

## Faculty of Science

### Entry Programs (International)

- QC01 Foundation Program (1 Semester)
- QC02 Foundation Program (2 Semesters)
- QC03 Bridging Program
- QC04 Extended Foundation Program (3 Semesters)
- QC10 English for Academic Purposes for degree programs
- QC20 General English
- QC21 General English Extension
- QC22 English for Tertiary Preparation

### Bachelor Degree

- LS37 Bachelor of Applied Science (Medical Science)
- LS50 Bachelor of Biotechnology Innovation
- MA54 Bachelor of Mathematics
- PH38 Bachelor of Applied Science - Medical Radiation Technology (Medical Imaging Technology)
- PH38 Bachelor of Applied Science - Medical Radiation Technology (Radiotherapy Technology)
- SC01 Bachelor of Applied Science
- SC01 Bachelor of Applied Science (Carseldine First-year Experience Program)
- SC01 + SC60 Bachelor of Applied Science & Bachelor of Applied Science (Honours) - Dean's Scholars Accelerated Honours Program
- SC40 Bachelor of Biomedical Science
- SC45 Bachelor of Pharmacy
- SC51 Bachelor of Applied Science Innovation (For Continuing Students Only)

### Bachelor Degree (Double)

- IF21 Bachelor of Engineering (Electrical)/ Bachelor of Mathematics
- IF29 Bachelor of Applied Science/Bachelor of Information Technology (FOR CONTINUING STUDENTS ONLY)
- IF39 Bachelor of Applied Science/Bachelor of Laws
- IF58 Bachelor of Mathematics/Bachelor of Information Technology (FOR CONTINUING STUDENTS ONLY)
- IF60 Bachelor of Mathematics/Bachelor of Business (Accountancy, Banking and Finance or Economics) (FOR CONTINUING STUDENTS ONLY)
- IF61 Bachelor of Applied Science/Bachelor of Business (FOR CONTINUING STUDENTS ONLY)
- IF84 Bachelor of Applied Science/Bachelor of Education (Primary)
- IF86 Bachelor of Arts/Bachelor of Applied Science
- IX02 Bachelor of Applied Science/Bachelor of Education (Secondary)
- IX14 Bachelor of Applied Science/Bachelor of Education (Primary)
- IX26 Bachelor of Applied Science / Bachelor of Information Technology
- IX29 Bachelor of Information Technology / Bachelor of Mathematics
- IX31 Bachelor of Applied Science / Bachelor of Business
- IX37 Bachelor of Business / Bachelor of Mathematics
- SC20 Bachelor of Applied Science/Bachelor of Mathematics

### Honours

LS50 Bachelor of Biotechnology Innovation

SC01 + SC60 Bachelor of Applied Science & Bachelor of Applied Science (Honours) - Dean's Scholars Accelerated Honours Program

SC60 Bachelor of Applied Science (Honours)

### **Graduate Certificate**

IX97 Graduate Certificate In Research Commercialisation

LS66 Graduate Certificate in Biotechnology

MA65 Graduate Certificate in Mathematical Science

PH60 Graduate Certificate in Applied Science (Breast Ultrasound)

PH62 Graduate Certificate in Lighting (on-shore)

PH63 Graduate Certificate in Lighting (off-shore)

### **Graduate Diploma**

LS76 Graduate Diploma in Biotechnology

LS90 Graduate Diploma in Medical Science (Anatomical Pathology)

MA75 Graduate Diploma in Mathematical Science

PH71 Graduate Diploma in Applied Science (Medical Physics)

PH71 Graduate Diploma in Applied Science (Medical Ultrasound)

PH72 Graduate Diploma in Lighting (on-shore)

PH73 Graduate Diploma in Lighting (off-shore)

PH75 Graduate Diploma in Cardiac Ultrasound

SC71 Graduate Diploma in Applied Science

### **Masters Degree (Coursework)**

LS86 Master of Biotechnology

LS96 Master of Biotechnology (Advanced)

MA85 Master of Mathematical Science

PH80 Master of Applied Science (Medical Physics)

PH80 Master of Applied Science (Medical Ultrasound)

PH82 Master of Lighting (on-shore)

PH83 Master of Lighting (off-shore)

PH85 Master of Cardiac Ultrasound

### **Masters Degree (Research)**

SC80 Master of Applied Science (Research)

### **Doctoral**

IF49 Doctor of Philosophy (Mathematics)

IF49 Doctor of Philosophy (Science)

### **Study Abroad (Non-degree)**

NA05 International Visiting Students

NA06 International Visiting Students

UO80 University Study Abroad Certificate

UO90 University Study Abroad Diploma

### **University wide unit sets**

Unit sets: Accounting and Economics

Unit sets: Advertising, Marketing and Public Relations

Unit sets: Communication

Unit sets: Creative Industries

Unit sets: Health and Psychology

Unit sets: Indigenous Studies

Unit sets: Information Technology

Unit sets: International Studies

Unit sets: Languages

Unit sets: Management

Unit sets: Multimedia and Technologies

Unit sets: Physical and Chemical Sciences

Unit sets: Science

Unit sets: Society and Culture

## OVERVIEW

The Faculty of Science seeks to provide graduates with interesting and rewarding careers.

Fully equipped scientific and computing laboratories and state-of-the-art lecture theatres assist in the practical delivery of innovative teaching programs.

Science education in the Faculty is further enriched by a number of research programs and QUT's multidisciplinary research institutes (in particular the Institute of Health and Biomedical Innovation and the Institute for Sustainable Resources).

The Deans Scholars Accelerated Honours Program for high achieving students fast tracks science studies while workplace learning links with industry provide students with the opportunity to earn a salary while progressing through their degree.

Double degree options are available as part of a flexible program of academic studies.

The Bachelor of Pharmacy course offered at Gardens Point focuses on community and hospital pharmacy practice.

The Faculty offers a range of courses within its four multidisciplinary schools: School of Life Sciences, School of Mathematical Sciences, School of Natural Resource Sciences and School of Physical and Chemical Sciences.

The School of Life Sciences offers studies in courses focused on biomedical and medical sciences, biotechnology, microbiology, and biochemistry. The School enjoys close working relationships with industry which, in turn, help to provide students with a 'hands-on' approach to all of its courses.

The School of Mathematical Sciences offers studies in applied mathematics, mathematical finance, applied statistics, scientific computation and visualisation, and operations research. There is an emphasis on the applications of mathematics and many of the units are enriched by examples from business and industry.

The School of Natural Resource Sciences offers major studies in environmental science, ecology and geoscience, complemented with the co-majors in biodiversity, and applied geology.

The School of Physical and Chemical Sciences offers majors in both Physics and Chemistry with co-majors in astrophysics, applied physics, forensic science and industrial chemistry. Forensic science can also be taken as a double major with chemistry or biotechnology. The School also offers courses in medical imaging technology and radiotherapy technology, leading to careers in diagnostic and therapeutic radiography.

The first year of the Applied Science course is offered at the Carseldine campus as well as at Gardens Point.

For information about the Faculty of Science visit:  
<http://www.sci.qut.edu.au/>

Email: [sci-enquiries@qut.edu.au](mailto:sci-enquiries@qut.edu.au)  
Phone: +61 7 3138 2152

## SENIOR STAFF

### Faculty Office

*Executive Dean:* Professor M.L. Britz, BSc(Hons) PhD *Melb*

*Director of Research (Acting):* K. Mengersen, BA(Hons) PhD *NE, FRSS, MSSAI, MIMS, MIBS*

*Director of Postgraduate Studies:* Associate Professor P.M. Fredericks, BSc(Hons) DPhil *Sus, CChem, FRACI*

*Director of Academic Programs:* Associate Professor B.H. Cornish, DipT BAppSc MAppSc(MedPhys) GradDipBusAdmin PhD *QUT, MACPSEM, MAIP*

*Faculty Administration Manager:* S.Bee, BSc GradDipAdmin *Griff, JP(Qual)*

### School of Life Sciences

*Head:* Professor A.C. Herington, BSc(Hons) PhD *Monash*

#### Professors:

J.A. Clements, BAppSc MAppSc *RMIT, PhD Monash*  
C. Nelson, BSc(Hons) PhD *Canberra*  
P. Timms, MSc PhD *Qld, FASM*  
Z. Upton, BSc(Hons) PhD *Adel*

#### Associate Professors:

J. Aaskov, BSc(Hons) PhD *Leeds*  
C.C. Collet, BSc(Hons) PhD *Latrobe*  
P. Giffard, BSc(Hons) PhD *Aberdeen*  
L.M. Hafner, BSc(Hons) PhD *LaTrobe*  
R.M. Harding, BSc(Hons) PhD *Qld*  
C.P. Morris, BSc(Hons) PhD *Adel*  
F.B. Ross, BSc(Hons) PhD *Qld*  
T.P. Walsh, BSc(Hons) PhD *Qld*

### School of Mathematical Sciences

*Head:* Professor A.N. Pettitt, BSc(Hons) MSc PhD *Nott, FSS, MSSAI*

#### Professors:

V.V. Anh, BSc(Hons) PhD *Tas, MEc NE, FAustMS, MSSAI, MIEEE*  
E. Kozan, BSc MSc *Middle East, PhD Hacettepe, MASOR*  
H. MacGillivray, BSc(Hons) PhD *Qld, MSSAI*  
D.L.S. McElwain, BSc(Hons) *Qld, PhD York (Canada)*  
K. Mengersen, BA(Hons) PhD *NE, FRSS, MSSAI, MIMS, MIBS*  
I.W. Turner, BAppSc (Maths), MAppSc (Maths) *QIT, PhD Qld*

### School of Natural Resource Sciences

*Head:* Associate Professor D.A. Gust, BA *Lawrence, MA Rice, PhD ANU*

*Professor:* P.R. Grace, BSc *ANU, PhD UQ*

*Associate Professor:* P.B. Mather, BSc(Hons) PhD *Lot*

### School of Physical and Chemical Sciences

*Head (Acting):* Dr G. Ayoko, BSc(Hons) *A.Bello, MSc A.Bello, PhD Sus, MRACI, CChem, MRSC*

#### Professors:

R.L.W. Frost, BEd MSc PhD *Qld, DSc (QUT) CChem, FRACI*  
L. Morawska, MSc(Physics) PhD(Physics) *Jagiellonian*

#### Associate Professors:

D. Arnold, BSc(Hons) PhD *Qld, DSc QUT, CChem, FRACI*  
S. Bottle, BSc (Hons) *Qld, PhD Griff*  
P.M. Fredericks, BSc(Hons) DPhil *Sus, CChem, FRACI*  
P. Rowntree, DipAppSc (DiagRad) GradDipEd (Tert) *USQ, FIR, AISRRT*  
H.Y. Zhu, BSc *Inner Mongolia Univ, China MSc Nankai, China PhD UIA, Belgium*

## RESEARCH CENTRES

### Science Research Centre

The Faculty of Science provides an environment within which a variety of programs interact, developing new and innovative collaborations at the interface between disciplines. Our knowledge of nature is expanding at virtually an exponential rate and with this comes opportunities in complex areas requiring multi-disciplinary research teams. The Faculty's research has been structured so as to capture opportunities in these multi-disciplinary projects, bringing together the expertise from different research programs to focus on a complex research problem.

The Faculty has a broad range of programs which are grouped within four clusters: molecular biotechnology, physical and chemical sciences, natural resources and mathematical sciences. These clusters provide and maintain state of the art technology equipment and facilities; importantly, these facilities are shared across the Faculty and are available to all programs giving researchers and research students access to the extensive range of equipment and technologies within the Faculty of Science.

#### Research programs

##### *Tropical Crops and Biocommodities*

Program Leader: Professor James Dale  
Phone: +61 7 3138 2819

##### *Ecology and Earth Systems*

School Director of Research: Associate Professor Peter Mather  
Phone: +61 7 3138 1737

##### *Tissue Repair and Regeneration*

Program Leader: Professor Zee Upton  
Phone: +61 7 3138 6185

##### *Inorganic Materials*

Program Leader: Professor Ray Frost  
Phone: +61 7 3138 2407

##### *Medical Physics*

Program Leader: Associate Professor Bruce Cornish  
Phone: +61 7 3138 2860

##### *Applied Optics*

Program Leaders: Dr Ian Cowling and Dr Dmitri Gramotnev  
Phone: +61 7 3138 2592 or +61 7 3138 2593

##### *Statistics and Operations Research (SOR)*

Program Leaders: Professor Vo Anh and Professor Erhan Kozan  
Phone: +61 7 3138 5195 or +61 7 3138 1029

##### *Applicable Mathematics and Advanced Computation (AMAC)*

Program Leader: Professor Sean McElwain and Associate Professor Ian Turner  
Phone: +61 7 3138 5185 or +61 7 3138 2259

##### *Infectious Diseases*

Program Leader: Associate Professor Philip Giffard  
Phone: +61 7 3138 6194

##### *Air Quality and Health*

Program Leader: Professor Lidia Morawska  
Phone: +61 7 3138 2616

##### *Hormone-Dependent Cancer*

Program Leader: Professor Judith Clements  
Phone: +61 7 3138 6198

##### *Synthesis and Molecular Recognition*

Program Leader: Associate Professor Steven Bottle  
Phone: +61 7 3138 1356

### Cooperative Research Centre for Diagnostics

The CRC for Diagnostics (<http://diagnosticscrc.org>) based at QUT is a cooperative venture between research organisations (QUT, LaTrobe University, CSIRO and Child Health Research Institute) and Queensland Medical Laboratory. Centre participants are located in Queensland, Victoria and South Australia. Through effective technology transfer, outcomes will be: reduced health care costs through the better targeting of therapeutics, earlier diagnosis, and exploitation of genomics and proteomics information to allow greater specificity in diagnosis and treatment of an individual. Achievements to date include the multi-million dollar sale of a DNA detection method to Affymetrix (a large US biotechnology company) and the formation in 2002 of a new company, Evogenix, based in Melbourne. Other achievements include numerous patented DNA detection methods and diagnostic kits. Originally formed as the CRC for Diagnostic Technologies in 1995, this \$80 million centre was re-funded as a new centre in 2001 and is jointly funded by the participants and the Commonwealth and State Governments.

#### Research programs

- Protein profiling: expression profiles for the diagnosis and monitoring of autoimmune diseases
- High Affinity Reagents: identification of novel reagents and platforms for library construction
- Genome Diagnostics: discovery of SNPs for human physical characteristics and disease
- Infectious Disease Diagnostics: novel methods and reagents for improved detection
- Homogenous Reporter Systems for one-step diagnostic assays.

## Bachelor of Engineering (Electrical)/ Bachelor of Mathematics (IF21)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** 020329J

**Course duration (full-time):** 5 years

**Domestic fees (per credit point):** Commonwealth Supported Place; Full fee tuition 2007: \$210 per credit point (*subject to annual review*)

**Domestic fees (indicative):** 2007: Full fee tuition \$20,160; CSP \$6,881

**International Fees (per semester):** 2007:\$10,000 per semester (*subject to annual review*)

**Domestic Entry:** February

**International Entry:** February

**QTAC code:** 419572; Dfee: 419576

**Past rank cut-off:** 78; Dfee: 73

**Past OP cut-off:** 11; Dfee: 13

**OP Guarantee:** Yes

**Assumed knowledge:** English (4, SA) and Maths B (4, SA)

**Preparatory studies:** MATHS: QUT unit Data Analysis for Business as a visiting student or QUT Continuing Professional Education course Mathematics Bridging; ENGLISH: Successful completion of a year of full-time vocational or tertiary study. For further information contact 07 3138 2000 or email [study@qut.com](mailto:study@qut.com)

**Total credit points:** 480

**Standard credit points per full-time semester:** 48

**Course coordinator:** Dr R.Mahalinga-Iyer (Engineering); Dr Graeme Pettet (Mathematics)

**Discipline coordinator:** Dr Ed Palmer (Engineering)

**Campus:** Gardens Point

### Career Opportunities

Electrical and computer engineers design, install and maintain electrical, electronic, telecommunications and computing systems on behalf of government and private companies. A stronger training in mathematics and statistics enhances capabilities in modelling, analysis and design.

### Recommended study

Chemistry, Maths C and Physics are recommended.

### Overview

The program integrates both the engineering and mathematics degree. Mathematics and engineering have always had close connections, but recent advancement in mathematics and statistics are increasingly being used to help solve complex engineering problems.

### Special Course Requirements

A candidate for this course must obtain at least 60 days of industrial experience in an engineering environment approved by the course coordinator.

### Professional Recognition

This degree meets the requirements for membership of Engineers Australia, and the coursework requirements for accredited graduate membership of the Australian Mathematical Society. Students may also become a member of the Statistical Society of Australia.

### Mathematics Bursaries

Students enrolled in this course can apply for industry-sponsored bursaries. These bursaries are awarded to Australian citizens or permanent residents on a competitive basis. Applications should be submitted by 1 December of the year preceding entry to the course. For further information see [www.maths.qut.edu.au](http://www.maths.qut.edu.au)

### Contact Details

#### Electrical Coordinator

Dr Ed Palmer

Email: [bee.enquiries@qut.com](mailto:bee.enquiries@qut.com)

#### Mathematics Coordinator

Dr Graeme Pettet

Phone: +61 7 3138 5238

Email: [g.pettet@qut.edu.au](mailto:g.pettet@qut.edu.au)

### Further information

Phone +61 7 3138 1993, Fax +61 7 3864 1516, email: [bee.enquiries@qut.com](mailto:bee.enquiries@qut.com)

### Deferment

QUT allows current Year 12 school leavers to defer their undergraduate admission offer for one year, or for six months if offered mid-year admission, except in courses using specific admission requirements such as questionnaires, folios, auditions, prior study or work experience.

Non-year 12 students may also request to defer their QTAC offer on the basis of demonstrated special circumstances.

Find out more on deferment.

### Course structure - For students with four semesters of Senior Mathematics B and Senior Mathematics C

For students with four semesters of both Senior Mathematics B and Senior Mathematics C (or equivalent) with an exit assessment of at least Sound Achievement in both subjects.

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#### Year 1, Semester 1

BEB100	Introducing Professional Learning
MAB111	Mathematical Sciences 1B
MAB112	Mathematical Sciences 1C
PCB136	Engineering Physics 1C

#### Year 1, Semester 2

ENB101	Engineering Mechanics 1
ENB103	Electrical Engineering
MAB101	Statistical Data Analysis 1
MAB210	Statistical Modelling 1

#### Year 2, Semester 1

## SCIENCE

ENB240	Introduction To Electronics	assessment of at least Sound Achievement.
ENB246	Engineering Problem Solving	null
MAB220	Computational Mathematics 1	
MAB311	Advanced Calculus	

### Year 2, Semester 2

ENB243	Linear Circuits and Systems
ENB244	Microprocessors and Digital Systems
MAB413	Differential Equations Mathematics elective (Level 2 or 3)

### Year 3, Semester 1

EEB311	Electrical Measurement and Machines
EEB560	Digital Communications
MAB312	Linear Algebra
MAB314	Statistical Modelling 2

### Year 3, Semester 2

EEB411	Classical Control and Power Systems
EEB640	Digital Signal Processing
MAB420	Computational Mathematics 2
MAB480	Introduction to Scientific Computation

### Year 4, Semester 1

EEB511	Modern Control and Power Electronics
EEB584	Introduction to Design Electrical Engineering elective Mathematics elective (Level 3)

### Year 4, Semester 2

EEB684	Advanced Design Electrical Engineering elective
MAB414	Applied Statistics 2 Mathematics elective (Level 3)

### Year 5, Semester 1

EEB889-1	Project Electrical Engineering elective Electrical Engineering elective Mathematics elective (Level 3)
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### Year 5, Semester 2

EEB889-2	Project Electrical Engineering elective Electrical Engineering elective Mathematics elective (Level 3)
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### Course structure - For students with fours semesters of Senior Mathematics B (or equivalent) only

For students with four semesters of Senior Mathematics B (or equivalent) only, with an exit

### Year 1, Semester 1

BEB100	Introducing Professional Learning
MAB100	Mathematical Sciences 1A
MAB101	Statistical Data Analysis 1
PCB136	Engineering Physics 1C

### Year 1, Semester 2

ENB101	Engineering Mechanics 1
ENB103	Electrical Engineering
MAB111	Mathematical Sciences 1B
MAB112	Mathematical Sciences 1C

### Year 2, Semester 1

ENB240	Introduction To Electronics
ENB246	Engineering Problem Solving
MAB220	Computational Mathematics 1
MAB311	Advanced Calculus

### Year 2, Semester 2

ENB243	Linear Circuits and Systems
ENB244	Microprocessors and Digital Systems
MAB210	Statistical Modelling 1
MAB413	Differential Equations

### Year 3, Semester 1

EEB311	Electrical Measurement and Machines
EEB560	Digital Communications
MAB312	Linear Algebra
MAB314	Statistical Modelling 2

### Year 3, Semester 2

EEB411	Classical Control and Power Systems
EEB640	Digital Signal Processing
MAB420	Computational Mathematics 2
MAB480	Introduction to Scientific Computation

### Year 4, Semester 1

EEB511	Modern Control and Power Electronics
EEB584	Introduction to Design Electrical Engineering elective Mathematics elective (Level 3)

### Year 4, Semester 2

EEB684	Advanced Design Electrical Engineering elective
MAB414	Applied Statistics 2 Mathematics elective (Level 3)

### Year 5, Semester 1

EEB889-1 Project  
 Electrical Engineering elective  
 Electrical Engineering elective  
 Mathematics elective (Level 3)

mandatory 48 credit points minimum from Level 3 Mathematics units. This does not apply to students who commenced prior to 2004.  
 - Some deviations from the above course structure may be possible with the permission of the course coordinator. This is more likely to apply in the later years than the earlier years of the course.

