

STUDY ABROAD

EXERCISE AND SPORT SCIENCE



Bond University's Study Abroad Program gives you the opportunity to study for a semester at Australia's highest rating university*. With a five star staff to student ratio*, you'll thrive in Bond's small classes where our internationally renowned academics know each student by name.

Bond University has a strong component of international students who hail from over 80 countries worldwide. This dynamic, multi-cultural mix offers you the opportunity to establish a global network of business associates - and friends - ensuring that the benefits of your study abroad experience will be felt long after you have returned home.

STUDY EXERCISE AND SPORTS SCIENCE AT BOND UNIVERSITY

The Faculty of Health Sciences and Medicine offers innovative Exercise and Sports Science Study Abroad subjects taught by leading academics to provide students with a solid understanding of the basic, clinical and applied sciences. Bond University is also proud to be recognised as a participant in the Elite Athlete Friendly University Network by the Australian Institute of Sport.

Students have access to the purpose-built sports science laboratory fitted with:

- state-of-the-art gas analysis systems that measure oxygen consumption
- electronic bikes to measure high performance in elite athletes
- an Innocor machine which measures cardiac output during exercise and related monitoring of an electrocardiograph
- extensive biochemistry resources to measure the exercise response in high performance athletes.

POPULAR EXERCISE AND SPORTS SCIENCE SUBJECTS

- Biophysics and Bioinstrumentation (SPEX11-301)
- Psychology of High Performance (SPEX13-311)
- Sport Coaching (SPSC11-113)
- Biochemistry (SPEX11-302)

EXPERT EXERCISE AND SPORTS SCIENCE STAFF

Dr Neil Smart

B.Sc. Hons., Ph.D., M.Med.Sci.

Dr Smart is an Assistant Professor and Director of the Exercise and Sport Science degrees. He conducts research within the field of exercise training therapy for chronic diseases heart failure, diabetes and chronic renal failure. Dr Smart has presented at numerous key conferences in Australia and internationally. He has been published 16 times for his original research projects and has received numerous research grants, consultancies and prizes for his work.

Assistant Professor Bon Gray

PhD, B.Sc. (Hons I), Dip.Ed., Dip.T.(Physical Education).

Dr Gray has had extensive experience in education, sport, coaching and exercise science and completed a PhD in Biochemistry & Molecular Biology at the Australian National University (Canberra) whilst undertaking research at the Australian Institute of Sport.

Assistant Professor Chris McLellan

B ExSc, M Physio

Assistant Professor Chris McLellan joined Bond University in 2005 as coordinator of the planning committee to develop the Faculty of Health Science and Medicine's ground-breaking Doctor of Physiotherapy program - the first of its kind in Australia. In the course of his research into these areas, he works with elite rugby league players and has been invited to present conference workshops and papers at National Rugby League (NRL) symposiums and scientific forums.

Assistant Professor Cassius D'Helon

BSc(Hons), PhD

Dr D'Helon has over ten years of experience teaching technology, instrumentation, biophysics and biomechanics in Exercise and Sport Science programs. He is a member of the International Sports Engineering Association, with research interests in GPS performance analysis and commercialising networked athlete-training systems.



EXERCISE AND SPORTS SCIENCE STUDY ABROAD SUBJECT SYNOPSIS

BIOCHEMISTRY (SPEX11-302)

The proposed subject will provide coverage of both structural and metabolic biochemistry as a foundation for later study of the molecular basis of exercise performance. The early lectures will focus on aspects of structural biochemistry including the main biomolecules (carbohydrates, amino acids/proteins, lipids, nucleic acids), as well as enzyme catalysis and bioenergetics. Later lectures will provide coverage of metabolic biochemistry (including the main catabolic and anabolic pathways associated with carbohydrate, lipid and amino acid metabolism) and regulation of gene expression. Comprehensive laboratory and tutorial programs will be integral components of this subject.

BIOPHYSICS AND BIOINSTRUMENTATION (SPEX11-301)

Biophysics introduces the fundamental physical principles that govern:

- the motion of physical bodies, and
- the characteristics of electrical circuits.

Applications related to Exercise Science, Sports Science and Physiotherapy are used to develop analytical skills, and provide the knowledge required for future subjects in biomechanics, emerging technologies for sports, physiology and high performance science.

Bioinstrumentation introduces the basic principles underlying the operation of electronic instrumentation, and highlights their application to Exercise Science, Sports Science and Physiotherapy. Students will be required to research an application that is relevant to biomechanics, emerging technologies, physiology or high performance science, and give an oral presentation at the end of the semester.

PSYCHOLOGY OF HIGH PERFORMANCE (SPEX13-311)*

This subject examines psychological features of the athlete that are crucial in the development of elite sporting performance. Specifically, three areas of high performance

psychology are examined. These include: mental processes that create and enhance expert sporting performance over time, mental skills that facilitate optimum sporting performance during competitions and mindsets that deal effectively with critical issues and setbacks during competition and over the long path of an athletic career. Through lectures, tutorials, practice workshops and assignment tasks students are encouraged to integrate theories, strategies, and specific skills within those areas of psychology most relevant to optimising elite sporting performance.

**Prior knowledge in High Performance Science or equivalent is required*

SPORT COACHING (SPSC11-113)

This subject introduces students to the skills and theory associated with sports coaching. Students will learn principles of sports coaching in lectures and will have the opportunity to apply this knowledge in practical applications. Through hands-on observations and coaching in a variety of different sports and activities, students will be encouraged to assess the effectiveness of coaching techniques and modify them accordingly through external and self-evaluation. This subject equips students intending to work in the sports industry with a thorough understanding of the challenges sport coaches undergo in their designated roles.



**BOND
UNIVERSITY**
FACULTY OF HEALTH SCIENCES
& MEDICINE

For more information contact:

Bond University
Office of Admissions
Study Abroad and Exchange
Email: studyabroad@bond.edu.au
Phone: +61 7 5595 1034
www.bond.edu.au/exercisescience