Bachelor of Vision Science (OP45)

Year offered: 2010
Admissions: Yes
CRICOS code: 065380A
Course duration (full-time): 3 years
Domestic fees (indicative): 2010: CSP $2,250 (indicative) per semester
International Fees (indicative): 2010: $13,250 (indicative) per semester
Domestic Entry: February
International Entry: February
QTAC code: 425312
Past rank cut-off: 98 - Selection within the rank or additional ranks were used in the selection process
Past OP cut-off: 2 - Field Positions were used as part of the selection process in this minimum OP band.
Assumed knowledge: English (4, SA), Maths B (4, SA), Chemistry (4, SA), and Physics (4, SA)
Preparatory studies: For information on acquiring assumed knowledge visit
Total credit points: 288
Course coordinator: All course enquiries to email: optometry.enquiries@qut.com or phone 07 3138 3368
Campus: Kelvin Grove

Overview
This five year program comprises of a three year Bachelor of Vision Science, followed by a two year Master of Optometry (OP85). Both degrees will need to be completed before a graduate can apply for registration as an optometrist.

The profession of Optometry is undergoing expansion in its scope of practice as a result of legislative amendments occurring (or pending) in all states and territories to allow appropriately trained optometrists to use therapeutic pharmaceutical agents in the practice of Optometry. This program increases graduates' depth of knowledge in the areas of general and ocular pharmacology, with training in the therapeutic management of eye disease.

The program was offered for the first time in 2009, replacing the Bachelor of Applied Science (Optometry). The second year is offered for the first time in 2010 and the third year will be offered for the first time in 2011.

Why choose this course
QUT offers the only optometry training in Queensland and is one of only three universities in Australia to offer optometry. Because of this, optometry graduates are always in demand with many entering private practice or going on to work in other areas such as industry, teaching or research positions both in Australia and overseas.

This course is the first component in a dual degree program which will allow graduates to practise as optometrists. It provides the theoretical basis in the vision and clinical sciences necessary for the later study of clinical practice in the Master of Optometry program.

Class numbers are small so you will receive individual attention from experienced lecturers. You have access to an optometry clinic that enables you to learn in a clinical setting, under the supervision of registered optometrists.

The QUT School of Optometry maintains strong professional and organisational links with industry. Clinical teachers come primarily from private practice settings, while many guest lectures are given by optometrists from private practice and allied disciplines such as ethics, financial, medical and pharmaceutical professions.

Career options
Graduates are highly employable, with all students employed on graduation. Visit QUT’s Graduate Destinations Survey at www.go.qut.edu.au/courses/destinations.jsp

Graduates of the dual program can work or specialise in areas such as contact lens practice, children’s vision, occupational/public health optometry or low vision.

Many optometry graduates enter private practice and work initially in established practices, often with a view to future partnership or the establishment of their own practice. Graduates are also employed in the ophthalmic industry, or they may enter the teaching and research fields after further study.

Students may choose not to complete the Master of Optometry and exit with a three year Bachelor of Vision Science to pursue a research career (following completion of an honours year) or find employment in the ophthalmic industry rather than complete the clinical qualification.

Students must complete the Master of Optometry as well as the Bachelor of Vision Science to be eligible for registration with Boards of Optometrical Registration.

Professional recognition
Boards of Optometrical Registration regulate the practice of optometry in Australia. QUT graduates of the dual degree program are eligible to apply to the Optometrists’ Board of Queensland for registration to practise as an optometrist in
Queensland. Graduates will also be able to register in all states and territories of Australia and New Zealand.

Other course requirements
Blue card As Required by the Commission for Children and Young People and Child Guardian Act (2000), students must undergo a criminal history check and be issued with a Blue Card before commencing clinical practice/field experience/practicum in an organisation where they may work with children or young people. For more information, visit http://bluecard.qut.com

Additional costs
Ophthalmic instruments costing approximately $5000 are required for the clinical program from the beginning of second and third years of the course. Academic staff provide advice regarding the purchase of these instruments. You will also be required to undertake first aid certification before entering the clinical program.