**Year 5, Semester 2**

EEB889-2 Project  
 Electrical Engineering elective  
 Electrical Engineering elective  
 Mathematics elective (Level 3)

**Potential Careers:**

Electrical and Computer Engineer, Electrical Engineer, Mathematician, Statistician.

**Electrical Engineering Elective Units**

- EEB512 Industrial Electronics and Digital Design
- EEB612 Software Systems Design
- EEB641 Fields Transmission and Propagation
- EEB650 Power Systems Analysis
- EEB911 Electrical Energy Systems
- EEB941 Modern Signal Processing
- EEB960 Wireless Communications
- EEB961 RF and Applied Electromagnetics
- EEB976 Advanced Industrial Electronics
- EEB992 VLSI Circuits and Systems

Not all electives may be offered. At the discretion of the course coordinator, students may be allowed to select an elective from any advanced topics offered by the University. Also potential honours students may, with the approval of the course coordinator, select an elective from the postgraduate degree courses offered by the School of Engineering Systems.

**Mathematics Electives (Level 2)**

- MAB315 Operations Research 2
- MAB422 Mathematical Modelling

**Mathematics Electives (Level 3)**

**Four units required:**

- MAB521 Applied Mathematics 3
- MAB522 Computational Mathematics 3
- MAB523 Introduction to Quality Management
- MAB524 Statistical Inference
- MAB526 Statistical Science 3
- MAB613 Partial Differential Equations
- MAB621 Discrete Mathematics
- MAB624 Applied Statistics 3
- MAB672 Advanced Mathematical Modelling

**NOTES:**

- For students commencing in 2004 onwards, the units MAB523 Introduction to Quality Management and MAB621 Discrete Mathematics do not contribute to the



## Bachelor of Applied Science/Bachelor of Information Technology (FOR CONTINUING STUDENTS ONLY) (IF29)

**Year offered:** 2007

**Admissions:** No

**CRICOS code:** 020327M

**Course duration (full-time):** 4 Years

**Domestic fees (per credit point):** Commonwealth Supported Place; Full fee tuition 2007: \$210 per credit point (*subject to annual review*)

**Domestic fees (indicative):** 2007: \$20,160

**International Fees (per semester):** 2007: \$9,000 per semester (*subject to annual review*)

**Domestic Entry:** February

**International Entry:** February

**QTAC code:** 419302; Dfee: 419306

**Past rank cut-off:** 72. Dfee places were not offered last year.

**Past OP cut-off:** 13. Dfee places were not offered last year.

**OP Guarantee:** Yes

**Assumed knowledge:** English (4, SA) and Maths B (4, SA)

**Preparatory studies:** MATHS: QUT unit Preparatory Mathematics as a visiting student or QUT Continuing Professional Education course Mathematics Bridging. ENGLISH: Successful completion of a year of full-time vocational or tertiary study. For further information contact 07 3138 2000 or email [study@qut.com](mailto:study@qut.com)

**Total credit points:** 408 (Note: The minimum course load per semester required for full-time enrolment may be more than 36 credit points)

**Standard credit points per full-time semester:** 48

**Course coordinator:** Dr Megan Hargreaves (Science); Ruth Christie(InfTech)

**Campus:** Gardens Point

### Career Opportunities

The course prepares you for an increasing range of careers that involve the application of information technology to science. As a graduate of the double degree, you are also qualified for employment in the areas of software engineering and data communications.

The Bachelor of Applied Science allows multi-disciplinary programs of study to help position you within the broad range of science disciplines and qualify you as a competent professional within your chosen field.

### Recommended study

At least one of the sciences. For the majors in biochemistry, biotechnology, forensic science and microbiology - Biological Science and Chemistry are recommended; for the major in physics - Maths C is recommended.

### Course Design

The science component of the course offers you a choice of one of the major areas of study available in the Bachelor of Applied Science (SC01) course. To allow you to complete the double degree in a shorter period of time, your co-major will be taken from the information technology program therefore it is not possible to choose any of the co-majors listed under the Bachelor of Applied Science course.

The information technology component gives you the opportunity to undertake a combined major in Data Communications and Software Engineering. Theoretical aspects are balanced by strong practical components in both of the Science and Information Technology degrees.

### Professional Recognition

Graduates will satisfy the requirements for membership in the relevant professional body for their chosen science major. See the Bachelor of Applied Science (SC01) course for details. Graduates are also eligible for membership of the Australian Computer Society (ACS).

### Cooperative Education Program

An optional one-year period of paid work experience in an area of information technology is available to eligible full-time students. The Cooperative Education Program is a joint venture between employers and educators to better prepare students for employment upon graduation. Companies that QUT's Cooperative Education students have worked with include Energex, Boeing, CITEC, Global Banking and Securities Transaction, various Queensland Government departments, Dialog, TABQ, RACQ and Sun Microsystems.

For more information visit [www.fit.qut.edu.au/courses/undergrad/coop/](http://www.fit.qut.edu.au/courses/undergrad/coop/)

### Contact Details

#### Science Coordinator

Dr Megan Hargreaves

Phone: +61 7 3138 2244

Email: [m.hargreaves@qut.edu.au](mailto:m.hargreaves@qut.edu.au)

#### Information Technology Coordinator

Dr Alan Tickle

Phone: +61 7 3138 2782

Email: [fit.enquiry@qut.edu.au](mailto:fit.enquiry@qut.edu.au)

### Deferment

QUT allows current Year 12 school leavers to defer their undergraduate admission offer for one year, or for six months if offered mid-year admission, except in courses using specific admission requirements such as questionnaires, folios, auditions, prior study or work experience.

Find out more on deferment.

### Course structure - Major in Biochemistry

#### Year 1, Semester 1

ITB001	Problem Solving and Programming
ITB004	Database Systems
LSB118	Life Science
PCB101	Physical Science

#### Year 1, Semester 2

ITB002	IT Professional Studies
ITB003	Object Oriented Programming

## SCIENCE

ITB005 Systems Architecture  
 LSB238 Cell and Molecular Biology 1  
 NRB270 Animal and Plant Structure and Function

ITB004 Database Systems  
 LSB118 Life Science  
 PCB101 Physical Science

### Year 2, Semester 1

ITB006 Networks  
 ITB008 Modelling Analysis and Design  
 ITB711 Programming Abstraction  
 MAB101 Statistical Data Analysis 1  
 Either  
 PCB140 Introductory Chemistry  
 Or  
 PCB142 Chemistry 1

### Year 1, Semester 2

ITB002 IT Professional Studies  
 ITB003 Object Oriented Programming  
 ITB005 Systems Architecture  
 LSB238 Cell and Molecular Biology 1  
 NRB270 Animal and Plant Structure and Function

### Year 2, Semester 2

LSB258 Principles of Human Physiology  
 PCB242 Chemistry 2  
 ITB712 Software Engineering Studies  
 ITB744 Computer Architecture  
 OR  
 IT Elective Unit selected from list

### Year 2, Semester 1

ITB006 Networks  
 ITB008 Modelling Analysis and Design  
 ITB711 Programming Abstraction  
 MAB101 Statistical Data Analysis 1  
 Either  
 PCB140 Introductory Chemistry  
 Or  
 PCB142 Chemistry 1

### Year 3, Semester 1

LSB308 Biochemistry  
 LSB338 Cell and Molecular Biology 2  
 IT Elective Unit selected from list  
 IT Elective Unit selected from list

### Year 2, Semester 2

LSB258 Principles of Human Physiology  
 PCB242 Chemistry 2  
 ITB712 Software Engineering Studies  
 ITB744 Computer Architecture  
 OR  
 IT Elective Unit selected from list

### Year 3, Semester 2

LSB408 Metabolism  
 LSB468 Molecular Biology  
 ITB720 Internet Protocols and Services  
 IT Elective Unit selected from list

### Year 3, Semester 1

LSB308 Biochemistry  
 LSB338 Cell and Molecular Biology 2  
 ITB745 Operating Systems  
 IT Elective Unit selected from list

### Year 4, Semester 1

LSB508 Advanced Metabolism  
 LSB527 Biomedical Research Technologies  
 ITB009 Core Project Initiation  
 IT Elective Unit selected from list

### Year 3, Semester 2

LSB468 Molecular Biology  
 LSB469 Introduction to Genomics and Bioinformatics  
 ITB720 Internet Protocols and Services  
 IT Elective Unit selected from list

### Year 4, Semester 2

LSB607 Protein Purification  
 LSB608 Protein Science  
 IT Elective Unit selected from list  
 IT Elective Unit selected from list

### Year 4, Semester 1

LSB537 Genetic Engineering  
 LSB509 Medical Biotechnology 1  
 ITB009 Core Project Initiation  
 IT Elective Unit selected from list

### Course Structure - Major in Biotechnology (Medical Strand)

#### Year 1, Semester 1

ITB001 Problem Solving and Programming

#### Year 4, Semester 2

LSB609 Medical Biotechnology 2  
 LSB619 Genomics and Bioinformatics  
 IT Elective Unit selected from list

## SCIENCE

IT Elective Unit selected from list

### Course structure - Major in Chemistry

#### Year 1, Semester 1

ITB001	Problem Solving and Programming
ITB004	Database Systems
MAB100	Mathematical Sciences 1A
PCB101	Physical Science

#### Year 1, Semester 2

ITB002	IT Professional Studies
ITB003	Object Oriented Programming
ITB005	Systems Architecture
LSB118	Life Science
MAB101	Statistical Data Analysis 1

#### Year 2, Semester 1

NRB100	Environmental Science
PCB142	Chemistry 1
ITB006	Networks
ITB008	Modelling Analysis and Design
ITB711	Programming Abstraction

#### Year 2, Semester 2

PCB150	Physics 1H
PCB242	Chemistry 2
ITB712	Software Engineering Studies
ITB744	Computer Architecture
	OR
	IT Elective Unit selected from list

#### Year 3, Semester 1

PCB334	Inorganic Chemistry
PCB354	Structure and Mechanism in Organic Chemistry
ITB745	Operating Systems
	IT Elective Unit selected from list

#### Year 3, Semester 2

PCB405	Principles of Physical Chemistry
PCB444	Spectroscopy
ITB720	Internet Protocols and Services
	IT Elective Unit selected from list

#### Year 4, Semester 1

PCB505	Advanced Physical Chemistry
PCB554	Synthesis and Reactivity in Organic Chemistry
ITB009	Core Project Initiation
	IT Elective Unit selected from list

#### Year 4, Semester 2

PCB634	Organometallic and Coordination Chemistry
PCB644	Frontiers in Chemistry
	IT Elective Unit selected from list
	IT Elective Unit selected from list

### Course Structure - Major in Ecology

#### Year 1, Semester 1

ITB001	Problem Solving and Programming
ITB004	Database Systems
NRB100	Environmental Science
PCB101	Physical Science

#### Year 1, Semester 2

ITB002	IT Professional Studies
ITB003	Object Oriented Programming
ITB005	Systems Architecture
LSB118	Life Science
NRB240	History of Life on Earth

#### Year 2, Semester 1

ITB006	Networks
ITB008	Modelling Analysis and Design
ITB711	Programming Abstraction
MAB101	Statistical Data Analysis 1
	Either
PCB140	Introductory Chemistry
	Or
PCB142	Chemistry 1

#### Year 2, Semester 2

LSB238	Cell and Molecular Biology 1
NRB270	Animal and Plant Structure and Function
ITB712	Software Engineering Studies
ITB744	Computer Architecture
	OR
	IT Elective Unit selected from List

#### Year 3, Semester 1

NRB301	Earth Surface Systems
NRB311	Population Ecology
ITB745	Operating Systems
	IT Elective Unit selected from List

#### Year 3, Semester 2

NRB410	Genetics and Evolution
NRB412	Experimental Design
	IT Elective Unit selected from List
ITB720	Internet Protocols and Services

#### Year 4, Semester 1

## SCIENCE

NRB510 Population Genetics  
 NRB511 Population Management  
 ITB009 Core Project Initiation  
 IT Elective Unit selected from List

### Year 4, Semester 2

NRB610 Ecological Applications  
 NRB611 Conservation Biology  
 IT Elective Unit selected from List  
 IT Elective Unit selected from List

### Course structure - Major in Environmental Science

#### Year 1, Semester 1

ITB001 Problem Solving and Programming  
 ITB004 Database Systems  
 NRB100 Environmental Science  
 PCB101 Physical Science

#### Year 1, Semester 2

ITB002 IT Professional Studies  
 ITB003 Object Oriented Programming  
 ITB005 Systems Architecture  
 LSB118 Life Science  
 NRB240 History of Life on Earth

#### Year 2, Semester 1

ITB006 Networks  
 ITB008 Modelling Analysis and Design  
 ITB711 Programming Abstraction  
 MAB101 Statistical Data Analysis 1  
 Either  
 PCB140 Introductory Chemistry  
 Or  
 PCB142 Chemistry 1

#### Year 2, Semester 2

NRB270 Animal and Plant Structure and Function  
 Either  
 PCB414 Industrial and Environmental Analytical Chemistry  
 Or  
 SCB222 Exploration of the Universe  
 ITB712 Software Engineering Studies  
 ITB744 Computer Architecture  
 Or  
 IT Elective Unit selected from List

#### Year 3, Semester 1

ITB745 Operating Systems  
 NRB301 Earth Surface Systems

NRB311 Population Ecology  
 IT Elective Unit selected from List

### Year 3, Semester 2

NRB412 Experimental Design  
 NRB440 Environmental Chemistry  
 ITB720 Internet Protocols and Services  
 IT Elective Unit selected from List

### Year 4, Semester 1

NRB500 Environmental Systems and Modelling  
 NRB601 Field Mapping and Monitoring of Natural Resources  
 ITB009 Core Project Initiation  
 IT Elective Unit selected from List

### Year 4, Semester 2

NRB501 Spatial Analysis of Environmental Systems  
 NRB600 Sustainable Environmental Management  
 IT Elective Unit selected from List  
 IT Elective Unit selected from List

### Course structure - Major in Forensic Science

#### Year 1, Semester 1

ITB001 Problem Solving and Programming  
 ITB004 Database Systems  
 LSB118 Life Science  
 PCB101 Physical Science

#### Year 1, Semester 2

ITB002 IT Professional Studies  
 ITB003 Object Oriented Programming  
 ITB005 Systems Architecture  
 MAB101 Statistical Data Analysis 1  
 PCB140 Introductory Chemistry  
 Or  
 PCB142 Chemistry 1

#### Year 2, Semester 1

ITB006 Networks  
 ITB008 Modelling Analysis and Design  
 ITB711 Programming Abstraction  
 MAB100 Mathematical Sciences 1A  
 PCB242 Chemistry 2

#### Year 2, Semester 2

LSB238 Cell and Molecular Biology 1  
 NRB270 Animal and Plant Structure and Function  
 ITB712 Software Engineering Studies  
 ITB744 Computer Architecture  
 OR

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IT Elective Unit selected from List

### Year 3, Semester 1

LSB468 Molecular Biology  
SCB384 Forensic Science  
ITB745 Operating Systems

IT Elective Unit selected from List

### Year 3, Semester 2

JSB979 Forensic Scientific Evidence  
PCB414 Industrial and Environmental Analytical Chemistry  
ITB720 Internet Protocols and Services  
IT Elective Unit selected from List

### Year 4, Semester 1

PCB514 Instrumental Analysis  
PCB584 Forensic Examination of Physical Evidence  
ITB009 Core Project Initiation  
IT Elective Unit selected from List

### Year 4, Semester 2

LSB684 Forensic DNA Profiling  
PCB684 Forensic Analysis and Toxicology  
IT Elective Unit selected from List  
IT Elective Unit selected from List

### Course structure - Major in Geoscience

#### Year 1, Semester 1

ITB001 Problem Solving and Programming  
ITB004 Database Systems  
MAB100 Mathematical Sciences 1A  
NRB230 Planet Earth

#### Year 1, Semester 2

ITB002 IT Professional Studies  
ITB003 Object Oriented Programming  
ITB005 Systems Architecture  
MAB101 Statistical Data Analysis 1  
PCB101 Physical Science

#### Year 2, Semester 1

NRB100 Environmental Science  
Either  
PCB140 Introductory Chemistry  
Or  
PCB142 Chemistry 1  
ITB006 Networks  
ITB008 Modelling Analysis and Design  
ITB711 Programming Abstraction

#### Year 2, Semester 2

NRB240 History of Life on Earth  
NRB440 Environmental Chemistry  
ITB712 Software Engineering Studies  
ITB744 Computer Architecture  
OR  
IT Elective Unit selected from List

#### Year 3, Semester 1

NRB331 Sedimentary Geology  
NRB333 Mineralogy  
ITB745 Operating Systems  
IT Elective Unit selected from List

#### Year 3, Semester 2

NRB434 Structural Geology  
NRB436 Introduction to Igneous and Metamorphic Petrology  
ITB720 Internet Protocols and Services  
IT Elective Unit selected from list

#### Year 4, Semester 1

ITB009 Core Project Initiation  
IT Elective Unit selected from list  
NRB534 Geophysics  
NRB536 Petrology and Geochemistry  
NRB601 Field Mapping and Monitoring of Natural Resources

#### Year 4, Semester 2

IT Elective Unit selected from list  
IT Elective Unit selected from list  
One unit selected from:  
NRB633 Hydrogeology  
NRB635 Plate Tectonics and Advanced Structural Geology

### Course structure - Major in Microbiology

#### Year 1, Semester 1

ITB001 Problem Solving and Programming  
ITB004 Database Systems  
LSB118 Life Science  
PCB101 Physical Science

#### Year 1, Semester 2

ITB002 IT Professional Studies  
ITB003 Object Oriented Programming  
ITB005 Systems Architecture  
LSB238 Cell and Molecular Biology 1  
NRB270 Animal and Plant Structure and Function

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### Year 2, Semester 1

MAB101	Statistical Data Analysis 1 Either
PCB140	Introductory Chemistry Or
PCB142	Chemistry 1
ITB006	Networks
ITB008	Modelling Analysis and Design
ITB711	Programming Abstraction

### Year 2, Semester 2

LSB258	Principles of Human Physiology
PCB242	Chemistry 2
ITB712	Software Engineering Studies
ITB744	Computer Architecture OR IT Elective Unit selected from List

### Year 3, Semester 1

LSB308	Biochemistry
LSB328	Microbiology 1
ITB745	Operating Systems IT Elective Unit selected from List

### Year 3, Semester 2

ITB720	Internet Protocols and Services IT Elective Unit selected from List
LSB428	Microbiology 2
LSB468	Molecular Biology

### Year 4, Semester 1

ITB009	Core Project Initiation IT Elective Unit selected from List Two units from
LSB528	Environmental Microbiology
LSB547	Bacterial Pathogenesis and Disease Diagnosis
LSB568	Electron Microscopy
LSB578	Virology

### Year 4, Semester 2

	IT Elective Unit selected from List IT Elective Unit selected from List Two units from:
LSB628	Food Microbiology
LSB647	Clinical Mycology and Parasitology
LSB648	Molecular Microbiology

### Course structure - Major in Physics

#### Year 1, Semester 1

ITB001	Problem Solving and Programming
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ITB004	Database Systems
MAB111	Mathematical Sciences 1B
PCB101	Physical Science

#### Year 1, Semester 2

ITB002	IT Professional Studies
ITB003	Object Oriented Programming
ITB005	Systems Architecture
MAB112	Mathematical Sciences 1C

#### Year 2, Semester 1

MAB311	Advanced Calculus
PCB107	Physics and Quantitative Techniques
ITB006	Networks
ITB008	Modelling Analysis and Design
ITB711	Programming Abstraction

#### Year 2, Semester 2

MAB101	Statistical Data Analysis 1
PCB250	Physics 1
PCB260	Physics 1A
ITB712	Software Engineering Studies
ITB744	Computer Architecture OR IT Elective Unit selected from List

#### Year 3, Semester 1

PCB361	AC Theory and Electronics
PCB362	Physics 2
ITB745	Operating Systems IT Elective Unit selected from List

#### Year 3, Semester 2

ITB720	Internet Protocols and Services IT Elective Unit selected from List
PCB460	Instrumentation and Computational Methods
PCB462	Thermodynamics and Solid State Physics

#### Year 4, Semester 1

PCB561	Quantum and Condensed Matter Physics
PCB562	Physical Methods of Analysis
ITB009	Core Project Initiation IT Elective Unit selected from list

#### Year 4, Semester 2

PCB661	Experimental Physics
PCB665	Physics 3 IT Elective Unit selected from List IT Elective Unit selected from List

### IT Elective Unit List

**Information Technology Elective Unit List**

ITB007	Web Development
ITB009	Core Project Initiation
ITB010	Core Project Implementation
ITB218	Applications Programming
ITB222	Systems Analysis and Design
ITB223	Software Development with ORACLE
ITB228	Enterprise Systems
ITB229	Database Design
ITB230	Project
ITB232	Database Management
ITB233	Enterprise Systems Applications
ITB237	Advanced Databases
ITB239	Enterprise Data Mining
ITB241	Information Technology Management
ITB254	Interaction Design
ITB245	R/3 System Administration
ITB257	Multimedia Systems
ITB259	Advanced Multimedia Systems
ITB260	E-Commerce Site Development
ITB264	Information Systems Consulting
ITB266	Information Management
ITB267	Business Analytics
ITB272	Information Technology Project Management
ITB294	Information Quality
ITB295	XML: Data and Document Processing
ITB298	Business Process Engineering
ITB322	Information Resources
ITB710	Fundamentals of Computer Science
ITB711	Programming Abstraction
ITB712	Software Engineering Studies
ITB713	Advanced Java Programming
ITB715	Web Services
ITB716	Advanced Web Applications Development
ITB717	Enterprise Software Architecture
ITB720	Internet Protocols and Services
ITB721	Unix Network Administration
ITB722	Network Planning and Deployment
ITB723	Wireless and Mobile Devices
ITB730	Information Security Fundamentals
ITB731	Security Technologies
ITB732	Cryptology and Protocols
ITB733	Network Security
ITB740	Agent Based Software Engineering
ITB741	Information Retrieval Technology
ITB742	Computational Intelligence
ITB743	Artificial Intelligence

ITB744	Computer Architecture
ITB745	Operating Systems
ITB746	Modelling and Animation Techniques
ITB747	Real Time Rendering Techniques
ITB748	Configurable Computing
ITB749	Scientific Programming
ITB750	Computer Game Studies
ITB751	Games Production
ITS702	Ccna 3 & 4: Switching and Wide Area Networking
ITS703	Ccnp 1: Advanced Routing
ITS704	Ccnp 2: Remote Access Networks
ITS705	Ccnp 3: Multilayer Switching
ITS706	Ccnp 4: Network Troubleshooting
ITS707-1	Securing Cisco Hardware
ITS707-2	Securing Cisco Hardware
MAB281	Mathematics for Computer Graphics

Please check with the relevant School for further information on Special Topics.

