 per week  Campus: Gardens Point  Teaching period: 2011 SEM-1

LSB131 ANATOMY
This unit includes basic concepts of anatomy: an overview of the structure of cells, body tissues, and body systems; aspects of surface anatomy which are relevant to human movement; musculoskeletal systems.

Antirequisites: LSB142, LSB182, LSB258  Equivalents: LSB145  Credit points: 12  Contact hours: 5 per week  Campus: Gardens Point  Teaching period: 2011 SEM-1

LSB231 PHYSIOLOGY
This unit covers the general physiological principles such as homeostasis and how all systems in the body contribute to it. Topics include cells, transport processes, cardiovascular system, cardiac electrical activity, cardiac output, regulation of blood pressure, respiratory system, endocrine system, pulmonary ventilation and its function.

Antirequisites: LSB250  Equivalents: LSB245  Credit points: 12  Contact hours: 4 per week  Campus: Gardens Point  Teaching period: 2011 SEM-2

MAB105 PREPARATORY MATHEMATICS
This unit is intended to cater for the needs of students whose background in mathematics is either weak or does not reach the equivalent of Senior Mathematics B. It is intended to provide the concepts and skills needed for
successful study of those units within the university which assume a background equivalent to Senior Mathematics B. This unit is incompatible with a grade of High Achievement in Senior Mathematics B. The aim of this unit is to develop your mathematical skills in and understanding of algebra, functions and graphing, differential and integral calculus of one variable and to interpret and solve simple, real world problems using these skills. **Assumed knowledge:** Year 10 Level 6 Mathematics is assumed knowledge **Credit points:** 12 **Contact hours:** 4 per week **Campus:** Gardens Point **Teaching period:** 2011 SEM-1 and 2011 SEM-2

**PYB007 INTERPERSONAL PROCESSES AND SKILLS**
Psychology is generally a people-based profession with many positions involving not only understanding and testing people but communicating with them. More broadly however in most areas of modern work, and indeed within personal relationships, people need developed interpersonal skills and the ability to conceptualise interactive processes. The microskills for communication are also the foundation for helping relationships and counselling. **Antirequisites:** PYB074, HHB113, PYB111 **Credit points:** 12 **Contact hours:** 3 per week **Campus:** Gardens Point and Kelvin Grove **Teaching period:** 2011 SEM-1 and 2011 SEM-2

**PYB100 FOUNDATION PSYCHOLOGY**
This unit provides an introduction to the major content areas of psychology, including an introduction to psychological research and report-writing, for students intending to pursue further studies in psychology.

Psychology is a broad-ranging and multifaceted discipline which encompasses the scientific study of human behaviour, and the systematic application of knowledge gained from psychological research to a broad range of applied issues. The goal of this introductory unit is to introduce you to the major subfields and perspectives in psychology, and to develop your understanding of the research methods and report-writing conventions used in psychological research. **Antirequisites:** PYB012 **Equivalents:** PYB101 **Credit points:** 12 **Contact hours:** 3 hours per week **Campus:** Kelvin Grove **Teaching period:** 2011 SEM-1, 2011 SEM-2 and 2011 SUM-1

**SCB113 CHEMISTRY FOR HEALTH AND MEDICAL SCIENCE**
A challenging chemistry unit designed for students undertaking health and/or medical science degrees. A range of topics from sub-discipline areas of general, physical and organic chemistry are covered. General/physical chemistry content includes atomic and molecular structure, electronic structure, bonding, molecular geometry, stoichiometry, thermochemistry, gases, kinetics, equilibrium, acids, bases, buffers, and electrochemistry. Organic chemistry content includes functional group chemistry, reaction mechanisms, stereochemistry, chirality as well as topics of biological significance including the chemistry of peptides, sugars and DNA. The unit is complemented by a practical program involving a range of experiments illustrating important chemical concepts. **Antirequisites:** PQB105, SCB111 and SCB121 **Credit points:** 12 **Contact hours:** 5 per week **Campus:** Gardens Point **Teaching period:** 2011 SEM-1