OP Guarantee
The OP Guarantee does not apply to this course

International Student
Strict quotas apply for entry to this course. Further information is available from QUT International Student Business Services.

Deferment
All domestic applicants offered admission to undergraduate award courses may apply to defer commencement of their study. A deferment application will not normally be considered for courses where specific admission requirements apply, for example submission of folios or undertaking auditions. Applicants are not entitled to hold a deferred place and hold a place in another QUT course for the same period.

Find out more on deferment.

Further information
For information about this course, please call the Public Health and Optometry Student Centre on +61 7 3138 3368 or email optometry.enquiries@qut.edu.au

Course structure - full-time

Year 1, Semester 1
MAB141 Mathematics and Statistics for Medical Science
PCB150 Physics 1H
SCB112 Cellular Basis of Life
SCB113 Chemistry for Health and Medical Science

Year 1, Semester 2
LSB255 Human Anatomy
LSB250 Human Physiology
SCB122 Cell and Molecular Biology
SCB131 Experimental Chemistry

Year 2, Semester 1
PCB240 Optics 1
OPB351 Visual Science 3
OPB352 Ocular Anatomy and Physiology 3
OPB353 Ophthalmic Optics 3

Year 2, Semester 2
LSB475 Disease Processes 4
OPB451 Visual Science 4
OPB452 Ocular Anatomy and Physiology 4
OPB453 Ophthalmic Optics 4

Year 3, Semester 1
LSB384 Pharmacology For Health Professionals
OPB550 Diseases of the Eye 5
OPB554 Research Methods in Optometry and Vision Science
OPB556 Assessment of Vision 5

Year 3, Semester 2
LSB492 Microbiology
OPB650 Diseases of the Eye 6
OPB654 Ocular Pharmacology
OPB656 Assessment of Vision 6

Health Unit prerequisites/corequisites
For information on prereqs & coreqs visit: www.hlth.qut.edu.au/study/forcurrentstudents/

Potential Careers:
Optometrist.

UNIT SYNOPSISES

LSB250 HUMAN PHYSIOLOGY
This unit is designed to introduce optometry and medical science students to the principles of human physiology and to provide students with the necessary background for future studies in physiology, pharmacology,
pathology and immunology. This unit addresses the physiology of all of the major systems of the human body, including: cell transport, cell signaling, endocrine physiology, neurophysiology, muscle physiology, physiology of the cardiovascular, immune, respiratory, reproductive, digestive and lymphatic systems and physiology of the special senses and reflexes. This unit has a practical component, with one 2 hour laboratory session per week and 3 hours of lectures.

**Prerequisites:** SCB112 or LSB118 or LSB131

**Antirequisites:** LSB231

**Credit points:** 12

**Teaching period:** 2010 SEM-1

### LSB255 HUMAN ANATOMY

The medically oriented biological scientist requires a detailed understanding and knowledge of human anatomy. This unit exposes the student to the theoretical and practical facets of both microscopic and macroscopic anatomy of the human body with the emphasis on the microscopic anatomy.

**Prerequisites:** SCB112 or LSB118

**Antirequisites:** LSB152

**Credit points:** 12

**Contact hours:** 5 per week

**Campus:** Gardens Point

**Teaching period:** 2010 SEM-2

### LSB384 PHARMACOLOGY FOR HEALTH PROFESSIONALS

Health professionals such as Nurses, Paramedics, Podiatrists and Optometrists require a detailed understanding of the pharmacological properties of the medicines that are used daily in the treatment of patients under their care. This unit introduces students to the discipline of pharmacology by examining the interaction of drugs with biological systems. An understanding of pharmacology is fundamental to a student’s understanding of pharmaceutical products in terms of efficacy and safety and provides a rationale for their therapeutic use.