**Potential Careers:**

Analytical Chemist, Astrophysicist, Biochemist, Biologist, Biotechnologist, Chemist, Chemist Industrial, Coastal Scientist, Conservation Biologist, Data Communications Specialist, Economist, Environmental Scientist, Forensic Scientist, Geologist, Geophysicist, Geoscientist, Health Physicist, Hydrogeologist, Immunologist, Industrial Chemist, Laboratory Technician (Chemistry), Marine Scientist, Medical Biotechnologist, Medical Physicist, Microbiologist, Molecular Biologist, Natural Resource Scientist, Network Administrator, Network Manager, Physicist, Plant Biotechnologist, Population Ecologist, Software Engineer, Systems Analyst, Virologist.

## Bachelor of Applied Science/Bachelor of Laws (IF39)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** 012661G

**Course duration (full-time):** 5 Years

**Domestic fees (per credit point):** Commonwealth Supported Place; Full fee tuition 2007: \$210 per credit point (*subject to annual review*)

**Domestic fees (indicative):** 2007: Full fee tuition \$20,160; CSP \$7,342

**International Fees (per semester):** 2007:\$9,000 per semester (*subject to annual review*)

**Domestic Entry:** February

**International Entry:** February

**QTAC code:** 419712; Dfee: 419716

**Past rank cut-off:** 90; Dfee: 85

**Past OP cut-off:** 6; Dfee: 8

**Assumed knowledge:** English (4, SA) and Maths B (4, SA)

**Preparatory studies:** MATHS: QUT unit Preparatory Mathematics as a visiting student or QUT Continuing Professional Education course Mathematics Bridging. ENGLISH: Successful completion of a year of full-time vocational or tertiary study. For further information contact 07 3138 2000 or email [study@qut.com](mailto:study@qut.com)

**Total credit points:** 528 (Note: The minimum course load per semester required for full-time enrolment may be more than 36 credit points)

**Standard credit points per full-time semester:** 60 (years 1 and 4), 48 (years 2, 3 and 5)

**Course coordinator:** Dr Megan Hargreaves (Science); Director, Undergraduate Programs (Law)

**Campus:** Gardens Point

### Career Opportunities

As a graduate, you may enter legal practice with an education in both the content and process of science and data analysis that will enable you to deal with the complexities of litigation that have a scientific and technological dimension, such as inventions, trade secrets, quantitative evidence, and constitutional disputes giving rise to environmental issues. On the other hand, you may choose to follow a career path in the sciences, enhancing your opportunities in a particular discipline such as environmental science or biotechnology through your knowledge of the law.

### OP Guarantee

The OP Guarantee does not apply to this course.

### Course Design

The course is designed to cover all major areas of the law as well as allowing students to choose any one of the science majors that are offered in the Bachelor of Applied Science (SC01) course.

To complete the double degree in a shorter period of time, the co-major will be taken from the law program therefore it is not possible for students to choose any of the co-majors listed under the Bachelor of Applied Science course.

### Professional Recognition

Graduates will satisfy the requirements of membership in the relevant professional body for their chosen science major. See the Bachelor of Applied Science (SC01) course for details. The Bachelor of Laws component covers the areas of law required for admission as a legal practitioner and/or barrister in all Australian states and territories.

### Contact Details

#### Science Coordinator

Dr Megan Hargreaves

Phone: +61 7 3138 2244

Email: [m.hargreaves@qut.edu.au](mailto:m.hargreaves@qut.edu.au)

#### Law Coordinator

Ms Sheryl Jackson

Phone: +61 7 3138 2707

### Deferment

QUT allows current Year 12 school leavers to defer their undergraduate admission offer for one year, or for six months if offered mid-year admission, except in courses using specific admission requirements such as questionnaires, folios, auditions, prior study or work experience.

Non-year 12 students may also request to defer their QTAC offer on the basis of demonstrated special circumstances.

Find out more on deferment.

### Course structure - Major in Biochemistry

#### Year 1, Semester 1

	Introduction to Legal Research #
LSB118	Life Science
LWB141	Legal Institutions and Method
LWB142	Law, Society and Justice
PCB101	Physical Science
	Either
PCB140	Introductory Chemistry
	Or
PCB142	Chemistry 1

#### Year 1, Semester 2

LSB238	Cell and Molecular Biology 1
LWB143	Legal Research and Writing
LWB144	Laws and Global Perspectives
MAB101	Statistical Data Analysis 1
PCB242	Chemistry 2

#### Year 2, Semester 1

LSB308	Biochemistry
LSB328	Microbiology 1
LSB338	Cell and Molecular Biology 2



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LWB136 Contracts A

Either

### Year 2, Semester 2

LSB408 Metabolism

PCB140 Introductory Chemistry

Or

LSB468 Molecular Biology

PCB142 Chemistry 1

LSB605 Protein Engineering and Bioprocessing

LWB137 Contracts B

### Year 1, Semester 2

LSB238 Cell and Molecular Biology 1

LWB143 Legal Research and Writing

LWB144 Laws and Global Perspectives

MAB101 Statistical Data Analysis 1

PCB242 Chemistry 2

### Year 3, Semester 1

LSB508 Advanced Metabolism

LSB527 Biomedical Research Technologies

LWB138 Fundamentals of Torts

LWB238 Fundamentals of Criminal Law

### Year 2, Semester 1

LSB308 Biochemistry

LSB338 Cell and Molecular Biology 2

LWB136 Contracts A

Either

LSB328 Microbiology 1

Or

LSB397 Plant Physiology

### Year 3, Semester 2

LSB607 Protein Purification

LSB608 Protein Science

LWB139 Select Issues in Torts

LWB239 Criminal Responsibility

### Year 2, Semester 2

LSB468 Molecular Biology

LSB469 Introduction to Genomics and Bioinformatics

LWB137 Contracts B

One of:

LSB408 Metabolism

LSB497 Plant Molecular Biology

### Year 4, Semester 1

LWB231 Introduction to Public Law

LWB236 Real Property A

LWB240 Principles of Equity

LWB332 Commercial and Personal Property Law

LWB333 Theories of Law

### Year 4, Semester 2

LWB235 Australian Federal Constitutional Law

LWB237 Real Property B

LWB241 Trusts

LWB331 Administrative Law

LWB334 Corporate Law

### Year 3, Semester 1

LSB537 Genetic Engineering

LWB138 Fundamentals of Torts

LWB238 Fundamentals of Criminal Law

One of:

LSB509 Medical Biotechnology 1

LSB577 Plant Biotechnology 1

### Year 5, Semester 1

LWB431 Civil Procedure

LWB432 Evidence

LWB434 Advanced Research and Legal Reasoning  
Law Elective Units \*

### Year 3, Semester 2

LSB619 Genomics and Bioinformatics

LWB139 Select Issues in Torts

LWB239 Criminal Responsibility

One of:

LSB609 Medical Biotechnology 2

LSB677 Plant Biotechnology 2

### Year 5, Semester 2

LWB433 Professional Responsibility  
Elective Units \*

## Course structure - Major in Biotechnology

### Year 1, Semester 1

Introduction to Legal Research #

LSB118 Life Science

LWB141 Legal Institutions and Method

LWB142 Law, Society and Justice

PCB101 Physical Science

### Year 4, Semester 1

LWB231 Introduction to Public Law

LWB236 Real Property A

LWB240 Principles of Equity

LWB332 Commercial and Personal Property Law

LWB333 Theories of Law

**Year 4, Semester 2**

LWB235 Australian Federal Constitutional Law

LWB237 Real Property B

LWB241 Trusts

LWB331 Administrative Law

LWB334 Corporate Law

**Year 5, Semester 1**

LWB431 Civil Procedure

LWB432 Evidence

LWB434 Advanced Research and Legal Reasoning

Elective Units \*

**Year 5, Semester 2**

LWB433 Professional Responsibility

Elective Units \*

**Course structure - Major in Chemistry**

**Year 1, Semester 1**

LSB118 Life Science

Introduction to Legal Research #

LWB141 Legal Institutions and Method

LWB142 Law, Society and Justice

PCB101 Physical Science

Either

PCB140 Introductory Chemistry

Or

PCB142 Chemistry 1

**Year 1, Semester 2**

LWB143 Legal Research and Writing

LWB144 Laws and Global Perspectives

MAB101 Statistical Data Analysis 1

PCB150 Physics 1H

PCB242 Chemistry 2

**Year 2, Semester 1**

LWB136 Contracts A

MAB100 Mathematical Sciences 1A

PCB334 Inorganic Chemistry

PCB354 Structure and Mechanism in Organic Chemistry

**Year 2, Semester 2**

LWB137 Contracts B

PCB405 Principles of Physical Chemistry

PCB414 Industrial and Environmental Analytical Chemistry

PCB444 Spectroscopy

**Year 3, Semester 1**

LWB138 Fundamentals of Torts

LWB238 Fundamentals of Criminal Law

PCB505 Advanced Physical Chemistry

PCB554 Synthesis and Reactivity in Organic Chemistry

**Year 3, Semester 2**

LWB139 Select Issues in Torts

LWB239 Criminal Responsibility

PCB634 Organometallic and Coordination Chemistry

PCB644 Frontiers in Chemistry

**Year 4, Semester 1**

LWB231 Introduction to Public Law

LWB236 Real Property A

LWB240 Principles of Equity

LWB332 Commercial and Personal Property Law

LWB333 Theories of Law

**Year 4, Semester 2**

LWB235 Australian Federal Constitutional Law

LWB237 Real Property B

LWB241 Trusts

LWB331 Administrative Law

LWB334 Corporate Law

**Year 5, Semester 1**

LWB431 Civil Procedure

LWB432 Evidence

LWB434 Advanced Research and Legal Reasoning

Elective Units \*

**Year 5, Semester 2**

LWB433 Professional Responsibility

Elective Units \*

**Course structure - Major in Ecology**

**Year 1, Semester 1**

Introduction to Legal Research #

LSB118 Life Science

LWB141 Legal Institutions and Method

LWB142 Law, Society and Justice

NRB100 Environmental Science

PCB101 Physical Science

**Year 1, Semester 2**

LSB238 Cell and Molecular Biology 1

LWB143 Legal Research and Writing

LWB144 Laws and Global Perspectives

MAB101 Statistical Data Analysis 1

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NRB270 Animal and Plant Structure and Function

### Year 2, Semester 1

LWB136 Contracts A  
 NRB301 Earth Surface Systems  
 NRB311 Population Ecology  
 NRB370 Invertebrate Biology

### Year 2, Semester 2

LWB137 Contracts B  
 NRB410 Genetics and Evolution  
 NRB412 Experimental Design  
 NRB470 Vertebrate Biology

### Year 3, Semester 1

LWB138 Fundamentals of Torts  
 LWB238 Fundamentals of Criminal Law  
 NRB510 Population Genetics  
 NRB511 Population Management

### Year 3, Semester 2

LWB139 Select Issues in Torts  
 LWB239 Criminal Responsibility  
 NRB610 Ecological Applications  
 NRB611 Conservation Biology

### Year 4, Semester 1

LWB231 Introduction to Public Law  
 LWB236 Real Property A  
 LWB240 Principles of Equity  
 LWB332 Commercial and Personal Property Law  
 LWB333 Theories of Law

### Year 4, Semester 2

LWB235 Australian Federal Constitutional Law  
 LWB237 Real Property B  
 LWB241 Trusts  
 LWB331 Administrative Law  
 LWB334 Corporate Law

### Year 5, Semester 1

LWB431 Civil Procedure  
 LWB432 Evidence  
 LWB434 Advanced Research and Legal Reasoning  
 Elective Units \*

### Year 5, Semester 2

LWB433 Professional Responsibility  
 Elective Units \*

### Course structure - Major in Environmental Science

### Year 1, Semester 1

Introduction to Legal Research #  
 LWB141 Legal Institutions and Method  
 LWB142 Law, Society and Justice  
 LSB118 Life Science  
 NRB100 Environmental Science  
 PCB101 Physical Science

### Year 1, Semester 2

LWB143 Legal Research and Writing  
 LWB144 Laws and Global Perspectives  
 MAB101 Statistical Data Analysis 1  
 NRB240 History of Life on Earth  
 PCB142 Chemistry 1

### Year 2, Semester 1

LWB136 Contracts A  
 NRB230 Planet Earth  
 NRB301 Earth Surface Systems  
 NRB311 Population Ecology

### Year 2, Semester 2

LWB137 Contracts B  
 NRB412 Experimental Design  
 NRB440 Environmental Chemistry  
 SCB222 Exploration of the Universe

### Year 3, Semester 1

LWB138 Fundamentals of Torts  
 LWB238 Fundamentals of Criminal Law  
 NRB500 Environmental Systems and Modelling  
 NRB601 Field Mapping and Monitoring of Natural Resources

### Year 3, Semester 2

LWB139 Select Issues in Torts  
 LWB239 Criminal Responsibility  
 NRB501 Spatial Analysis of Environmental Systems  
 NRB600 Sustainable Environmental Management

### Year 4, Semester 1

LWB231 Introduction to Public Law  
 LWB236 Real Property A  
 LWB240 Principles of Equity  
 LWB332 Commercial and Personal Property Law  
 LWB333 Theories of Law

### Year 4, Semester 2

LWB235 Australian Federal Constitutional Law  
 LWB237 Real Property B  
 LWB241 Trusts

## SCIENCE

LWB331 Administrative Law  
LWB334 Corporate Law

### Year 5, Semester 1

LWB431 Civil Procedure  
LWB432 Evidence  
LWB434 Advanced Research and Legal Reasoning  
Elective Units \*

### Year 5, Semester 2

LWB433 Professional Responsibility  
Elective Units \*

### Course structure - Major in Forensic Science

#### Year 1, Semester 1

LSB118 Life Science  
LWB141 Legal Institutions and Method  
LWB142 Law, Society and Justice  
Introduction to Legal Research  
PCB101 Physical Science  
Either  
PCB140 Introductory Chemistry  
Or  
PCB142 Chemistry 1

#### Year 1, Semester 2

LSB238 Cell and Molecular Biology 1  
LWB143 Legal Research and Writing  
LWB144 Laws and Global Perspectives  
MAB101 Statistical Data Analysis 1  
PCB242 Chemistry 2

#### Year 2, Semester 1

LSB338 Cell and Molecular Biology 2  
LWB136 Contracts A  
PCB354 Structure and Mechanism in Organic Chemistry  
SCB384 Forensic Science

#### Year 2, Semester 2

JSB979 Forensic Scientific Evidence  
LSB468 Molecular Biology  
LWB137 Contracts B  
PCB414 Industrial and Environmental Analytical Chemistry

#### Year 3, Semester 1

LWB138 Fundamentals of Torts  
LWB238 Fundamentals of Criminal Law  
PCB514 Instrumental Analysis  
PCB584 Forensic Examination of Physical Evidence

#### Year 3, Semester 2

LSB684 Forensic DNA Profiling  
LWB139 Select Issues in Torts  
LWB239 Criminal Responsibility  
PCB684 Forensic Analysis and Toxicology

#### Year 4, Semester 1

LWB231 Introduction to Public Law  
LWB236 Real Property A  
LWB240 Principles of Equity  
LWB332 Commercial and Personal Property Law  
LWB333 Theories of Law

#### Year 4, Semester 2

LWB235 Australian Federal Constitutional Law  
LWB237 Real Property B  
LWB241 Trusts  
LWB331 Administrative Law  
LWB334 Corporate Law

#### Year 5, Semester 1

LWB431 Civil Procedure  
LWB432 Evidence  
LWB434 Advanced Research and Legal Reasoning  
Elective Units

#### Year 5, Semester 2

LWB433 Professional Responsibility  
Elective Units

### Course structure - Major in Geoscience

#### Year 1, Semester 1

Introduction to Legal Research #  
LWB141 Legal Institutions and Method  
LWB142 Law, Society and Justice  
NRB100 Environmental Science  
NRB230 Planet Earth  
PCB101 Physical Science

#### Year 1, Semester 2

LWB143 Legal Research and Writing  
LWB144 Laws and Global Perspectives  
MAB100 Mathematical Sciences 1A  
MAB101 Statistical Data Analysis 1  
PCB142 Chemistry 1

#### Year 2, Semester 1

LWB136 Contracts A  
NRB301 Earth Surface Systems  
NRB331 Sedimentary Geology

## SCIENCE

NRB333 Mineralogy

### Year 2, Semester 2

LWB137 Contracts B

NRB434 Structural Geology

NRB436 Introduction to Igneous and Metamorphic Petrology

One unit from:

NRB437 Stratigraphy and Depositional Environments

NRB440 Environmental Chemistry

### Year 3, Semester 1

LWB138 Fundamentals of Torts

LWB238 Fundamentals of Criminal Law

NRB534 Geophysics

NRB536 Petrology and Geochemistry

### Year 3, Semester 2

LWB139 Select Issues in Torts

LWB239 Criminal Responsibility

Two units from:

NRB633 Hydrogeology

NRB635 Plate Tectonics and Advanced Structural Geology

NRB636 Petroleum Geology and Basin Analysis

### Year 4, Semester 1

LWB231 Introduction to Public Law

LWB236 Real Property A

LWB240 Principles of Equity

LWB332 Commercial and Personal Property Law

LWB333 Theories of Law

### Year 4, Semester 2

LWB235 Australian Federal Constitutional Law

LWB237 Real Property B

LWB241 Trusts

LWB331 Administrative Law

LWB334 Corporate Law

### Year 5, Semester 1

LWB431 Civil Procedure

LWB432 Evidence

LWB434 Advanced Research and Legal Reasoning

Elective Units \*

### Year 5, Semester 2

LWB433 Professional Responsibility

Elective Units \*

**Course structure - Major in Mathematics [WITH Mathematics C from Senior]**

### Year 1, Semester 1

Introduction to Legal Research #

LWB141 Legal Institutions and Method

LWB142 Law, Society and Justice

MAB101 Statistical Data Analysis 1

MAB111 Mathematical Sciences 1B

MAB112 Mathematical Sciences 1C

### Year 1, Semester 2

LWB143 Legal Research and Writing

LWB144 Laws and Global Perspectives

MAB210 Statistical Modelling 1

MAB220 Computational Mathematics 1

One Science unit - selected from:

LSB118 Life Science

PCB101 Physical Science

### Year 2, Semester 1

LWB136 Contracts A

One Science unit - selected from:

LSB118 Life Science

NRB100 Environmental Science

PCB101 Physical Science

Two Level 2 Mathematics units\* - available units are:

MAB311 Advanced Calculus

MAB312 Linear Algebra

MAB313 Mathematics of Finance

MAB314 Statistical Modelling 2

\* Students must complete at least one of MAB311, MAB312, MAB413

### Year 2, Semester 2

LWB137 Contracts B

Three Level 2 Mathematics units\* - available units are:

MAB315 Operations Research 2

MAB413 Differential Equations

MAB414 Applied Statistics 2

MAB420 Computational Mathematics 2

MAB422 Mathematical Modelling

MAB480 Introduction to Scientific Computation

\* Students must complete at least one of MAB311, MAB312, MAB413

### Year 3, Semester 1

LWB138 Fundamentals of Torts

LWB238 Fundamentals of Criminal Law

Two Level 3 Mathematics units - available units are:

MAB521 Applied Mathematics 3

## SCIENCE

MAB522	Computational Mathematics 3
MAB523	Introduction to Quality Management
MAB525	Operations Research 3A
MAB526	Statistical Science 3
MAB672	Advanced Mathematical Modelling

### Year 3, Semester 2

LWB139	Select Issues in Torts
LWB239	Criminal Responsibility
	Two Level 3 Mathematics units - available units are:
MAB524	Statistical Inference
MAB613	Partial Differential Equations
MAB621	Discrete Mathematics
MAB623	Financial Mathematics
MAB624	Applied Statistics 3
MAB625	Operations Research 3B

### Year 4, Semester 1

LWB231	Introduction to Public Law
LWB236	Real Property A
LWB240	Principles of Equity
LWB332	Commercial and Personal Property Law
LWB333	Theories of Law

### Year 4, Semester 2

LWB235	Australian Federal Constitutional Law
LWB237	Real Property B
LWB241	Trusts
LWB331	Administrative Law
LWB334	Corporate Law

### Year 5, Semester 1

LWB431	Civil Procedure
LWB432	Evidence
LWB434	Advanced Research and Legal Reasoning
	Elective Units *

### Year 5, Semester 2

LWB433	Professional Responsibility
	Elective Units *

### Course structure - Major in Mathematics [WITHOUT Mathematics C from Senior]

#### Year 1, Semester 1

	Introduction to Legal Research #
LWB141	Legal Institutions and Method
LWB142	Law, Society and Justice
MAB100	Mathematical Sciences 1A
MAB101	Statistical Data Analysis 1

#### Year 1, Semester 2

LWB143	Legal Research and Writing
LWB144	Laws and Global Perspectives
MAB111	Mathematical Sciences 1B
MAB112	Mathematical Sciences 1C
MAB210	Statistical Modelling 1

#### Year 2, Semester 1

LWB136	Contracts A
MAB220	Computational Mathematics 1
	One Science unit - selected from:
LSB118	Life Science
NRB100	Environmental Science
PCB101	Physical Science
	Two Level 2 Mathematics units* - available units are:
MAB311	Advanced Calculus
MAB312	Linear Algebra
MAB313	Mathematics of Finance
MAB314	Statistical Modelling 2
*	Students must complete at least one of MAB311, MAB312, MAB413

#### Year 2, Semester 2

LWB137	Contracts B
	One Science unit - selected from:
LSB118	Life Science
PCB101	Physical Science
	Two Level 2 Mathematics units* - available units are:
MAB315	Operations Research 2
MAB413	Differential Equations
MAB414	Applied Statistics 2
MAB420	Computational Mathematics 2
MAB422	Mathematical Modelling
MAB480	Introduction to Scientific Computation
*	Students must complete at least one of MAB311, MAB312, MAB413

#### Year 3, Semester 1

LWB138	Fundamentals of Torts
LWB238	Fundamentals of Criminal Law
	Two Level 3 Mathematics units - available units are:
MAB521	Applied Mathematics 3
MAB522	Computational Mathematics 3
MAB523	Introduction to Quality Management
MAB525	Operations Research 3A
MAB526	Statistical Science 3
MAB672	Advanced Mathematical Modelling

## SCIENCE

### Year 3, Semester 2

LWB139	Select Issues in Torts
LWB239	Criminal Responsibility
	Two Level 3 Mathematics units - available units are:
MAB524	Statistical Inference
MAB613	Partial Differential Equations
MAB621	Discrete Mathematics
MAB623	Financial Mathematics
MAB624	Applied Statistics 3
MAB625	Operations Research 3B

### Year 4, Semester 1

LWB231	Introduction to Public Law
LWB236	Real Property A
LWB240	Principles of Equity
LWB332	Commercial and Personal Property Law
LWB333	Theories of Law

### Year 4, Semester 2

LWB235	Australian Federal Constitutional Law
LWB237	Real Property B
LWB241	Trusts
LWB331	Administrative Law
LWB334	Corporate Law

### Year 5, Semester 1

LWB431	Civil Procedure
LWB432	Evidence
LWB434	Advanced Research and Legal Reasoning
	Elective Units *

### Year 5, Semester 2

LWB433	Professional Responsibility
	Elective Units *

### Course structure - Major in Microbiology

#### Year 1, Semester 1

	Introduction to Legal Research #
LSB118	Life Science
LWB141	Legal Institutions and Method
LWB142	Law, Society and Justice
PCB101	Physical Science
	Either
PCB140	Introductory Chemistry
	Or
PCB142	Chemistry 1

#### Year 1, Semester 2

LSB238	Cell and Molecular Biology 1
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LWB143	Legal Research and Writing
LWB144	Laws and Global Perspectives
MAB101	Statistical Data Analysis 1
PCB242	Chemistry 2

#### Year 2, Semester 1

LSB308	Biochemistry
LSB328	Microbiology 1
LSB338	Cell and Molecular Biology 2
LWB136	Contracts A

#### Year 2, Semester 2

LSB408	Metabolism
LSB428	Microbiology 2
LSB468	Molecular Biology
LWB137	Contracts B

#### Year 3, Semester 1

LWB138	Fundamentals of Torts
LWB238	Fundamentals of Criminal Law
	Two Level 3 units from the following:
LSB528	Environmental Microbiology
LSB547	Bacterial Pathogenesis and Disease Diagnosis
LSB568	Electron Microscopy
LSB578	Virology

#### Year 3, Semester 2

LWB139	Select Issues in Torts
LWB239	Criminal Responsibility
	Two Level 3 units from the following:
LSB628	Food Microbiology
LSB647	Clinical Mycology and Parasitology
LSB648	Molecular Microbiology

#### Year 4, Semester 1

LWB231	Introduction to Public Law
LWB236	Real Property A
LWB240	Principles of Equity
LWB332	Commercial and Personal Property Law
LWB333	Theories of Law

#### Year 4, Semester 2

LWB235	Australian Federal Constitutional Law
LWB237	Real Property B
LWB241	Trusts
LWB331	Administrative Law
LWB334	Corporate Law

#### Year 5, Semester 1

LWB431	Civil Procedure
LWB432	Evidence

LWB434 Advanced Research and Legal Reasoning  
Elective Units \*

LWB332 Commercial and Personal Property Law  
LWB333 Theories of Law

**Year 5, Semester 2**

LWB433 Professional Responsibility  
Elective Units \*

**Year 4, Semester 2**

LWB235 Australian Federal Constitutional Law  
LWB237 Real Property B  
LWB241 Trusts  
LWB331 Administrative Law  
LWB334 Corporate Law

**Course structure - Major in Physics**

**Year 1, Semester 1**

Introduction to Legal Research #  
LWB141 Legal Institutions and Method  
LWB142 Law, Society and Justice  
MAB111 Mathematical Sciences 1B  
PCB101 Physical Science  
PCB107 Physics and Quantitative Techniques

**Year 5, Semester 1**

LWB431 Civil Procedure  
LWB432 Evidence  
LWB434 Advanced Research and Legal Reasoning  
Elective Units \*

**Year 1, Semester 2**

LWB143 Legal Research and Writing  
LWB144 Laws and Global Perspectives  
MAB112 Mathematical Sciences 1C  
PCB250 Physics 1  
PCB260 Physics 1A

**Year 5, Semester 2**

LWB433 Professional Responsibility  
Elective Units \*

**Footnotes for Law Units**

# Introduction to Legal Research is a two (2) hour lecture conducted in the first week only of Semester 1, 2004. It is designed to introduce students to the basics of legal research and provide an orientation to use of the Law Library. Students will be expected to undertake a library exercise in LWB141 Legal Institutions and Method using the skills and information outlined in this lecture.

\* Law Elective Units - In order to satisfy the requirements for the Bachelor of Laws component of the double degree, a student is required to complete a total of 48 credit points of elective units.

**Potential Careers:**

Actuary, Analytical Chemist, Astrophysicist, Barrister, Biochemist, Biologist, Biotechnologist, Chemist, Chemist Industrial, Coastal Scientist, Conservation Biologist, Crown Law Officer, Ecologist, Environmental Scientist, Forensic Scientist, Geologist, Geophysicist, Geoscientist, Health Physicist, Hydrogeologist, Immunologist, In-House Lawyer, Industrial Chemist, Laboratory Technician (Chemistry), Marine Scientist, Mathematician, Medical Biotechnologist, Medical Physicist, Microbiologist, Molecular Biologist, Natural Resource Scientist, Physicist, Plant Biotechnologist, Population Ecologist, Programmer, Quantitative Analyst, Social Scientist, Solicitor, Statistician, Virologist.

**Year 2, Semester 1**

LWB136 Contracts A  
MAB311 Advanced Calculus  
PCB361 AC Theory and Electronics  
PCB362 Physics 2

**Year 2, Semester 2**

LWB137 Contracts B  
PCB460 Instrumentation and Computational Methods  
PCB462 Thermodynamics and Solid State Physics  
SCB222 Exploration of the Universe

**Year 3, Semester 1**

LWB138 Fundamentals of Torts  
LWB238 Fundamentals of Criminal Law  
PCB561 Quantum and Condensed Matter Physics  
PCB562 Physical Methods of Analysis

**Year 3, Semester 2**

LWB139 Select Issues in Torts  
LWB239 Criminal Responsibility  
PCB661 Experimental Physics  
PCB665 Physics 3

**Year 4, Semester 1**

LWB231 Introduction to Public Law  
LWB236 Real Property A  
LWB240 Principles of Equity



## Doctor of Philosophy (Mathematics) (IF49)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** 012650M

**Course duration (full-time):** 30 to 48 months with an honours degree; 24 to 48 months with a masters degree

**Course duration (part-time):** 42 to 96 months with an honours degree; 36 to 96 months with a masters degree

**Domestic fees (per credit point):** RTS/RTA; 2007 \$130 per credit point (exceeded max. entitlement) (*subject to annual review*)

**Domestic fees (indicative):** 2007: \$12,480 (exceeded max. entitlements)

**International Fees (per semester):** 2007:\$10,500 per semester (*subject to annual review*)

**International Entry:** At any time

**Course coordinator:** Associate Professor Peter Fredericks

**Discipline coordinator:** Professor Vo Anh

**Campus:** Gardens Point

Email: v.anh@qut.edu.au

### Potential Careers:

Actuary, Data Communications Specialist, Mathematician, Statistician.

### Overview

The Doctor of Philosophy in science will suit graduates with an honours or masters degree who wish to seek highly-paid employment prospects in industry and research organisations and universities.

### Entry requirements

Candidates must have a relevant first-class or second-class division A (upper division) honours degree or an appropriate masters degree.

### Course Description

When enrolling in the doctoral program, students can undertake an approved project in any field of interest supported by a research area within the Faculty of Science (outlined on pages 16-21 of the Faculty Prospectus).

Please note that these areas of research specialisation are given as a guide only. Staff are happy to discuss these and any related topics. Please contact the program leader of the relevant research area for further information.

Students can undertake the course either full-time or part-time. If studying full-time with an appropriate honours degree, students can expect to complete their Doctor of Philosophy degree in three-and-a-half-years. Full details of the course structure are outlined in the following website: <http://www.research.qut.edu.au/restdncen/>

### Contact Details

#### Course Coordinator

Associate Professor Peter Fredericks

Phone: +61 7 3138 2341

Email: p.fredericks@qut.edu.au

#### Discipline Coordinator:

#### Mathematics

Professor Vo Anh

Phone: +61 7 3138 5195

**Doctor of Philosophy (Science) (IF49)****Year offered:** 2007**Admissions:** Yes**CRICOS code:** 006381M**Course duration (full-time):** 30 to 48 months with an honours degree; 24 to 48 months with a masters degree**Course duration (part-time):** 42 to 96 months with an honours degree; 36 to 96 months with a masters degree**Domestic fees (per credit point):** RTS/RTA; 2007 \$130 per credit point (exceeded max. entitlement) (*subject to annual review*)**Domestic fees (indicative):** 2007: \$12,480 (exceeded max. entitlements)**International Fees (per semester):** 2007:\$10,500 per semester (*subject to annual review*)**International Entry:** At any time**Course coordinator:** Associate Professor Peter Fredericks**Discipline coordinator:** Dr Godwin Ayoko (Chemistry); Dr Terry Walsh (Life Sciences); Associate Professor Peter Mather (Natural Resource Sciences); Dr Andrew Fielding (Physics)**Campus:** Gardens Point**Overview**

The Doctor of Philosophy in science will suit graduates with an honours or masters degree who wish to seek highly-paid employment prospects in industry and research organisations and universities.

**Entry requirements**

Candidates must have a relevant first-class or second-class division A (upper division) honours degree or an appropriate masters degree.

**Course Description**

When enrolling in the doctoral program, students can undertake an approved project in any field of interest supported by a research area within the Faculty of Science (outlined on pages 16-21 of the Faculty Prospectus).

Please note that these areas of research specialisation are given as a guide only. Staff are happy to discuss these and any related topics. Please contact the program leader of the relevant research area for further information.

Students can undertake the course either full-time or part-time. If studying full-time with an appropriate honours degree, students can expect to complete their Doctor of Philosophy degree in three-and-a-half years. Full details of the course structure are outlined in the following website: <http://www.research.qut.edu.au/restdncen/>

**Contact Details****Course Coordinator**

Associate Professor Peter Fredericks

Phone: +61 7 3138 2341

Email: p.fredericks@qut.edu.au

**Discipline Coordinators:****Chemistry**

Dr Godwin Ayoko

Phone: +61 7 3138 1206

Email: g.ayoko@qut.edu.au

**Life Sciences**

Associate Professor Terry Walsh

Phone: +61 7 3138 2347

Email: t.walsh@qut.edu.au

**Natural Resource Sciences**

Associate Professor Peter Mather

Phone: +61 7 3138 1737

Email: p.mather@qut.edu.au

**Physics**

Dr Andrew Fielding

Phone: +61 7 3138 5325

Email: a.fielding@qut.edu.au

**Potential Careers:**

Biologist, Biotechnologist, Chemist, Chemist Industrial, Clinical Laboratory Scientist, Coastal Scientist, Conservation Biologist, Ecologist, Environmental Scientist, Forensic Scientist, Geologist, Geophysicist, Geoscientist, Hydrogeologist, Industrial Chemist, Marine Scientist, Medical Biotechnologist, Medical Physicist, Medical Scientist, Microbiologist, Molecular Biologist, Natural Resource Scientist, Physicist, Population Ecologist.

## Bachelor of Mathematics/Bachelor of Information Technology (FOR CONTINUING STUDENTS ONLY) (IF58)

**Year offered:** 2007

**Admissions:** No

**CRICOS code:** 020327M

**Course duration (full-time):** 4 Years

**Domestic fees (per credit point):** Commonwealth Supported Place; Full fee tuition 2007: \$210 per credit point (*subject to annual review*)

**Domestic fees (indicative):** 2007: \$20,160

**International Fees (per semester):** 2007: \$9,000 per semester (*subject to annual review*)

**Domestic Entry:** February

**International Entry:** February

**QTAC code:** 419552; Dfee: 419556

**Past rank cut-off:** 75. Dfee places were not offered last year.

**Past OP cut-off:** 12. Dfee places were not offered last year.

**OP Guarantee:** Yes

**Assumed knowledge:** English (4, SA) and Maths B (4, SA)

**Preparatory studies:** MATHS: QUT unit Preparatory Mathematics as a visiting student or QUT Continuing Professional Education course Mathematics Bridging. ENGLISH: Successful completion of a year of full-time vocational or tertiary study. For further information contact 07 3138 2000 or email [study@qut.com](mailto:study@qut.com)

**Total credit points:** 420 (Note: The minimum course load per semester required for full-time enrolment may be more than 36 credit points)

**Course coordinator:** Professor Helen MacGillivray (Science)

**Discipline coordinator:** Dr Gary Carter (Mathematics), Ruth Christie (Information Technology)

**Campus:** Gardens Point

### Career Opportunities

As a graduate you may find employment as a programmer, software engineer, systems programmer, technical support specialist, systems manager, systems designer, computer scientist, security analyst, systems analyst, data communications specialist, mathematician, or statistician.

### Course Structure

The double degree offers a foundation in mathematics and information technology in the first year. You will then select integrated strands combining units from the areas of applicable mathematics, computational mathematics, operations research, statistics, or financial mathematics with a combined major in Data Communications and Software Engineering.

### Professional Recognition

On graduation, you will be eligible for membership of the Mathematical Society of Australia, the Statistical Society of Australia Inc and, depending on unit selection, the Australian Society for Operations Research. Graduates of the Bachelor of Information Technology meet the knowledge requirement for admission to the Australian Computer Society.

### Cooperative Education Program

An optional one-year period of paid work experience in an area of information technology is available to eligible full-time students. The Cooperative Education Program is a joint venture between employers and educators to better prepare students for employment upon graduation. Companies that QUT's Cooperative Education students have worked with include Energex, Boeing, CITEC, Global Banking and Securities Transaction, various Queensland Government departments, Dialog, TABQ, RACQ and Sun Microsystems.

For more information visit [www.fit.qut.edu.au/courses/undergrad/coop/](http://www.fit.qut.edu.au/courses/undergrad/coop/)

### Mathematics Scholarships

Students enrolled in this course can apply for industry-sponsored scholarships. Mathematics equity scholarships are also awarded on the basis of socioeconomic disadvantage.

### Contact Details

#### Science Coordinator

Professor Helen MacGillivray

Phone: +61 7 3138 2337

Email: [h.macgillivray@qut.edu.au](mailto:h.macgillivray@qut.edu.au)

#### Associate Course Coordinators

##### Mathematics

Dr Gary Carter

Phone: +61 7 3138 5090

Email: [g.carter@qut.edu.au](mailto:g.carter@qut.edu.au)

##### Information Technology

Dr Alan Tickle

Phone: +61 7 3138 2782

Email: [if58enquiry.fit@qut.edu.au](mailto:if58enquiry.fit@qut.edu.au)

### Deferment

QUT allows current Year 12 school leavers to defer their undergraduate admission offer for one year, or for six months if offered mid-year admission, except in courses using specific admission requirements such as questionnaires, folios, auditions, prior study or work experience.

Non-year 12 students may also request to defer their QTAC offer on the basis of demonstrated special circumstances.

Find out more on deferment.

### Course structure - For students with four semesters of Senior Mathematics B and Senior Mathematics C

For students with four semesters of Senior Mathematics B and Senior Mathematics C (or equivalent) with an exit assessment of at least Sound Achievement in both

Year 1, Semester 1

## SCIENCE

ITB001	Problem Solving and Programming
ITB004	Database Systems
MAB111	Mathematical Sciences 1B
MAB112	Mathematical Sciences 1C

Level 2 or 3 Maths unit  
Level 2 or 3 Maths unit

### Course structure - For students with four semesters of Senior Mathematics B (or equivalent) only

For students with four semesters of Senior Mathematics B (or equivalent) only, with an exit assessment of at least Sound Achievement

#### Year 1, Semester 2

ITB002	IT Professional Studies
ITB003	Object Oriented Programming
ITB005	Systems Architecture
MAB210	Statistical Modelling 1
MAB220	Computational Mathematics 1

#### Year 1, Semester 1

ITB001	Problem Solving and Programming
ITB004	Database Systems
MAB100	Mathematical Sciences 1A
MAB101	Statistical Data Analysis 1

#### Year 2, Semester 1

ITB006	Networks
ITB008	Modelling Analysis and Design
ITB711	Programming Abstraction
MAB101	Statistical Data Analysis 1
MAB312	Linear Algebra

#### Year 1, Semester 2

ITB002	IT Professional Studies
ITB003	Object Oriented Programming
ITB005	Systems Architecture
MAB111	Mathematical Sciences 1B
MAB112	Mathematical Sciences 1C

#### Year 2, Semester 2

ITB712	Software Engineering Studies
ITB744	Computer Architecture
	OR
	IT Elective Unit selected from list
	Level 2 or 3 Maths unit
	Level 2 or 3 Maths unit

#### Year 2, Semester 1

ITB006	Networks
ITB008	Modelling Analysis and Design
ITB711	Programming Abstraction
MAB220	Computational Mathematics 1
MAB312	Linear Algebra

#### Year 3, Semester 1

MAB311	Advanced Calculus
	Level 2 or 3 Maths unit
ITB745	Operating Systems
	IT Elective Unit selected from list

#### Year 2, Semester 2

ITB712	Software Engineering Studies
ITB744	Computer Architecture
	OR
	IT Elective Unit selected from list
MAB210	Statistical Modelling 1
	Level 2 or 3 Maths unit

#### Year 3, Semester 2

ITB720	Internet Protocols and Services
	IT Elective Unit selected from list
	Level 2 or 3 Maths unit
	Level 2 or 3 Maths unit
	Elective (This elective unit may be taken from any faculty in QUT, subject to the approval of the Head of School)

#### Year 3, Semester 1

ITB745	Operating Systems
	IT Elective Unit selected from list
MAB311	Advanced Calculus
	Level 2 or 3 Maths unit

#### Year 4, Semester 1

ITB009	Core Project Initiation
	IT Elective Unit selected from list
	Level 2 or 3 Maths unit
	Level 2 or 3 Maths unit

#### Year 3, Semester 2

ITB720	Internet Protocols and Services
	IT Elective Unit selected from list
	Level 2 or 3 Maths unit
	Level 2 or 3 Maths unit
	Level 2 or 3 Maths unit

#### Year 4, Semester 2

IT Elective Unit selected from list  
IT Elective Unit selected from list

#### Year 4, Semester 1

## SCIENCE

ITB009 Core Project Initiation  
IT Elective Unit selected from list  
Level 2 or 3 Maths unit  
Level 2 or 3 Maths unit

NOTE: For students commencing in 2004 onwards, the units MAB523 Introduction to Quality Management and MAB621 Discrete Mathematics do not contribute to the mandatory 48 credit points minimum from Level 3 Mathematics units.

### Year 4, Semester 2

IT Elective Unit selected from list  
IT Elective Unit selected from list  
Level 2 or 3 Maths unit  
Level 2 or 3 Maths unit

NOTE: All Mathematics units have 4 contact hours per week.