**Prerequisites:** (LSB111 or LSB282 or LSB382 (NS40)) or (LSB475 (OP45)) or (LSB235 and LSB250 (PU43 Podiatry))

**Credit points:** 12

**Contact hours:** 4 per week

**Campus:** Kelvin Grove and Caboolture

**Teaching period:** 2010 SEM-1 and 2010 SEM-2

### LSB475 DISEASE PROCESSES 4

This unit includes the principles of the study of disease dealing with the causes and nature of circulation disorders, degenerative processes, metabolic and nutritional disorders, disturbances of development and growth, inflammation, infections and infestations, regeneration and repair, and neoplasia. The unit includes the applications of general pathology to the study of diseases of the heart and circulatory system, digestive system, respiratory system, urogenital system, endocrine system, nervous system, haematologic system and skin.

**Antirequisites:** LSB321, LSB361, LSB367

**Credit points:** 12

**Teaching period:** 2010 SEM-2

### LSB492 MICROBIOLOGY

This is an introductory core unit of microbiology for students of optometry and podiatry with an introduction to microorganisms, control of microbial populations and clinical conditions relevant to optometry and podiatry.

**Assumed knowledge:** Basic biological and chemical knowledge is assumed

**Credit points:** 12

**Contact hours:** 4 per week

**Campus:** Gardens Point

**Teaching period:** 2010 SEM-2

### MAB141 MATHEMATICS AND STATISTICS FOR MEDICAL SCIENCE

This unit includes: mathematics (functions, limits and continuity; differentiation of functions and applications of differentiation; solutions of equation by iteration; interpolation methods; integration and applications of integration); statistics (data collection; exploring, presenting and modelling data; Normal distribution; hypothesis testing and confidence intervals for means and proportions; one-way and two-way ANOVA; simple and multiple regression; design of experiments). These topics are presented in the context of medical science. Students must have completed four semesters of Senior Mathematics B with an exit level of Sound Achievement or better, or have passed MAB105.

**Antirequisites:** MAN101

**Assumed knowledge:** Grade of at least Sound Achievement in Senior Mathematics B (or equivalent) or MAB105 is assumed knowledge.

**Equivalents:** MAB140

**Credit points:** 12

**Contact hours:** 4 per week

**Campus:** Gardens Point

**Teaching period:** 2010 SEM-1

### OPB351 VISUAL SCIENCE 3

This unit includes a study of the basic visual sciences that underpins the practice of optometry. It covers the optics of the eye, including its basic design, dimensions and retinal quality as well as the psychophysical principles of vision.

**Prerequisites:** LSB250

**Credit points:** 12

**Contact hours:** 5 per week

**Campus:** Kelvin Grove

**Teaching period:** 2010 SEM-1

### OPB352 OCULAR ANATOMY AND PHYSIOLOGY 3

This unit provides information on the ocular anatomy and physiology that underlies the functional measurements made in optometry and their interpretation. It includes the structure and function of the anterior eye and orbit.

**Prerequisites:** LSB250 and LSB255

**Credit points:** 12

**Contact hours:** 5 per week

**Campus:** Kelvin Grove

**Teaching period:** 2010 SEM-1

### OPB353 OPTHALMIC OPTICS 3

**Prerequisites:** MAB141

**Credit points:** 12
period: 2010 SEM-1

**OPB451 VISUAL SCIENCE 4**
This subject continues studies commenced in OPB351, and provides students with an understanding of spatial, temporal, colour and binocular vision, and their influence on visual performance.

**Prerequisites:** OPB351 and OPB352  
**Corequisites:** OPB452  
**Credit points:** 12  
**Contact hours:** 5 per week  
**Campus:** Kelvin Grove  
**Teaching period:** 2010 SEM-2

**OPB452 OCULAR ANATOMY AND PHYSIOLOGY 4**
This is a continuation of OPB352. The unit covers the posterior eye, orbit, neural pathways, eye movements, neurophysiology of vision and an introduction to electrophysiological techniques.