### IT Elective Unit List

### Mathematics Units

Students must complete at least 48 credit points from Level 3 mathematics units

#### Level 2 Units

MAB281 Mathematics for Computer Graphics  
MAB311 Advanced Calculus  
MAB312 Linear Algebra  
MAB313 Mathematics of Finance  
MAB314 Statistical Modelling 2  
MAB315 Operations Research 2  
MAB413 Differential Equations  
MAB414 Applied Statistics 2  
MAB420 Computational Mathematics 2  
MAB422 Mathematical Modelling  
MAB480 Introduction to Scientific Computation  
MAB481 Visualisation and Data Analysis

#### Level 3 Units

MAB521 Applied Mathematics 3  
MAB522 Computational Mathematics 3  
MAB523 Introduction to Quality Management  
MAB524 Statistical Inference  
MAB525 Operations Research 3A  
MAB526 Statistical Science 3  
MAB580 Scientific Computation  
MAB613 Partial Differential Equations  
MAB621 Discrete Mathematics  
MAB623 Financial Mathematics  
MAB624 Applied Statistics 3  
MAB625 Operations Research 3B  
MAB640 Industry Project  
MAB672 Advanced Mathematical Modelling  
MAB681 Advanced Visualisation and Data Analysis

NOTES: For students commencing in 2004 onwards, the units MAB311 Advanced Calculus and MAB312 Linear Algebra are mandatory. The suggested locations can be swapped.

#### Information Technology Elective Unit List

ITB007 Web Development  
ITB009 Core Project Initiation  
ITB010 Core Project Implementation  
ITB218 Applications Programming  
ITB222 Systems Analysis and Design  
ITB223 Software Development with ORACLE  
ITB228 Enterprise Systems  
ITB229 Database Design  
ITB230 Project  
ITB232 Database Management  
ITB233 Enterprise Systems Applications  
ITB237 Advanced Databases  
ITB239 Enterprise Data Mining  
ITB241 Information Technology Management  
ITB254 Interaction Design  
ITB245 R/3 System Administration  
ITB257 Multimedia Systems  
ITB259 Advanced Multimedia Systems  
ITB260 E-Commerce Site Development  
ITB264 Information Systems Consulting  
ITB266 Information Management  
ITB267 Business Analytics  
ITB272 Information Technology Project Management  
ITB294 Information Quality  
ITB295 XML: Data and Document Processing  
ITB298 Business Process Engineering  
ITB322 Information Resources  
ITB710 Fundamentals of Computer Science  
ITB711 Programming Abstraction  
ITB712 Software Engineering Studies  
ITB713 Advanced Java Programming  
ITB715 Web Services  
ITB716 Advanced Web Applications Development  
ITB717 Enterprise Software Architecture  
ITB720 Internet Protocols and Services  
ITB721 Unix Network Administration  
ITB722 Network Planning and Deployment  
ITB723 Wireless and Mobile Devices

ITB730	Information Security Fundamentals
ITB731	Security Technologies
ITB732	Cryptology and Protocols
ITB733	Network Security
ITB740	Agent Based Software Engineering
ITB741	Information Retrieval Technology
ITB742	Computational Intelligence
ITB743	Artificial Intelligence
ITB744	Computer Architecture
ITB745	Operating Systems
ITB746	Modelling and Animation Techniques
ITB747	Real Time Rendering Techniques
ITB748	Configurable Computing
ITB749	Scientific Programming
ITB750	Computer Game Studies
ITB751	Games Production
ITS702	Ccna 3 & 4: Switching and Wide Area Networking
ITS703	Ccnp 1: Advanced Routing
ITS704	Ccnp 2: Remote Access Networks
ITS705	Ccnp 3: Multilayer Switching
ITS706	Ccnp 4: Network Troubleshooting
ITS707-1	Securing Cisco Hardware
ITS707-2	Securing Cisco Hardware
MAB281	Mathematics for Computer Graphics

Please check with the relevant School for further information on Special Topics.

**Potential Careers:**

Actuary, Computer Game Programmer, Data Communications Specialist, Database Manager, Market Research Manager, Mathematician, Network Administrator, Network Manager, Programmer, Quantitative Analyst, Software Engineer, Statistician, Systems Analyst.

## Bachelor of Mathematics/Bachelor of Business (Accountancy, Banking and Finance or Economics) (FOR CONTINUING STUDENTS ONLY) (IF60)

Year offered: 2007

Admissions: No

CRICOS code: 027274G

Course duration (full-time): 4 Years

Domestic fees (per credit point): Commonwealth Supported Place; Full fee tuition 2007: \$210 per credit point (subject to annual review)

Domestic fees (indicative): 2007:\$20160

International Fees (per semester): 2007:\$9,000 per semester (subject to annual review)

Domestic Entry: February

International Entry: February and July

QTAC code: 419212; Dfee: 419216

Past rank cut-off: 80. Dfee places were not offered last year.

Past OP cut-off: 10. Dfee places were not offered last year.

OP Guarantee: Yes

Assumed knowledge: English (4, SA) and Maths B (4, SA)

Preparatory studies: MATHS: QUT unit Preparatory Mathematics as a visiting student or QUT Continuing Professional Education course Mathematics Bridging. ENGLISH: Successful completion of a year of full-time vocational or tertiary study. For further information contact 07 3138 2000 or email [study@qut.com](mailto:study@qut.com)

Total credit points: 432

Standard credit points per full-time semester: 54 (Average)

Course coordinator: Prof Erhan Kozan (Mathematics); Mr Andrew Paltridge (Business)

Discipline coordinator: Dr John Sweeting (Accountancy); Dr Adam Clements (Banking & Finance) and Dr Radhika Lahiri (Economics)

Campus: Gardens Point

### Discontinuation

Students should note that from Semester 1, 2007 this course has been renamed and recoded to IX37 Bachelor of Business/Bachelor of Mathematics. Therefore, there will be no further intake into this course, however, students who are currently enrolled, or have already been made an offer into this current course for 2007, are able to remain enrolled in it.

For course structure information on the new course, please refer to the new course.

### Career Opportunities

Test Graduates are equipped to undertake sophisticated economic and financial modelling which is important in business and government decision making. Quantitative analysts are employed by the financial sector in order to optimise returns both in the short and long-term. Graduates may also become actuarial trainees in the insurance and superannuation area although further study is required in order to qualify as an actuary.

Graduates of the Accountancy major can expect to find employment in auditing, financial analysis, corporate secretarial functions, costing, taxation, receivership, bankruptcy, trusteeship or management services.

Graduates of the Banking and Finance major find employment in the banking area of finance which can involve retail, wholesale or international projects, the funding of operations and investment of funds in loans or liquidity.

Graduates with Economics training are highly sought after. They are employed as economists and in a wide variety of related professional areas to provide strategic analysis and policy advice.

### Professional Recognition

Graduates will be eligible for membership of the Mathematical Society of Australia, the Statistical Society of Australia and, depending on unit selection, the Australian Society of Operations Research. Depending on the choice of major, extended major or specialisation graduates may be eligible for membership of the Economic Society of Australia (Queensland Division), Australian Institute of Management, Financial Services Institute of Australasia (FINSIA), Chartered Secretaries Australia, CPA Australia and the Institute of Chartered Accountants in Australia (ICAA).

### Course Design

The course offers the opportunity to combine Mathematics with a business course majoring in Accountancy, Banking and Finance or Economics, which can be combined with an extended major in the same field, or with a double major from any of the Bachelor of Business majors, including Electronic Business.

### Mathematics Scholarships

Students enrolled in this course can apply for industry sponsored scholarships. Mathematics equity scholarships are also awarded on the basis of socioeconomic disadvantage.

### Course Combinations

Recommended combinations for the Business component are:

Accountancy: Extended major in Professional Accounting

Banking & Finance: Extended major in Banking, Financial Economics or Funds Management; or double major in Economics

Economics: Extended major in Financial Economics or double major in Banking & Finance.

\*Please note that EFB101 Data Analysis for Business which is normally undertaken in the majors of Accountancy, Banking and Finance & Economics, is not required as the content will be covered in the statistics units from the mathematics component of the program.

Students also note that enrolment in the unit EFB326 Applied Portfolio Management is restricted to students undertaking the Financial Economics specialisation (FES)

and the following extended majors: Banking (BFX); Financial Economics (FEX); and Funds Management (FDX).

**Deferment**

QUT allows current Year 12 school leavers to defer their undergraduate admission offer for one year, or for six months if offered mid-year admission, except in courses using specific admission requirements such as questionnaires, folios, auditions, prior study or work experience. Further information is available at [www.deferment.qut.edu.au](http://www.deferment.qut.edu.au)

**Contact Details**

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**Discipline Coordinators**

*Accountancy*

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*Economics*

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**Course structure - Accountancy Major (For students with SA in Senior Maths B & C)**

**Year 1, Semester 1**

- BSB110 Accounting
- BSB113 Economics
- MAB101 Statistical Data Analysis 1
- MAB111 Mathematical Sciences 1B

**Year 1, Semester 2**

- AYB121 Financial Accounting
- BSB119 International and Electronic Business
- BSB122 Quantitative Analysis and Finance
- MAB112 Mathematical Sciences 1C
- MAB210 Statistical Modelling 1

**Year 2, Semester 1**

- AYB220 Company Accounting

- BSB111 Business Law and Ethics
- MAB311 Advanced Calculus
- MAB313 Mathematics of Finance

**Year 2, Semester 2**

- AYB221 Computerised Accounting Systems
- BSB126 Marketing
- MAB220 Computational Mathematics 1  
Mathematics Elective (Level 2 or 3)  
Business Double Major / Extended Major / Specialisation Unit

**Year 3, Semester 1**

- AYB225 Management Accounting
- BSB115 Management, People and Organisations
- MAB312 Linear Algebra  
Mathematics Elective (Level 2 or 3)  
Business Double Major / Extended Major / Specialisation Unit

**Year 3, Semester 2**

- BSB114 Government, Business and Society  
Mathematics Elective (Level 2 or 3)  
Mathematics Elective (Level 2 or 3)  
Business Double Major / Extended Major / Specialisation Unit

**Year 4, Semester 1**

- AYB301 Auditing  
Mathematics Elective (Level 2 or 3)  
Mathematics Elective (Level 2 or 3)  
Mathematics Elective (Level 2 or 3)  
Business Double Major / Extended Major / Specialisation Unit

**Year 4, Semester 2**

- Mathematics Elective (Level 2 or 3)
- Mathematics Elective (Level 2 or 3)
- Business Double Major / Extended Major / Specialisation Unit
- Business Double Major / Extended Major / Specialisation Unit

**Business Units**

Students should refer to the BS56 Course Notes entry for information on double major/extended major/specialisation units

**Course structure - Accountancy Major (For students with SA in Senior Maths B only)**

**Year 1, Semester 1**

- BSB110 Accounting
- BSB113 Economics



## SCIENCE

MAB100	Mathematical Sciences 1A
MAB101	Statistical Data Analysis 1

Specialisation Unit

**NOTE:** Students must select BSB119 International & Electronic Business to replace one of the Mathematics Electives.

Students should refer to the BS56 Course Notes entry for information on double major/extended major/specialisation units

### Year 1, Semester 2

AYB121	Financial Accounting
BSB122	Quantitative Analysis and Finance
MAB111	Mathematical Sciences 1B
MAB112	Mathematical Sciences 1C
MAB210	Statistical Modelling 1

### Course structure - Banking and Finance Major (for students with SA in Senior Maths B & C)

### Year 2, Semester 1

AYB220	Company Accounting
BSB111	Business Law and Ethics
MAB311	Advanced Calculus
MAB313	Mathematics of Finance

### Year 1, Semester 1

BSB110	Accounting
BSB113	Economics
MAB101	Statistical Data Analysis 1
MAB111	Mathematical Sciences 1B

### Year 2, Semester 2

AYB221	Computerised Accounting Systems
BSB126	Marketing
MAB220	Computational Mathematics 1
	Mathematics Elective (Level 2 or 3)
	Business Double Major / Extended Major / Specialisation Unit

### Year 1, Semester 2

BSB119	International and Electronic Business
BSB122	Quantitative Analysis and Finance
EFB102	Economics 2
MAB112	Mathematical Sciences 1C
MAB210	Statistical Modelling 1

### Year 3, Semester 1

AYB225	Management Accounting
BSB115	Management, People and Organisations
MAB312	Linear Algebra
	Mathematics Elective (Level 2 or 3)
	Business Double Major / Extended Major / Specialisation Unit

### Year 2, Semester 1

BSB126	Marketing
EFB210	Finance 1
MAB311	Advanced Calculus
MAB313	Mathematics of Finance

### Year 3, Semester 2

BSB114	Government, Business and Society
	Mathematics Elective (Level 2 or 3)
	Mathematics Elective (Level 2 or 3)
	Business Double Major / Extended Major / Specialisation Unit

### Year 2, Semester 2

BSB111	Business Law and Ethics
BSB114	Government, Business and Society
EFB307	Finance 2
MAB220	Computational Mathematics 1
	Mathematics Elective (Level 2 or 3)

### Year 4, Semester 1

AYB301	Auditing
	Mathematics Elective (Level 2 or 3)
	Mathematics Elective (Level 2 or 3)
	Mathematics Elective (Level 2 or 3)
	Business Double Major / Extended Major / Specialisation Unit

### Year 3, Semester 1

BSB115	Management, People and Organisations
EFB201	Financial Markets
MAB312	Linear Algebra
	Mathematics Elective (Level 2 or 3)
	Business Double Major/Extended Major/Specialisation

### Year 4, Semester 2

	Mathematics Elective (Level 2 or 3)
	Mathematics Elective (Level 2 or 3)
	Business Double Major / Extended Major / Specialisation Unit
	Business Double Major / Extended Major /

### Year 3, Semester 2

EFB312	International Finance
	Mathematics Elective (Level 2 or 3)
	Business Double Major/Extended Major/Specialisation
	Business Double Major/Extended Major/Specialisation

## SCIENCE

### Year 4, Semester 1

Mathematics Elective (Level 2 or 3)  
 Mathematics Elective (Level 2 or 3)  
 Mathematics Elective (Level 2 or 3)  
 Business Double Major/Extended Major/Specialisation  
 Business Double Major/Extended Major/Specialisation

### Year 4, Semester 2

Mathematics Elective (Level 2 or 3)  
 Mathematics Elective (Level 2 or 3)  
 Mathematics Elective (Level 2 or 3)  
 Business Double Major/Extended Major/Specialisation

### Business Units

Students should refer to the BS56 Course Notes entry for information on double major/extended major/specialisation units

### Course structure - Banking and Finance Major (for students with SA in Senior Maths B only)

#### Year 1, Semester 1

BSB110 Accounting  
 BSB113 Economics  
 MAB100 Mathematical Sciences 1A  
 MAB101 Statistical Data Analysis 1

#### Year 1, Semester 2

BSB122 Quantitative Analysis and Finance  
 EFB102 Economics 2  
 MAB111 Mathematical Sciences 1B  
 MAB112 Mathematical Sciences 1C  
 MAB210 Statistical Modelling 1

#### Year 2, Semester 1

BSB126 Marketing  
 EFB210 Finance 1  
 MAB311 Advanced Calculus  
 MAB313 Mathematics of Finance

#### Year 2, Semester 2

BSB111 Business Law and Ethics  
 BSB114 Government, Business and Society  
 EFB307 Finance 2  
 MAB220 Computational Mathematics 1  
 Mathematics Elective (Level 2 or 3)

#### Year 3, Semester 1

BSB115 Management, People and Organisations  
 EFB201 Financial Markets

MAB312 Linear Algebra

Mathematics Elective (Level 2 or 3)  
 Business Double Major/Extended Major/Specialisation

### Year 3, Semester 2

EFB312 International Finance  
 Mathematics Elective (Level 2 or 3)  
 Business Double Major/Extended Major/Specialisation  
 Business Double Major/Extended Major/Specialisation

### Year 4, Semester 1

Mathematics Elective (Level 2 or 3)  
 Mathematics Elective (Level 2 or 3)  
 Mathematics Elective (Level 2 or 3)  
 Business Double Major/Extended Major/Specialisation  
 Business Double Major/Extended Major/Specialisation

### Year 4, Semester 2

Mathematics Elective (Level 2 or 3)  
 Mathematics Elective (Level 2 or 3)  
 Mathematics Elective (Level 2 or 3)  
 Business Double Major/Extended Major/Specialisation

### Business Units

NOTE: Students must select BSB119 International & Electronic Business to replace one of the Mathematics Electives

Students should refer to the BS56 Course Notes entry for information on double major/extended major/specialisation units

### Course structure - Economics Major (for students with SA in Senior Maths B & C)

#### Year 1, Semester 1

BSB110 Accounting  
 BSB113 Economics  
 MAB101 Statistical Data Analysis 1  
 MAB111 Mathematical Sciences 1B

#### Year 1, Semester 2

BSB119 International and Electronic Business  
 BSB122 Quantitative Analysis and Finance  
 EFB102 Economics 2  
 MAB112 Mathematical Sciences 1C  
 MAB210 Statistical Modelling 1

#### Year 2, Semester 1

EFB202 Business Cycles and Economic Growth

## SCIENCE

EFB211	Firms, Markets and Resources
MAB311	Advanced Calculus
MAB313	Mathematics of Finance

BSB113	Economics
MAB100	Mathematical Sciences 1A
MAB101	Statistical Data Analysis 1

### Year 2, Semester 2

BSB114	Government, Business and Society
BSB126	Marketing
	Business Double Major/Extended Major/Specialisation
MAB220	Computational Mathematics 1
	Mathematics Elective (Level 2 or 3)

### Year 1, Semester 2

BSB122	Quantitative Analysis and Finance
EFB102	Economics 2
MAB111	Mathematical Sciences 1B
MAB112	Mathematical Sciences 1C
MAB210	Statistical Modelling 1

### Year 3, Semester 1

BSB115	Management, People and Organisations
MAB312	Linear Algebra
	Mathematics Elective (Level 2 or 3)
	Business Double Major/Extended Major/Specialisation
	Business Double Major/Extended Major/Specialisation

### Year 2, Semester 1

EFB202	Business Cycles and Economic Growth
EFB211	Firms, Markets and Resources
MAB311	Advanced Calculus
MAB313	Mathematics of Finance

### Year 3, Semester 2

EFB314	International Trade and Economic Competitiveness
	Mathematics Elective (Level 2 or 3)
EFB329	Contemporary Applications of Economics Theory
	Business Double Major/Extended Major/Specialisation

### Year 2, Semester 2

BSB114	Government, Business and Society
BSB126	Marketing
EFB329	Contemporary Applications of Economics Theory
MAB220	Computational Mathematics 1
	Mathematics Elective (Level 2 or 3)

### Year 3, Semester 1

BSB115	Management, People and Organisations
MAB312	Linear Algebra
	Mathematics Elective (Level 2 or 3)
	Business Double Major/Extended Major/Specialisation
	Business Double Major/Extended Major/Specialisation

### Year 4, Semester 1

BSB111	Business Law and Ethics
	Mathematics Elective (Level 2 or 3)
	Mathematics Elective (Level 2 or 3)
	Mathematics Elective (Level 2 or 3)
	Business Double Major/Extended Major/Specialisation

### Year 3, Semester 2

EFB314	International Trade and Economic Competitiveness
	Mathematics Elective (Level 2 or 3)
	Business Double Major/Extended Major/Specialisation
	Business Double Major/Extended Major/Specialisation

### Year 4, Semester 2

	Mathematics Elective (Level 2 or 3)
	Mathematics Elective (Level 2 or 3)
	Mathematics Elective (Level 2 or 3)
	Business Double Major/Extended Major/Specialisation

### Business Units

Students should refer to the BS56 Course Notes entry for information on double major/extended major/specialisation units

### Course structure - Economics Major (for students with SA in Senior Maths B only)

#### Year 1, Semester 1

BSB110	Accounting
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#### Year 4, Semester 1

BSB111	Business Law and Ethics
	Mathematics Elective (Level 2 or 3)
	Mathematics Elective (Level 2 or 3)
	Mathematics Elective (Level 2 or 3)
	Business Double Major/Extended Major/Specialisation

#### Year 4, Semester 2

	Mathematics Elective (Level 2 or 3)
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Mathematics Elective (Level 2 or 3)

EFB201 Financial Markets

Mathematics Elective (Level 2 or 3)

EFB326 Applied Portfolio Management

Business Double Major/Extended Major/Specialisation

EFB327 Econometrics of Financial Markets

EFB328 Public Economics and Finance

**Business Units**

NOTE: Students must select BSB119 International & Electronic Business to replace one of the Mathematics Electives.

Students should refer to the BS56 Course Notes entry for information on double major/extended major/specialisation units

**Extended Major in Banking**

AYB225 Management Accounting

AYB312 Financial Institutions Law

EFB310 Financial Institutions - Control

EFB311 Financial Institutions - Lending

Plus two units from the Banking Extended Major Options listed below:

EFB200 Applied Regression Analysis

EFB308 Finance 3

EFB309 Financial Derivatives

EFB318 Portfolio and Security Analysis

EFB326 Applied Portfolio Management

**Extended Major in Financial Economics (for Banking & Finance Major)**

EFB200 Applied Regression Analysis

EFB202 Business Cycles and Economic Growth

EFB211 Firms, Markets and Resources

EFB325 Financial Microeconomics

Plus two units from the Financial Economics Extended Major Options list below

EFB308 Finance 3

EFB309 Financial Derivatives

EFB318 Portfolio and Security Analysis

EFB324 Macroeconomics and Global Financial Markets

EFB326 Applied Portfolio Management

**Extended Major in Financial Economics (for Economics Major)**

EFB200 Applied Regression Analysis

EFB210 Finance 1

EFB324 Macroeconomics and Global Financial Markets

EFB325 Financial Microeconomics

Plus two units from the Financial Economics Extended Major Options list below:

**Extended Major in Funds Management**

AYB225 Management Accounting

EFB308 Finance 3

EFB309 Financial Derivatives

EFB318 Portfolio and Security Analysis

Plus two units from the Funds Management Extended Major Options list below:

AYB312 Financial Institutions Law

EFB200 Applied Regression Analysis

EFB310 Financial Institutions - Control

EFB311 Financial Institutions - Lending

EFB326 Applied Portfolio Management

**Extended Major in Professional Accounting**

AYB223 Law of Business Associations

AYB325 Taxation Law

EFB102 Economics 2

EFB210 Finance 1

AYB311 Financial Accounting Issues

AYB321 Strategic Management Accounting

**Course structure - Mathematics Units**

**Level 2 units**

MAB311 Advanced Calculus

MAB312 Linear Algebra

MAB313 Mathematics of Finance

MAB314 Statistical Modelling 2

MAB315 Operations Research 2

MAB413 Differential Equations

MAB414 Applied Statistics 2

MAB420 Computational Mathematics 2

MAB422 Mathematical Modelling

MAB480 Introduction to Scientific Computation

MAB481 Visualisation and Data Analysis

**Level 3 units**

MAB521 Applied Mathematics 3

MAB522 Computational Mathematics 3

MAB523 Introduction to Quality Management

MAB524 Statistical Inference

MAB525 Operations Research 3A

MAB526 Statistical Science 3

MAB613	Partial Differential Equations
MAB621	Discrete Mathematics
MAB623	Financial Mathematics
MAB624	Applied Statistics 3
MAB625	Operations Research 3B
MAB640	Industry Project
MAB672	Advanced Mathematical Modelling
MAB681	Advanced Visualisation and Data Analysis
NOTES:	- MAB311 Advanced Calculus and MAB312 Linear Algebra are mandatory for students who commenced in 2004 onwards. They can be taken in a different semester 1 to that suggested in the programs above.
	- For students commencing in 2004 onwards, the units MAB523 Introduction to Quality Management and MAB621 Discrete Mathematics do not contribute to the mandatory 48 credit points minimum from Level 3 Mathematics units. This does not apply for students who commenced prior to 2004.

**Potential Careers:**

Account Executive, Accountant, Actuary, Banker, Banking and Finance Professional, Business Analyst, Certified Practising Accountant, Computer Game Programmer, Corporate Secretary, Economist, Financial Advisor/Analyst, Financial Project Manager, Funds Manager, Government Officer, Investment Manager, Market Research Manager, Mathematician, Quantitative Analyst, Risk Manager, Statistician, Stockbroker.

## Bachelor of Applied Science/Bachelor of Business (FOR CONTINUING STUDENTS ONLY) (IF61)

**Year offered:** 2007

**Admissions:** No

**CRICOS code:** 042263G

**Course duration (full-time):** 4 years

**Domestic fees (per credit point):** Commonwealth Supported Place; Full fee tuition 2007: \$210 per credit point (subject to annual review)

**Domestic fees (indicative):** 2007:\$20160

**International Fees (per semester):** 2007:\$9,000 per semester (subject to annual review)

**Domestic Entry:** February

**International Entry:** February

**QTAC code:** 419832; Dfee: 419836

**Past rank cut-off:** 80. Dfee places were not offered last year.

**Past OP cut-off:** 10. Dfee places were not offered last year.

**OP Guarantee:** Yes

**Assumed knowledge:** English (4, SA) and Maths B (4, SA)

**Preparatory studies:** MATHS: QUT unit Preparatory Mathematics as a visiting student or QUT Continuing Professional Education course Mathematics Bridging. ENGLISH: Successful completion of a year of full-time vocational or tertiary study. For further information contact 07 3138 2000 or email study@qut.com

**Total credit points:** 432

**Standard credit points per full-time semester:** 54 (average)

**Course coordinator:** Dr Megan Hargreaves (Science); Mr Andrew Paltridge (Business)

**Discipline coordinator:** Dr John Sweeting (Accountancy); Dr Gayle Kerr (Advertising); Ms Sherrrena Buckby (Electronic Business); Dr Amanda Gudmundsson (Human Resource Management); Mr Simon Ridings (International Business); Prof Robert Waldersee (Management); Mr Bill Proud (Marketing); Ms Robina Xavier (Public Relations); Dr Adam Clements (Banking & Finance) and Dr Radhika Lahiri (Economics); Science Discipline Coordinator details are listed under Contact Details below

**Campus:** Gardens Point

### Course Structure - Accountancy

**NOTE:** These Business units are studied in conjunction with Science units each semester

#### Year 1, Semester 1

BSB110 Accounting  
BSB113 Economics

#### Year 1, Semester 2

AYB121 Financial Accounting  
BSB111 Business Law and Ethics  
BSB122 Quantitative Analysis and Finance

#### Year 2, Semester 1

AYB220 Company Accounting

BSB115 Management, People and Organisations

#### Year 2, Semester 2

BSB114 Government, Business and Society  
BSB126 Marketing

#### Year 3, Semester 1

AYB225 Management Accounting  
BSB119 International and Electronic Business

#### Year 3, Semester 2

AYB221 Computerised Accounting Systems  
Business Double Major/Extended Major/Specialisation Unit  
Business Double Major/Extended Major/Specialisation Unit

#### Year 4, Semester 1

AYB301 Auditing  
Business Double Major/Extended Major/Specialisation Unit  
Business Double Major/Extended Major/Specialisation Unit

#### Year 4, Semester 2

Business Double Major/Extended Major/Specialisation Unit  
Business Double Major/Extended Major/Specialisation Unit

Students should refer to the BS56 Course Notes entry for information on double major/extended major/specialisation units

### Course Structure - Advertising

**NOTE:** These Business units are studied in conjunction with Science units each semester

#### Year 1, Semester 1

BSB122 Quantitative Analysis and Finance  
BSB126 Marketing

#### Year 1, Semester 2

AMB200 Consumer Behaviour  
AMB220 Advertising Theory and Practice  
BSB114 Government, Business and Society

#### Year 2, Semester 1

AMB222 Media Planning  
BSB115 Management, People and Organisations  
BSB119 International and Electronic Business

#### Year 2, Semester 2

AMB221 Advertising Copywriting  
Business Double Major/Extended Major/

## SCIENCE

### Specialisation Unit

#### Year 3, Semester 1

BSB113 Economics  
Business Double Major/Extended Major/  
Specialisation Unit

#### Year 3, Semester 2

BSB110 Accounting  
BSB111 Business Law and Ethics  
Business Double Major/Extended Major/  
Specialisation Unit

#### Year 4, Semester 1

AMB320 Advertising Management  
Business Double Major/Extended Major/  
Specialisation Unit  
Business Double Major/Extended Major/  
Specialisation Unit

#### Year 4, Semester 2

AMB321 Advertising Campaigns  
Business Double Major/Extended Major/  
Specialisation Unit  
  
Students should refer to the BS56 Course  
Notes entry for information on double  
major/extended major/specialisation units

### Course Structure - Banking & Finance

NOTE: These Business units are studied in  
conjunction with Science units each semester

#### Year 1, Semester 1

BSB110 Accounting  
BSB113 Economics

#### Year1, Semester 2

BSB122 Quantitative Analysis and Finance  
EFB102 Economics 2

#### Year 2, Semester 1

BSB119 International and Electronic Business  
BSB126 Marketing  
EFB210 Finance 1

#### Year 2, Semester 2

BSB114 Government, Business and Society  
EFB307 Finance 2

#### Year 3, Semester 1

BSB111 Business Law and Ethics  
Business Double Major / Extended Major /  
Specialisation Unit

#### Year 3, Semester 2

BSB115 Management, People and Organisations  
EFB312 International Finance  
Business Double Major / Extended Major /  
Specialisation Unit

#### Year 4, Semester 1

EFB201 Financial Markets  
Business Double Major / Extended Major /  
Specialisation Unit  
Business Double Major / Extended Major /  
Specialisation Unit

#### Year 4, Semester 2

Business Double Major / Extended Major /  
Specialisation Unit  
Business Double Major / Extended Major /  
Specialisation Unit  
  
Students should refer to the BS56 Course  
Notes entry for information on double  
major/extended major/specialisation units

### Course Structure - Economics

NOTE: These Business units are studied in  
conjunction with Science units each semester

#### Year 1, Semester 1

BSB113 Economics  
BSB122 Quantitative Analysis and Finance

#### Year 2, Semester 1

BSB110 Accounting  
BSB126 Marketing  
EFB202 Business Cycles and Economic Growth

#### Year 1, Semester 2

BSB119 International and Electronic Business  
EFB102 Economics 2

#### Year 2, Semester 2

BSB114 Government, Business and Society  
Business Double Major / Extended Major /  
Specialisation Unit

#### Year 3, Semester 1

EFB211 Firms, Markets and Resources  
Business Double Major / Extended Major /  
Specialisation Unit

#### Year 3, Semester 2

BSB115 Management, People and Organisations  
EFB314 International Trade and Economic  
Competitiveness  
EFB329 Contemporary Applications of Economics  
Theory

**Year 4, Semester 1**

BSB111 Business Law and Ethics  
 Business Double Major / Extended Major / Specialisation Unit  
 Business Double Major / Extended Major / Specialisation Unit

Business Double Major Unit  
 Business Double Major Unit  
 Students should refer to the BS56 Course Notes entry for information on double major units

**Year 4, Semester 2**

Business Double Major / Extended Major / Specialisation Unit  
 Business Double Major / Extended Major / Specialisation Unit  
 Students should refer to the BS56 Course Notes entry for information on double major/extended major/specialisation units

**Course Structure - Electronic Business**

These Business units are studied in conjunction with Science units each semester

**Year 1, Semester 1**

BSB119 International and Electronic Business  
 BSB122 Quantitative Analysis and Finance

**Year 1, Semester 2**

BSB110 Accounting  
 BSB115 Management, People and Organisations  
 BSB113 Economics

**Year 2, Semester 1**

BSB111 Business Law and Ethics  
 BSB126 Marketing  
 BSB212 Electronic Business Applications

**Year 2, Semester 2**

BSB213 Governance Issues in E-Business  
 BSB114 Government, Business and Society

**Year 3, Semester 1**

BSB314 E-Business Intelligence  
 ITB233 Enterprise Systems Applications

**Year 3, Semester 2**

ITB823 Web Sites For Electronic Commerce  
 ITB239 Enterprise Data Mining  
 Business Double Major Unit

**Year 4, Semester 1**

Business Double Major Unit  
 Business Double Major Unit  
 Business Double Major Unit

**Year 4, Semester 2**

**Course Structure - Human Resource Management**

NOTE: These Business units are studied in conjunction with Science units each semester

**Year 1, Semester 1**

BSB115 Management, People and Organisations  
 BSB122 Quantitative Analysis and Finance

**Year 1, Semester 2**

BSB113 Economics  
 BSB114 Government, Business and Society  
 MGB222 Managing Organisations

**Year 2, Semester 1**

BSB119 International and Electronic Business  
 BSB126 Marketing  
 MGB220 Management Research Methods

**Year 2, Semester 2**

BSB110 Accounting  
 BSB111 Business Law and Ethics

**Year 3, Semester 1**

MGB207 Human Resource Issues and Strategy  
 MGB211 Organisational Behaviour

**Year 3, Semester 2**

Business Double Major / Extended Major / Specialisation  
 Business Double Major / Extended Major / Specialisation

**Year 4, Semester 1**

MGB314 Organisational Consulting and Change  
 Business Double Major / Extended Major / Specialisation  
 Business Double Major / Extended Major / Specialisation

**Year 4, Semester 2**

MGB309 Strategic Management  
 Business Double Major / Extended Major / Specialisation  
 Business Double Major / Extended Major / Specialisation

Students should refer to the BS56 Course Notes entry for information on double major/extended major/specialisation units



The units AMB201 Market and Audience Research and MGB220 Management Research Methods are incompatible units. Students undertaking Marketing or Public relations as a double major should contact the school for enrolment advice. From Semester 2, 2003 students who complete both MGB220 and AMB201 will be required to undertake an approved substitute unit to satisfy course requirements.

**Course Structure - International Business**

**NOTE:** These Business units are studied in conjunction with Science units each semester

**Year 1, Semester 1**

- BSB113 Economics
- BSB119 International and Electronic Business

**Year 1, Semester 2**

- BSB114 Government, Business and Society
- BSB126 Marketing
- IBB202 Fundamentals of International Finance

**Year 2, Semester 1**

- BSB115 Management, People and Organisations
- BSB122 Quantitative Analysis and Finance
- IBB213 International Marketing

**Year 2, Semester 2**

- BSB110 Accounting
- BSB111 Business Law and Ethics

**Year 3, Semester 1**

- IBB210 Export Management  
International Business Area Study 1

**Year 3, Semester 2**

- International Business Area Study 2
- Business Double Major / Extended Major / Specialisation Unit
- Business Double Major / Extended Major / Specialisation Unit

**Year 4, Semester 1**

- IBB300 International Business Strategy  
Business Double Major / Extended Major / Specialisation Unit
- Business Double Major / Extended Major / Specialisation Unit

**Year 4, Semester 2**

- Business Double Major / Extended Major / Specialisation Unit
- Business Double Major / Extended Major / Specialisation Unit

**International Business Area Study Options:**

Students must select one of the following pairs of area study units:

- IBB208 European Business Development
- IBB308 Contemporary Business in Europe  
OR
- IBB217 Asian Business Development
- IBB317 Contemporary Business in Asia

Students should refer to the BS56 Course Notes entry for information on double major/extended major/specialisation units

**Course Structure - Management**

**NOTE:** These Business units are studied in conjunction with Science units each semester

**Year 1, Semester 1**

- BSB115 Management, People and Organisations
- BSB122 Quantitative Analysis and Finance

**Year 1, Semester 2**

- BSB113 Economics
- BSB114 Government, Business and Society
- MGB222 Managing Organisations

**Year 2, Semester 1**

- BSB119 International and Electronic Business
- BSB126 Marketing
- MGB220 Management Research Methods

**Year 2, Semester 2**

- BSB110 Accounting
- BSB111 Business Law and Ethics

**Year 3, Semester 1**

- MGB210 Production and Service Management
- MGB211 Organisational Behaviour

**Year 3, Semester 2**

- MGB334 Managing in a Changing Environment  
Business Double Major /Extended Major/Specialisation Unit

**Year 4, Semester 1**

- Business Double Major /Extended Major/Specialisation Unit
- Business Double Major /Extended Major/Specialisation Unit
- Business Double Major /Extended Major/Specialisation Unit

**Year 4, Semester 2**

- MGB309 Strategic Management

Business Double Major /Extended Major/Specialisation Unit

Business Double Major /Extended Major/Specialisation Unit

Students should refer to the BS56 Course Notes entry for information on double major/extended major/specialisation units

The units AMB201 Market and Audience Research and MGB220 Management Research Methods are incompatible units. Students undertaking Marketing or Public Relations as a double major should contact the school for enrolment advice. From Semester 2, 2003 students who complete both MGB220 and AMB201 will be required to undertake an approved substitute unit to satisfy course requirements.

**Course Structure - Marketing**

NOTE: These Business units are studied in conjunction with Science units each semester

**Year 1, Semester 1**

BSB122 Quantitative Analysis and Finance  
BSB126 Marketing

**Year 1, Semester 2**

AMB200 Consumer Behaviour  
AMB240 Marketing Planning and Management  
BSB114 Government, Business and Society

**Year 2, Semester 1**

AMB201 Marketing and Audience Research  
BSB115 Management, People and Organisations  
BSB119 International and Electronic Business

**Year 2, Semester 2**

AMB241 E-Marketing Strategies  
Business Double Major/Extended Major/Specialisation Unit

**Year 3, Semester 1**

BSB113 Economics  
Business Double Major/Extended Major/Specialisation Unit

**Year 3, Semester 2**

BSB110 Accounting  
BSB111 Business Law and Ethics  
Business Double Major/Extended Major/Specialisation Unit

**Year 4, Semester 1**

AMB340 Services Marketing  
Business Double Major/Extended Major/Specialisation Unit

Business Double Major/Extended Major/Specialisation Unit

**Year 4, Semester 2**

AMB341 Strategic Marketing  
Business Double Major/Extended Major/Specialisation Unit

Students should refer to the BS56 Course Notes entry for information on double major/extended major/specialisation units

The units AMB201 Market and Audience Research and MGB220 Management Research Methods are incompatible units. Students undertaking HRM or Management as a double major should contact the school for enrolment advice. From Semester 2, 2003 students who complete both MGB220 and AMB201 will be required to undertake an approved substitute unit to satisfy course requirements.

**Course Structure - Public Relations**

NOTE: These Business units are studied in conjunction with Science units each semester

**Year 1, Semester 1**

BSB122 Quantitative Analysis and Finance  
BSB126 Marketing

**Year 1, Semester 2**

AMB260 Public Relations Theory and Practice  
BSB114 Government, Business and Society  
BSB119 International and Electronic Business

**Year 2, Semester 1**

AMB201 Marketing and Audience Research  
AMB261 Media Relations and Publicity  
BSB115 Management, People and Organisations

**Year 2, Semester 2**

AMB262 Public Relations Writing  
Business Double Major / Extended Major / Specialisation

**Year 3, Semester 1**

BSB113 Economics  
Business Double Major / Extended Major / Specialisation

**Year 3, Semester 2**

BSB110 Accounting  
BSB111 Business Law and Ethics  
Business Double Major / Extended Major / Specialisation

**Year 4, Semester 1**

AMB360 Corporate Communication Management

## SCIENCE

Business Double Major / Extended Major /  
Specialisation

Business Double Major / Extended Major /  
Specialisation

### Year 4, Semester 2

AMB361 Public Relations Campaigns

Business Double Major / Extended Major /  
Specialisation

Students should refer to the BS56 Course  
Notes entry for information on double  
major/extended major/specialisation units

The units AMB201 Market and Audience  
Research and MGB220 Management  
Research Methods are incompatible units.  
Students undertaking HRM or Management as  
a double major should contact the school for  
enrolment advice. From Semester 2, 2003  
students who complete both MGB220 and  
AMB201 will be required to undertake an  
approved substitute unit to satisfy course  
requirements.