**Prerequisites:** OPB351 and OPB352  
**Corequisites:** OPB451  
**Credit points:** 12  
**Contact hours:** 5 per week  
**Campus:** Kelvin Grove  
**Teaching period:** 2010 SEM-2

**OPB453 OPHTHALMIC OPTICS 4**

**Prerequisites:** OPB351 and OPB353  
**Credit points:** 12

**OPB550 DISEASES OF THE EYE 5**
This unit provides students with a knowledge and understanding of relevant general diseases and those that affect the eye. It includes general disease principles and processes, referral procedures, genetics, congenital, dystrophic and degenerative eye disease, and the ocular manifestation of general disease.

**Prerequisites:** OPB451, OPB452, and LSB475  
**Credit points:** 12  
**Contact hours:** 4 per week  
**Campus:** Kelvin Grove  
**Teaching period:** 2010 SEM-1

**OPB650 DISEASES OF THE EYE 6**
This is a continuation of OPB550 and covers the ocular manifestations of general disease, neuro-ophthalmology, glaucoma, inflammations/infections, tumours and trauma.

**Prerequisites:** OPB550, OPB556, and LSB384  
**Credit points:** 12  
**Contact hours:** 4 per week  
**Campus:** Kelvin Grove  
**Teaching period:** 2010 SEM-2

**PCB150 PHYSICS 1H**
This unit introduces basic physical measurements, mechanics, heat, waves, acoustics and optics, and the instrumentation used to measure physical parameters.

**Credit points:** 12  
**Contact hours:** 5 per week  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-1 and 2010 SEM-2

**PCB240 OPTICS 1**
This unit includes a study of selected topics in optics particularly related to aspects of optometry. Topics include geometrical optics in mirrors and lenses, including thick lenses, cylindrical, spherical and toric lenses, colour and colour measurement, photometry, lens aberrations and optical instruments.

**Credit points:** 12  
**Contact hours:** 5 per week  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-1

**SCB112 CELLULAR BASIS OF LIFE**
A study of life processes in all five groups of living organisms (bacteria, protists, fungi, plants and animals). Traditional topics in biology are integrated with recent research advances in molecular and cellular biology to provide a comprehensive foundation for later units in the medical, biotechnological and ecological sciences. The unit begins by constructing cells from the four quantitatively important groups of biological molecules (proteins, lipids, carbohydrates and nucleic acids). Molecular and evolutionary aspects of genetics are then introduced, with the great diversity of reproductive strategies found among organisms being emphasised. Finally, bioenergetics (photosynthesis and respiration) and its relevance to environmental issues is outlined.

**Antirequisites:** LSB118  
**Credit points:** 12  
**Contact hours:** 4 per week  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-1 and 2010 SEM-2

**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:** SCB111, SCB121  
**Credit points:** 12  
**Contact hours:** 5 per week  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-1

**SCB122 CELL AND MOLECULAR BIOLOGY**
SCB122 Cell and Molecular Biology 1 equips students with a comprehensive understanding the molecular basis of the cell. This unit expands on the basic principles and concepts relating to cell structure, function, perpetuation and specialisation introduced in SCB112 and introduces students to fundamental molecular mechanisms central to the organisation of the cell. Students will be shown how macromolecular interactions are crucial to information flow and heredity. Students are taught the relationships between
chromosomes, genes and cellular function and ultimately how these may determine an organism's phenotype. This unit underpins cell biology and molecular biology units that are offered in second year Life Science units. SCB122 is also ideal for interfaculty students (eg Education, Business, Arts) who will undertake no further life science studies. 

**Prerequisites:** SCB112  
**Antirequisites:** LSB238  
**Credit points:** 12  
**Contact hours:** 4.5 per week  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-2

### SCB131 EXPERIMENTAL CHEMISTRY

A study of chemistry and related disciplines such as medical science, biochemistry, molecular biology and pharmacy requires the development of practical laboratory skills used in synthesis and chemical analysis. This unit is a laboratory-based unit which is designed for students who intend to continue with experimental science units. The lectures complement the weekly practical sessions and teach the theory required to interpret experimental results.  

**Prerequisites:** SCB111 or SCB113  
**Corequisites:** SCB121 unless SCB113 has been successfully completed  
**Credit points:** 12  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-2