### Science Component

#### Faculty Core Units

6 faculty core units, including three Foundation  
units

#### Foundation Units

LSB118 Life Science  
MAB101 Statistical Data Analysis 1  
NRB100 Environmental Science  
PCB101 Physical Science

#### Other Science Units

LSB238 Cell and Molecular Biology 1  
LSB258 Principles of Human Physiology  
MAB100 Mathematical Sciences 1A  
MAB111 Mathematical Sciences 1B  
MAB112 Mathematical Sciences 1C  
NRB230 Planet Earth  
NRB240 History of Life on Earth  
NRB270 Animal and Plant Structure and Function  
PCB140 Introductory Chemistry  
PCB142 Chemistry 1  
PCB242 Chemistry 2  
PCB250 Physics 1  
PCB260 Physics 1A

### Course structure - Biochemistry

NOTE: These Science units are studied in conjunction  
with Business units each semester

#### Year 1, Semester 1

LSB118 Life Science  
PCB101 Physical Science

#### Year 1, Semester 2

LSB238 Cell and Molecular Biology 1  
NRB270 Animal and Plant Structure and Function

#### Year 2, Semester 1

MAB101 Statistical Data Analysis 1  
Either  
PCB140 Introductory Chemistry  
Or  
PCB142 Chemistry 1

#### Year 2, Semester 2

LSB258 Principles of Human Physiology  
PCB242 Chemistry 2

#### Year 3, Semester 1

LSB308 Biochemistry  
LSB338 Cell and Molecular Biology 2

#### Year 3, Semester 2

LSB408 Metabolism  
LSB468 Molecular Biology

#### Year 4, Semester 1

LSB508 Advanced Metabolism  
LSB527 Biomedical Research Technologies

#### Year 4, Semester 2

LSB607 Protein Purification  
LSB608 Protein Science

### Course structure - Biotechnology

NOTE: These Science units are studied in conjunction  
with Business units each semester

#### Year 1, Semester 1

LSB118 Life Science  
PCB101 Physical Science

#### Year 1, Semester 2

LSB238 Cell and Molecular Biology 1  
NRB270 Animal and Plant Structure and Function

#### Year 2, Semester 1

MAB101 Statistical Data Analysis 1  
Either  
PCB140 Introductory Chemistry  
Or  
PCB142 Chemistry 1

# SCIENCE

## Year 2, Semester 2

LSB258 Principles of Human Physiology

PCB242 Chemistry 2

## Year 3, Semester 1

LSB308 Biochemistry

LSB338 Cell and Molecular Biology 2

## Year 3, Semester 2

LSB468 Molecular Biology

LSB469 Introduction to Genomics and Bioinformatics

## Year 4, Semester 1

LSB509 Medical Biotechnology 1

LSB537 Genetic Engineering

## Year 4, Semester 2

LSB609 Medical Biotechnology 2

LSB619 Genomics and Bioinformatics

### Course structure - Chemistry

NOTE: These Science units are studied in conjunction with Business units each semester

## Year 1, Semester 1

MAB100 Mathematical Sciences 1A

PCB101 Physical Science

## Year 1, Semester 2

LSB118 Life Science

MAB101 Statistical Data Analysis 1

## Year 2, Semester 1

NRB100 Environmental Science

PCB142 Chemistry 1

## Year 2, Semester 2

PCB242 Chemistry 2

PCB260 Physics 1A

## Year 3, Semester 1

PCB334 Inorganic Chemistry

PCB354 Structure and Mechanism in Organic Chemistry

## Year 3, Semester 2

PCB405 Principles of Physical Chemistry

PCB444 Spectroscopy

## Year 4, Semester 1

PCB505 Advanced Physical Chemistry

PCB554 Synthesis and Reactivity in Organic Chemistry

## Year 4, Semester 2

PCB634 Organometallic and Coordination Chemistry

PCB644 Frontiers in Chemistry

### Course structure - Ecology

NOTE: These Science units are studied in conjunction with Business units each semester

## Year 1, Semester 1

NRB100 Environmental Science

PCB101 Physical Science

## Year 1, Semester 2

LSB118 Life Science

NRB240 History of Life on Earth

## Year 2, Semester 1

MAB101 Statistical Data Analysis 1  
Either

PCB140 Introductory Chemistry  
Or

PCB142 Chemistry 1

## Year 2, Semester 2

LSB238 Cell and Molecular Biology 1

NRB270 Animal and Plant Structure and Function

## Year 3, Semester 1

NRB301 Earth Surface Systems

NRB311 Population Ecology

## Year 3, Semester 2

NRB410 Genetics and Evolution

NRB412 Experimental Design

## Year 4, Semester 1

NRB510 Population Genetics

NRB511 Population Management

## Year 4, Semester 2

NRB610 Ecological Applications

NRB611 Conservation Biology

### Course structure - Environmental Science

NOTE: These Science units are studied in conjunction with Business units each semester

## Year 1, Semester 1

NRB100 Environmental Science

PCB101 Physical Science

## Year 1, Semester 2

LSB118 Life Science

## SCIENCE

NRB240 History of Life on Earth

### Year 2, Semester 1

MAB101 Statistical Data Analysis 1  
Either

NRB230 Planet Earth  
Or

PCB140 Introductory Chemistry  
Or

PCB142 Chemistry 1

### Year 2, Semester 2

NRB270 Animal and Plant Structure and Function

PCB414 Industrial and Environmental Analytical Chemistry

### Year 3, Semester 1

NRB301 Earth Surface Systems

NRB311 Population Ecology

### Year 3, Semester 2

NRB440 Environmental Chemistry

NRB412 Experimental Design

### Year 4, Semester 1

NRB500 Environmental Systems and Modelling

NRB601 Field Mapping and Monitoring of Natural Resources

### Year 4, Semester 2

NRB501 Spatial Analysis of Environmental Systems

NRB600 Sustainable Environmental Management

### Course structure - Forensic Science

NOTE: These Science units are studied in conjunction with Business units each semester

### Year 1, Semester 1

LSB118 Life Science

PCB101 Physical Science

### Year 1, Semester 2

MAB101 Statistical Data Analysis 1

PCB140 Introductory Chemistry  
Or

PCB142 Chemistry 1

### Year 2, Semester 1

MAB100 Mathematical Sciences 1A

PCB242 Chemistry 2

### Year 2, Semester 2

LSB238 Cell and Molecular Biology 1

NRB270 Animal and Plant Structure and Function

### Year 3, Semester 1

LSB468 Molecular Biology

SCB384 Forensic Science

### Year 3, Semester 2

JSB979 Forensic Scientific Evidence

PCB414 Industrial and Environmental Analytical Chemistry

### Year 4, Semester 1

PCB514 Instrumental Analysis

PCB584 Forensic Examination of Physical Evidence

### Year 4, Semester 2

LSB684 Forensic DNA Profiling

PCB684 Forensic Analysis and Toxicology

### Course structure - Geoscience

NOTE: These Science units are studied in conjunction with Business units each semester

### Year 1, Semester 1

MAB100 Mathematical Sciences 1A

NRB230 Planet Earth

PCB101 Physical Science

### Year 1, Semester 2

MAB101 Statistical Data Analysis 1

### Year 2, Semester 1

NRB100 Environmental Science  
Either

PCB140 Introductory Chemistry  
Or

PCB142 Chemistry 1

### Year 2, Semester 2

NRB240 History of Life on Earth

NRB440 Environmental Chemistry

### Year 3, Semester 1

NRB331 Sedimentary Geology

NRB333 Mineralogy

### Year 3, Semester 2

NRB434 Structural Geology

NRB436 Introduction to Igneous and Metamorphic Petrology

### Year 4, Semester 1

NRB534 Geophysics

NRB536 Petrology and Geochemistry

**Year 4, Semester 2**

NRB633 Hydrogeology  
NRB635 Plate Tectonics and Advanced Structural Geology

**Course structure - Microbiology**

NOTE: These Science units are studied in conjunction with Business units each semester

**Year 1, Semester 1**

LSB118 Life Science  
PCB101 Physical Science

**Year 1, Semester 2**

LSB238 Cell and Molecular Biology 1  
NRB270 Animal and Plant Structure and Function

**Year 2, Semester 1**

MAB101 Statistical Data Analysis 1  
Either  
PCB140 Introductory Chemistry  
Or  
PCB142 Chemistry 1

**Year 2, Semester 2**

LSB258 Principles of Human Physiology  
PCB242 Chemistry 2

**Year 3, Semester 1**

LSB308 Biochemistry  
LSB328 Microbiology 1

**Year 3, Semester 2**

LSB428 Microbiology 2  
LSB468 Molecular Biology

**Year 4, Semester 1**

Two units from:  
LSB528 Environmental Microbiology  
LSB547 Bacterial Pathogenesis and Disease Diagnosis  
LSB568 Electron Microscopy  
LSB578 Virology

**Year 4, Semester 2**

Two units from:  
LSB628 Food Microbiology  
LSB647 Clinical Mycology and Parasitology  
LSB648 Molecular Microbiology

**Course structure - Physics**

NOTE: These Science units are studied in conjunction

with Business units each semester

**Year 1, Semester 1**

MAB111 Mathematical Sciences 1B  
PCB101 Physical Science

**Year 1, Semester 2**

MAB112 Mathematical Sciences 1C

**Year 2, Semester 1**

MAB311 Advanced Calculus  
PCB107 Physics and Quantitative Techniques

**Year 2, Semester 2**

MAB101 Statistical Data Analysis 1  
PCB250 Physics 1  
PCB260 Physics 1A

**Year 3, Semester 1**

PCB361 AC Theory and Electronics  
PCB362 Physics 2

**Year 3, Semester 2**

PCB460 Instrumentation and Computational Methods  
PCB462 Thermodynamics and Solid State Physics

**Year 4, Semester 1**

PCB561 Quantum and Condensed Matter Physics  
PCB562 Physical Methods of Analysis

**Year 4, Semester 2**

PCB661 Experimental Physics  
PCB665 Physics 3

**Potential Careers:**

Academic, Account Executive, Accountant, Advertising Professional, Analytical Chemist, Astrophysicist, Banker, Banking and Finance Professional, Biochemist, Biologist, Biomechanical Engineer, Biomedical Engineer, Biotechnologist, Business Analyst, Chemist, Chemist Industrial, Clinical Laboratory Scientist, Coastal Scientist, Conservation Biologist, Ecologist, Economist, Environmental Scientist, Estimator, Exchange Student, Financial Advisor/Analyst, Financial Project Manager, Forensic Scientist, Funds Manager, Geologist, Geophysicist, Geoscientist, Government Officer, Health Physicist, Home Economist, Human Resource Developer, Human Resource Manager, Hydrogeologist, Immunologist, Industrial Chemist, International Business Specialist, Investment Manager, Laboratory Technician (Chemistry), Manager, Marine Scientist, Marketing Officer/Manager, Medical Biotechnologist, Medical Physicist, Microbiologist, Molecular Biologist, Natural Resource Scientist, Physicist, Plant Biotechnologist, Policy Officer, Population Ecologist, Programmer, Public Servant, Stockbroker, Virologist.

## Bachelor of Applied Science/Bachelor of Education (Primary) (IF84)

Year offered: 2007

Admissions: No

Course duration (full-time): 4 Years

Domestic fees (per credit point): Commonwealth Supported Place; Full Fee Tuition 2007: \$210 per credit point (subject to annual review)

Domestic fees (indicative): 2007: Full Fee Tuition \$20,160

Domestic Entry: February

QTAC code: 409142

Past rank cut-off: 80

Past OP cut-off: 10

OP Guarantee: Yes

Assumed knowledge: English (4 SA) , Maths B (4 SA)

Total credit points: 384

Standard credit points per full-time semester: 48

Course coordinator: Dr Megan Hargreaves (Science): Dr Mary Ryan (Education)

Campus: Gardens Point and Kelvin Grove

### Career Outcomes

The Bachelor of Applied Science allows multidisciplinary programs of study that not only help students position themselves within the broad range of science disciplines but also qualify them as a competent professional in their chosen field.

Students are equipped to undertake research after graduation if they desire. The Bachelor of Education (Primary) prepares students to teach at all levels of the primary school. Students may also complete a discipline/content studies major in one of the key learning areas of the Queensland school curriculum.

### Professional Recognition

The Bachelor of Education (Primary) is recognised by the Queensland Board of Teacher Registration as meeting the requirements for registration as a teacher in Queensland. Applicants for registration as a teacher in Queensland are subject to national criminal history checks.

For graduates with approved study: Australasian Association of Clinical Biochemists, Australasian Institute of Mining and Metallurgy, Australian Biotechnology Association, Australian Institute of Geoscientists, Australian Institute of Physics, Australian Mathematical Society, Australian Society of Biochemistry and Molecular Biology, Australian Society for Medical Research, Australian Society for Microbiology, Australian Society of Operations Research, Ecological Society of Australia, Geological Society of Australia, Royal Australian Chemical Institute, and the Statistical Society of Australia.

### Contact Details

#### Science Coordinator

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#### Education Coordinator

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Faculty of Education Office

Phone: +61 7 3138 3947

Fax: +61 7 3138 3949

Email: educationenq@qut.edu.au

### Course Structure for Commencing Students in 2002

Students complete 192 credit points from units in the Bachelor of Applied Science degree (meeting all of the requirements of the core program and a major study), and 192 credit points from the Bachelor of Education (Primary) program. The science units and the units EDB001, MDB383, CLB376 and EDB430 are undertaken during the first five semesters of the double degree program.

### Course structure - Major in Biochemistry

#### Year 1, Semester 1

EDB001	Teaching and Learning Studies 1: Teaching in New Times
LSB118	Life Science
PCB101	Physical Science
PCB142	Chemistry 1

#### Year 1, Semester 2

LSB238	Cell and Molecular Biology 1
MDB383	Using Technology In The Curriculum
NRB270	Animal and Plant Structure and Function
PCB242	Chemistry 2

#### Year 2, Semester 1

CLB376	Studies Of Society And Environment Curriculum
LSB308	Biochemistry
LSB338	Cell and Molecular Biology 2 Either
MAB101	Statistical Data Analysis 1 Or
NRB100	Environmental Science

#### Year 2, Semester 2

EDB430	Primary Professional Practice 1: Classroom Management
LSB408	Metabolism
LSB468	Molecular Biology
LSB608	Protein Science

#### Year 3, Semester 1

LSB508	Advanced Metabolism
LSB527	Biomedical Research Technologies

## SCIENCE

	Either
LSB537	Genetic Engineering
	Or
LSB568	Electron Microscopy
	One Science Elective

LSB338	Cell and Molecular Biology 2
	Either
MAB101	Statistical Data Analysis 1
	Or
NRB100	Environmental Science

### Year 3, Semester 2

CLB454	Language And Literacy Curriculum
EDB431	Primary Professional Practice 2: Curriculum Decision Making
MDB384	Science Education
SPB001	Human Development and Education

### Year 2, Semester 2

LSB408	Metabolism
	Either
LSB497	Plant Molecular Biology
	Or
LSB468	Molecular Biology
LSB657	Perspectives in Life Science
EDB430	Primary Professional Practice 1: Classroom Management

### Year 4, Semester 1

CLB413	Programming And Assessment In Language And Mathematics
EDB432	Primary Professional Practice 3: Inclusive Curriculum
HMB307	Health and Physical Education Curriculum (Primary)
MDB450	Primary Mathematics Curriculum

### Year 3, Semester 1

LSB537	Genetic Engineering
	One Science Elective
	Two of
LSB509	Medical Biotechnology 1
LSB568	Electron Microscopy
LSB577	Plant Biotechnology 1

### Year 4, Semester 2

CLB306	Understanding Educational Practices
EDB433	Primary Professional Practice 4: Beginning Teaching
KKB914	Visual and Performing Arts Curriculum 1
SPB002	Psychology of Learning and Teaching

### Year 3, Semester 2

CLB454	Language And Literacy Curriculum
EDB431	Primary Professional Practice 2: Curriculum Decision Making
MDB384	Science Education
SPB001	Human Development and Education

### NOTES

Students with an approved LOTE background in their undergraduate degree who wish to undertake CLB334 Primary LOTE Curriculum Studies in place of CLB413 should contact the Student Affairs office on 3864 3847. CLB334 is offered internally in semester 2.

### Course structure - Major in Biotechnology

#### Year 1, Semester 1

EDB001	Teaching and Learning Studies 1: Teaching in New Times
LSB118	Life Science
PCB101	Physical Science
PCB142	Chemistry 1

#### Year 1, Semester 2

LSB238	Cell and Molecular Biology 1
MDB383	Using Technology In The Curriculum
NRB270	Animal and Plant Structure and Function
PCB242	Chemistry 2

#### Year 2, Semester 1

CLB376	Studies Of Society And Environment Curriculum
LSB308	Biochemistry

### Year 4, Semester 1

CLB413	Programming And Assessment In Language And Mathematics
EDB432	Primary Professional Practice 3: Inclusive Curriculum
HMB307	Health and Physical Education Curriculum (Primary)
MDB450	Primary Mathematics Curriculum

### Year 4, Semester 2

CLB306	Understanding Educational Practices
EDB433	Primary Professional Practice 4: Beginning Teaching
KKB914	Visual and Performing Arts Curriculum 1
SPB002	Psychology of Learning and Teaching
	In 2002 EDB432 will be available in semester 2 to students who do not successfully complete the requirements of the unit in semester 1. This offering will be in external mode only.

### NOTES

Students with an approved LOTE background in their undergraduate degree who wish to



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undertake CLB334 Primary LOTE Curriculum Studies in place of CLB413 should contact the Student Affairs office on 3864 3847. CLB334 is offered internally in semester 2.

EDB432	Primary Professional Practice 3: Inclusive Curriculum
HMB307	Health and Physical Education Curriculum (Primary)
MDB450	Primary Mathematics Curriculum

### Course structure - Major in Chemistry

#### Year 1, Semester 1

EDB001	Teaching and Learning Studies 1: Teaching in New Times
MAB100	Mathematical Sciences 1A
PCB101	Physical Science
PCB142	Chemistry 1

#### Year 1, Semester 2

MDB383	Using Technology In The Curriculum
PCB242	Chemistry 2
PCB260	Physics 1A
PCB434	Inorganic Chemistry

#### Year 2, Semester 1

CLB376	Studies Of Society And Environment Curriculum
NRB100	Environmental Science
PCB305	Principles of Physical Chemistry
PCB354	Structure and Mechanism in Organic Chemistry

#### Year 2, Semester 2

EDB430	Primary Professional Practice 1: Classroom Management
PCB414	Industrial and Environmental Analytical Chemistry
PCB444	Spectroscopy
PCB634	Organometallic and Coordination Chemistry

#### Year 3, Semester 1

LSB118	Life Science
PCB505	Advanced Physical Chemistry
PCB554	Synthesis and Reactivity in Organic Chemistry One of
PCB514	Instrumental Analysis
PCB584	Forensic Examination of Physical Evidence
PCB604	Project

#### Year 3, Semester 2

CLB454	Language And Literacy Curriculum
EDB431	Primary Professional Practice 2: Curriculum Decision Making
MDB384	Science Education
SPB001	Human Development and Education

#### Year 4, Semester 1

CLB413	Programming And Assessment In Language And Mathematics
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#### Year 4, Semester 2

CLB306	Understanding Educational Practices
EDB433	Primary Professional Practice 4: Beginning Teaching
KKB914	Visual and Performing Arts Curriculum 1
SPB002	Psychology of Learning and Teaching

#### NOTES

Students with an approved LOTE background in their undergraduate degree who wish to undertake CLB334 Primary LOTE Curriculum Studies in place of CLB413 should contact the Student Affairs office on 3864 3847. CLB334 is offered internally in semester 2.

### Course structure - Major in Ecology

#### Year 1, Semester 1

EDB001	Teaching and Learning Studies 1: Teaching in New Times
LSB118	Life Science
NRB100	Environmental Science
PCB101	Physical Science

#### Year 1, Semester 2

MAB101	Statistical Data Analysis 1
MDB383	Using Technology In The Curriculum
NRB270	Animal and Plant Structure and Function
NRB410	Genetics and Evolution

#### Year 2, Semester 1

CLB376	Studies Of Society And Environment Curriculum
NRB311	Population Ecology
NRB312	Experimental Design
NRB370	Invertebrate Biology

#### Year 2, Semester 2

EDB430	Primary Professional Practice 1: Classroom Management
NRB411	Ecological Methods
NRB470	Vertebrate Biology
NRB611	Conservation Biology

#### Year 3, Semester 1

NRB510	Population Genetics
NRB511	Population Management
NRB572	Terrestrial Ecosystems One Science Elective

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### Year 3, Semester 2

CLB454	Language And Literacy Curriculum
EDB431	Primary Professional Practice 2: Curriculum Decision Making
MDB384	Science Education
SPB001	Human Development and Education

### Year 4, Semester 1

CLB413	Programming And Assessment In Language And Mathematics
EDB432	Primary Professional Practice 3: Inclusive Curriculum
HMB307	Health and Physical Education Curriculum (Primary)
MDB450	Primary Mathematics Curriculum

### Year 4, Semester 2

CLB306	Understanding Educational Practices
EDB433	Primary Professional Practice 4: Beginning Teaching
KKB914	Visual and Performing Arts Curriculum 1
SPB002	Psychology of Learning and Teaching

### NOTES

Students with an approved LOTE background in their undergraduate degree who wish to undertake CLB334 Primary LOTE Curriculum Studies in place of CLB413 should contact the Student Affairs office on 3864 3847. CLB334 is offered internally in semester 2.

### Course structure - Major in Environmental Science

#### Year 1, Semester 1

EDB001	Teaching and Learning Studies 1: Teaching in New Times
MAB101	Statistical Data Analysis 1
NRB100	Environmental Science
PCB101	Physical Science

#### Year 1, Semester 2

LSB118	Life Science
MDB383	Using Technology In The Curriculum
NRB232	Environmental Geology
PCB142	Chemistry 1

#### Year 2, Semester 1

CLB376	Studies Of Society And Environment Curriculum
NRB300	Environmental Monitoring
NRB311	Population Ecology
	One of
NRB370	Invertebrate Biology
NRB371	Plant Biology
ITB843	Computing Applications

### Year 2, Semester 2

EDB430	Primary Professional Practice 1: Classroom Management
NRB400	Environmental Systems
NRB440	Environmental Chemistry
NRB600	Sustainable Environmental Management

### Year 3, Semester 1

NRB500	Environmental Systems and Modelling
NRB501	Spatial Analysis of Environmental Systems
NRB572	Terrestrial Ecosystems
	One Science Elective

### Year 3, Semester 2

CLB454	Language And Literacy Curriculum
EDB431	Primary Professional Practice 2: Curriculum Decision Making
MDB384	Science Education
SPB001	Human Development and Education

### Year 4, Semester 1

CLB413	Programming And Assessment In Language And Mathematics
EDB432	Primary Professional Practice 3: Inclusive Curriculum
HMB307	Health and Physical Education Curriculum (Primary)
MDB450	Primary Mathematics Curriculum

### Year 4, Semester 2

CLB306	Understanding Educational Practices
EDB433	Primary Professional Practice 4: Beginning Teaching
KKB914	Visual and Performing Arts Curriculum 1
SPB002	Psychology of Learning and Teaching

### NOTES

Students with an approved LOTE background in their undergraduate degree who wish to undertake CLB334 Primary LOTE Curriculum Studies in place of CLB413 should contact the Student Affairs office on 3864 3847. CLB334 is offered internally in semester 2.

### Course structure - Major in Geology

#### Year 1, Semester 1

EDB001	Teaching and Learning Studies 1: Teaching in New Times
MAB100	Mathematical Sciences 1A
NRB100	Environmental Science
PCB101	Physical Science

#### Year 1, Semester 2

MAB101	Statistical Data Analysis 1
MDB383	Using Technology In The Curriculum

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NRB230 Planet Earth  
PCB142 Chemistry 1

Students with an approved LOTE background in their undergraduate degree who wish to undertake CLB334 Primary LOTE Curriculum Studies in place of CLB413 should contact the Student Affairs office on 3864 3847. CLB334 is offered internally in semester 2.

### Year 2, Semester 1

CLB376 Studies Of Society And Environment Curriculum  
NRB331 Sedimentary Geology  
NRB333 Mineralogy  
NRB334 Mineral Deposits And Mine Geology

### Year 2, Semester 2

EDB430 Primary Professional Practice 1: Classroom Management  
NRB434 Structural Geology  
NRB436 Introduction to Igneous and Metamorphic Petrology  
NRB633 Hydrogeology  
SCB222 Exploration of the Universe

### Year 3, Semester 1

NRB533 Advanced Geological Mapping  
NRB534 Geophysics  
NRB536 Petrology and Geochemistry  
One Science Elective

NOTE: The major component in assessment and teaching of NRB533 is conducted as a field program during July.

### Year 3, Semester 2

CLB454 Language And Literacy Curriculum  
EDB431 Primary Professional Practice 2: Curriculum Decision Making  
MDB384 Science Education  
SPB001 Human Development and Education

### Year 4, Semester 1

CLB413 Programming And Assessment In Language And Mathematics  
EDB432 Primary Professional Practice 3: Inclusive Curriculum  
HMB307 Health and Physical Education Curriculum (Primary)  
MDB450 Primary Mathematics Curriculum

### Year 4, Semester 2

CLB306 Understanding Educational Practices  
EDB433 Primary Professional Practice 4: Beginning Teaching  
KKB914 Visual and Performing Arts Curriculum 1  
SPB002 Psychology of Learning and Teaching  
  
In 2002 EDB432 will be available in semester 2 to students who do not successfully complete the requirements of the unit in semester 1. This offering will be in external mode only.

### NOTES

### Course structure - Major in Mathematics (WITH Maths C)

#### Year 1, Semester 1

EDB001 Teaching and Learning Studies 1: Teaching in New Times  
MAB101 Statistical Data Analysis 1  
MAB111 Mathematical Sciences 1B  
MAB112 Mathematical Sciences 1C

#### Year 1, Semester 2

MAB210 Statistical Modelling 1  
MAB220 Computational Mathematics 1  
MDB383 Using Technology In The Curriculum  
PCB101 Physical Science

#### Year 2, Semester 1

CLB376 Studies Of Society And Environment Curriculum  
One Science Elective  
Two Level 2 Mathematics units # - available units are:  
  
MAB311 Advanced Calculus  
MAB312 Linear Algebra  
MAB313 Mathematics of Finance  
MAB314 Statistical Modelling 2

#### Year 2, Semester 2

EDB430 Primary Professional Practice 1: Classroom Management  
Two Level 2 Mathematics units- available units are:  
  
MAB315 Operations Research 2  
MAB413 Differential Equations  
MAB414 Applied Statistics 2  
MAB420 Computational Mathematics 2  
MAB422 Mathematical Modelling  
One Level 3 Mathematics units - available units are:  
  
MAB621 Discrete Mathematics  
MAB623 Financial Mathematics  
NOTE: Students must complete at least one of MAB311, MAB312, MAB413

#### Year 3, Semester 1

One Science Elective  
Three Level 3 Mathematics units - available units are:

## SCIENCE

MAB521	Applied Mathematics 3
MAB522	Computational Mathematics 3
MAB523	Introduction to Quality Management
MAB524	Statistical Inference
MAB525	Operations Research 3A
MAB672	Advanced Mathematical Modelling

### Year 3, Semester 2

CLB454	Language And Literacy Curriculum
EDB431	Primary Professional Practice 2: Curriculum Decision Making
MDB384	Science Education
SPB001	Human Development and Education

### Year 4, Semester 1

CLB413	Programming And Assessment In Language And Mathematics
EDB432	Primary Professional Practice 3: Inclusive Curriculum
HMB307	Health and Physical Education Curriculum (Primary)
MDB450	Primary Mathematics Curriculum

### Year 4, Semester 2

CLB306	Understanding Educational Practices
EDB433	Primary Professional Practice 4: Beginning Teaching
KKB914	Visual and Performing Arts Curriculum 1
SPB002	Psychology of Learning and Teaching

### NOTES

Students with an approved LOTE background in their undergraduate degree who wish to undertake CLB334 Primary LOTE Curriculum Studies in place of CLB413 should contact the Student Affairs office on 3864 3847. CLB334 is offered internally in semester 2.

### Course structure - Major in Mathematics (WITHOUT Maths C)

#### Year 1, Semester 1

EDB001	Teaching and Learning Studies 1: Teaching in New Times
MAB100	Mathematical Sciences 1A
MAB101	Statistical Data Analysis 1
PCB101	Physical Science

#### Year 1, Semester 2

MAB111	Mathematical Sciences 1B
MAB112	Mathematical Sciences 1C
MAB210	Statistical Modelling 1
MDB383	Using Technology In The Curriculum

#### Year 2, Semester 1

CLB376	Studies Of Society And Environment
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	Curriculum
MAB220	Computational Mathematics 1
	Three Level 2 Mathematics units - available units are:
MAB311	Advanced Calculus
MAB312	Linear Algebra
MAB313	Mathematics of Finance
MAB314	Statistical Modelling 2

### Year 2, Semester 2

EDB430	Primary Professional Practice 1: Classroom Management
	Two Level 2 Mathematics units - available units are:
MAB315	Operations Research 2
MAB413	Differential Equations
MAB414	Applied Statistics 2
MAB420	Computational Mathematics 2
MAB422	Mathematical Modelling
	One Level 3 Mathematics units - available units are:
MAB621	Discrete Mathematics
MAB623	Financial Mathematics
NOTE:	Students must complete at least one of MAB311, MAB312, MAB413

### Year 3, Semester 1

	One Science Elective
	Three Level 3 Mathematics units - available units are:
MAB521	Applied Mathematics 3
MAB522	Computational Mathematics 3
MAB523	Introduction to Quality Management
MAB524	Statistical Inference
MAB525	Operations Research 3A
MAB672	Advanced Mathematical Modelling

### Year 3, Semester 2

CLB454	Language And Literacy Curriculum
EDB431	Primary Professional Practice 2: Curriculum Decision Making
MDB384	Science Education
SPB001	Human Development and Education

### Year 4, Semester 1

CLB413	Programming And Assessment In Language And Mathematics
EDB432	Primary Professional Practice 3: Inclusive Curriculum
HMB307	Health and Physical Education Curriculum (Primary)
MDB450	Primary Mathematics Curriculum

### Year 4, Semester 2

## SCIENCE

CLB306	Understanding Educational Practices
EDB433	Primary Professional Practice 4: Beginning Teaching
KKB914	Visual and Performing Arts Curriculum 1
SPB002	Psychology of Learning and Teaching

### NOTES

Students with an approved LOTE background in their undergraduate degree who wish to undertake CLB334 Primary LOTE Curriculum Studies in place of CLB413 should contact the Student Affairs office on 3864 3847. CLB334 is offered internally in semester 2.

### Course structure - Major in Microbiology

#### Year 1, Semester 1

LSB118	Life Science
PCB101	Physical Science
PCB142	Chemistry 1
EDB001	Teaching and Learning Studies 1: Teaching in New Times

#### Year 1, Semester 2

LSB238	Cell and Molecular Biology 1
MDB383	Using Technology In The Curriculum
NRB270	Animal and Plant Structure and Function
PCB242	Chemistry 2

#### Year 2, Semester 1

CLB376	Studies Of Society And Environment Curriculum
LSB308	Biochemistry
LSB338	Cell and Molecular Biology 2 Either
MAB101	Statistical Data Analysis 1 Or
NRB100	Environmental Science

#### Year 2, Semester 2

EDB430	Primary Professional Practice 1: Classroom Management
LSB408	Metabolism
LSB428	Microbiology 2
LSB657	Perspectives in Life Science

#### Year 3, Semester 1

LSB528	Environmental Microbiology
LSB547	Bacterial Pathogenesis and Disease Diagnosis
LSB578	Virology One Science Elective

#### Year 3, Semester 2

CLB454	Language And Literacy Curriculum
EDB431	Primary Professional Practice 2: Curriculum

	Decision Making
MDB384	Science Education
SPB001	Human Development and Education

#### Year 4, Semester 1

CLB413	Programming And Assessment In Language And Mathematics
EDB432	Primary Professional Practice 3: Inclusive Curriculum
HMB307	Health and Physical Education Curriculum (Primary)
MDB450	Primary Mathematics Curriculum

#### Year 4, Semester 2

CLB306	Understanding Educational Practices
EDB433	Primary Professional Practice 4: Beginning Teaching
KKB914	Visual and Performing Arts Curriculum 1
SPB002	Psychology of Learning and Teaching

### NOTES

Students with an approved LOTE background in their undergraduate degree who wish to undertake CLB334 Primary LOTE Curriculum Studies in place of CLB413 should contact the Student Affairs office on 3864 3847. CLB334 is offered internally in semester 2.

### Course structure - Major in Physics

#### Year 1, Semester 1

MAB101	Statistical Data Analysis 1
PCB101	Physical Science
PCB107	Physics and Quantitative Techniques Either
MAB131	Engineering Mathematics 1A Or
MAB180	Engineering Mathematics 1B
EDB001	Teaching and Learning Studies 1: Teaching in New Times

#### Year 1, Semester 2

MDB383	Using Technology In The Curriculum
MAB132	Engineering Mathematics 2A
PCB250	Physics 1
PCB260	Physics 1A

#### Year 2, Semester 1

CLB376	Studies Of Society And Environment Curriculum
MAB134	Electrical Engineering Mathematics 3
PCB361	AC Theory and Electronics
PCB362	Physics 2

#### Year 2, Semester 2

## SCIENCE

EDB430	Primary Professional Practice 1: Classroom Management	Population Ecologist, Primary School Teacher, Programmer, Quantitative Analyst, Statistician, Teacher, Virologist.
PCB404	Scientific Principles of Safety	
PCB460	Instrumentation and Computational Methods	
PCB462	Thermodynamics and Solid State Physics	

### Year 3, Semester 1

One Science Elective unit

PCB561	Quantum and Condensed Matter Physics
PCB562	Physical Methods of Analysis
PCB661	Experimental Physics

### Year 3, Semester 2

CLB454	Language And Literacy Curriculum
EDB431	Primary Professional Practice 2: Curriculum Decision Making
MDB384	Science Education
SPB001	Human Development and Education

### Year 4, Semester 1

CLB413	Programming And Assessment In Language And Mathematics
EDB432	Primary Professional Practice 3: Inclusive Curriculum
HMB307	Health and Physical Education Curriculum (Primary)
MDB450	Primary Mathematics Curriculum

### Year 4, Semester 2

CLB306	Understanding Educational Practices
EDB433	Primary Professional Practice 4: Beginning Teaching
KKB914	Visual and Performing Arts Curriculum 1
SPB002	Psychology of Learning and Teaching
NOTE:	In 2002 EDB432 will be available in Semester 2 to students who do not successfully complete the requirements of the unit in Semester 1. This offering will be in external mode only.

### NOTES

Students with an approved LOTE background in their undergraduate degree who wish to undertake CLB334 Primary LOTE Curriculum Studies in place of CLB413 should contact the Student Affairs office on 3864 3847. CLB334 is offered internally in semester 2.

### Potential Careers:

Actuary, Analytical Chemist, Astrophysicist, Biochemist, Biologist, Biotechnologist, Chemist, Chemist Industrial, Coastal Scientist, Conservation Biologist, Database Manager, Ecologist, Educator, Environmental Scientist, Forensic Scientist, Geologist, Geophysicist, Geoscientist, Health Physicist, Hydrogeologist, Immunologist, Industrial Chemist, Laboratory Technician (Chemistry), Marine Scientist, Mathematician, Medical Biotechnologist, Medical Physicist, Microbiologist, Molecular Biologist, Natural Resource Scientist, Physicist, Plant Biotechnologist,

## Bachelor of Arts/Bachelor of Applied Science (IF86)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** 031581F

**Course duration (full-time):** 4 Years

**Domestic fees (per credit point):** Commonwealth Supported Place; Full fee tuition 2007: \$210 per credit point (*subject to annual review*)

**Domestic fees (indicative):** 2007: Full fee tuition \$20,160; CSP \$6,061

**International Fees (per semester):** 2007:\$9,000 per semester (*subject to annual review*)

**Domestic Entry:** February

**International Entry:** February and July

**QTAC code:** CSP: 409262; Dfee: 409266

**Past rank cut-off:** 72; Dfee: 68

**Past OP cut-off:** 13; Dfee: 15

**OP Guarantee:** Yes

**Assumed knowledge:** English (4, SA) and Maths B (4, SA)

**Preparatory studies:** MATHS: QUT unit Preparatory Mathematics as a visiting student or **Total credit points:** 384 (192 cp in the Bachelor of Arts and 192 cp in the Bachelor of Applied Science)

**Standard credit points per full-time semester:** 48

**Course coordinator:** Dr Iraphne Childs (Humanities); Dr Megan Hargreaves (Science)

**Campus:** Gardens Point and Carseldine

### Career Opportunities

As a graduate of this course you will receive both a Bachelor of Arts degree and a Bachelor of Applied Science degree. This combination of degrees provides a valuable foundation for a wide range of careers in areas such as government, diplomacy, higher education and public service. Opportunities in tourism, translation, and the hospitality industry are open to those with a Language major. Complementary majors chosen from Arts and Science provide an excellent background for careers in environmental management.

### Recommended study

At least one of the sciences. For the majors in biochemistry, biotechnology, forensic science and microbiology - Biological Science and Chemistry are recommended; for the major in physics - Maths C is recommended.

### Course Design

A feature of the course design is the flexibility and choice it offers. Students can tailor the double degree to their career interests by combining any one of the 10 majors that are available in the Bachelor of Applied Science (SC01) degree with a specialisation chosen from a wide range of offerings in the humanities.

The program is integrated so that students will study both science and arts units in each semester.

### Professional Recognition

Relevant professional bodies for the Bachelor of Applied Science (SC01) are listed under the separate entry for the

course. Eligibility for membership depends on the majors undertaken.

### Contact Details

#### Humanities Coordinator

Dr Iraphne Childs

Phone: +61 7 3138 4563

Email: i.childs@qut.edu.au

#### Science Coordinator

Dr Megan Hargreaves

Phone: +61 7 3138 2244

Email: m.hargreaves@qut.edu.au

### Deferment

QUT allows current Year 12 school leavers to defer their undergraduate admission offer for one year, or for six months if offered mid-year admission, except in courses using specific admission requirements such as questionnaires, folios, auditions, prior study or work experience.

Find out more on deferment.

### (Example of Full-Time Course Structure for Commencing Students)

#### Year 1, Semester 1

Core Arts unit (major)

Core Arts unit (major)

Two Science units (SC01 Level 1): Foundation units

#### Year 1, Semester 2

Arts Major unit

Arts Major unit

Two Science units (SC01 Level 1): at least one Foundation unit

#### Year 2, Semester 1

Core Arts unit (major or skills)

Core Arts unit (major or skills)

Two Science units (SC01 Levels 1 and 2: Level 2 from Major)

#### Year 2, Semester 2

Arts Major unit

Arts Minor unit

Two Science Units (SC01 Levels 1 and 2: Level 2 from Major)

#### Year 3, Semester 1

Arts Major unit

Core Arts unit (research methods)

Two Science Major units (SC01 Level 2)

#### Year 3, Semester 2

## SCIENCE

Arts Minor unit  
 Core Arts unit (research methods)  
 Two Science Major units (SC01 Level 3)

PCB140 Introductory Chemistry  
 Or  
 PCB142 Chemistry 1

### Year 4, Semester 1

Arts Major unit  
 Arts Minor unit  
 Two Science Major units (SC01 Level 3)

### Year 1, Semester 2

LSB238 Cell and Molecular Biology 1  
 PCB242 Chemistry 2

### Year 4, Semester 2

Arts Major unit  
 Arts Minor unit  
 Two Science Major units (SC01 Level 3)

### Year 2, Semester 1

MAB101 Statistical Data Analysis 1  
 PCB101 Physical Science

## CORE PROGRAM - BA Students

This core program for the degree consists of the following selection of units:

### First Year Core: Core Units for Professional Majors

INTERNATIONAL AND GLOBAL STUDIES  
 HHB110 Introduction To International And Global Studies  
 HHB111 Issues In International And Global Studies  
 SOCIETY AND CHANGE  
 HHB105 Exploring Change  
 HHB104 Understanding Society: Intro To Sociology  
 ETHICS AND HUMAN RIGHTS  
 HHB114 Introduction To Human Rights And Ethics  
 HHB115 Human Identity And Change  
 COMMUNITY STUDIES  
 HHB102 The Human Condition  
 HHB103 Contemporary Social And Community Issues  
 AUSTRALIAN STUDIES  
 HHB106 Australian Society And Culture  
 HHB112 Australian Politics

### First Year Core: Skills Units

HHB116 Applied Skills And Scholarship  
 HHB117 Introduction To Social Research Methods

### Second Year Core: Research Methods

HHB224 Qualitative Research Methods  
 HHB232 Survey Methods  
 HHB121 Interpreting The Past  
 HHB312 Geographical Research Design

## Course structure - Major in Biochemistry

### Year 1, Semester 1

LSB118 Life Science  
 Either

### Year 3, Semester 1

LSB308 Biochemistry  
 LSB338 Cell and Molecular Biology 2

### Year 3, Semester 2

LSB408 Metabolism  
 LSB468 Molecular Biology

### Year 4, Semester 1

LSB508 Advanced Metabolism  
 LSB527 Biomedical Research Technologies

### Year 4, Semester 2

LSB607 Protein Purification  
 LSB608 Protein Science

## Course structure - Major in Biotechnology

### Year 1, Semester 1

LSB118 Life Science  
 Either  
 PCB140 Introductory Chemistry  
 Or  
 PCB142 Chemistry 1

### Year 1, Semester 2

LSB238 Cell and Molecular Biology 1  
 PCB242 Chemistry 2

### Year 2, Semester 1

MAB101 Statistical Data Analysis 1  
 PCB101 Physical Science

### Year 2, Semester 2

LSB258 Principles of Human Physiology  
 NRB270 Animal and Plant Structure and Function

### Year 3, Semester 1



## SCIENCE

LSB308 Biochemistry

LSB338 Cell and Molecular Biology 2

### Year 3, Semester 2

LSB468 Molecular Biology

LSB469 Introduction to Genomics and Bioinformatics

### Year 4, Semester 1

LSB537 Genetic Engineering  
Either

LSB509 Medical Biotechnology 1  
Or

LSB577 Plant Biotechnology 1

### Year 4, Semester 2

LSB619 Genomics and Bioinformatics  
Either

LSB609 Medical Biotechnology 2  
Or

LSB677 Plant Biotechnology 2

### Course structure - Major in Chemistry

#### Year 1, Semester 1

MAB100 Mathematical Sciences 1A  
Either

PCB140 Introductory Chemistry  
Or

PCB142 Chemistry 1

#### Year 1, Semester 2

MAB101 Statistical Data Analysis 1

PCB242 Chemistry 2

#### Year 2, Semester 1

LSB118 Life Science

PCB101 Physical Science

#### Year 2, Semester 2

PCB150 Physics 1H

PCB200 Chemical Technology 1

#### Year 3, Semester 1

PCB334 Inorganic Chemistry

PCB354 Structure and Mechanism in Organic Chemistry

#### Year 3, Semester 2

PCB405 Principles of Physical Chemistry

PCB444 Spectroscopy

#### Year 4, Semester 1

PCB505 Advanced Physical Chemistry

PCB554 Synthesis and Reactivity in Organic Chemistry

### Year 4, Semester 2

PCB634 Organometallic and Coordination Chemistry  
Either

PCB604 Project  
Or

PCB644 Frontiers in Chemistry

### Course structure - Major in Ecology

#### Year 1, Semester 1

LSB118 Life Science

NRB100 Environmental Science

#### Year 1, Semester 2

MAB101 Statistical Data Analysis 1

NRB270 Animal and Plant Structure and Function

#### Year 2, Semester 1

NRB230 Planet Earth

PCB101 Physical Science

#### Year 2, Semester 2

LSB238 Cell and Molecular Biology 1

NRB240 History of Life on Earth

#### Year 3, Semester 1

NRB301 Earth Surface Systems

NRB311 Population Ecology

#### Year 3, Semester 2

NRB410 Genetics and Evolution

NRB412 Experimental Design

#### Year 4, Semester 1

NRB510 Population Genetics

NRB511 Population Management

#### Year 4, Semester 2

NRB610 Ecological Applications

NRB611 Conservation Biology

### Course structure - Major in Environmental Science

#### Year 1, Semester 1

LSB118 Life Science

NRB100 Environmental Science

#### Year 1, Semester 2

MAB101 Statistical Data Analysis 1

NRB270 Animal and Plant Structure and Function

#### Year 2, Semester 1

## SCIENCE

NRB230 Planet Earth  
PCB101 Physical Science

### Year 2, Semester 2

NRB240 History of Life on Earth  
PCB142 Chemistry 1

### Year 3, Semester 1

NRB301 Earth Surface Systems  
NRB311 Population Ecology

### Year 3, Semester 2

NRB412 Experimental Design  
NRB440 Environmental Chemistry

### Year 4, Semester 1

NRB500 Environmental Systems and Modelling  
NRB601 Field Mapping and Monitoring of Natural Resources

### Year 4, Semester 2

NRB501 Spatial Analysis of Environmental Systems  
NRB600 Sustainable Environmental Management

### Course structure - Major in Forensic Science

#### Year 1, Semester 1

LSB118 Life Science  
Either  
PCB140 Introductory Chemistry  
Or  
PCB142 Chemistry 1

#### Year 1, Semester 2

MAB101 Statistical Data Analysis 1  
PCB242 Chemistry 2

#### Year 2, Semester 1

MAB100 Mathematical Sciences 1A  
PCB101 Physical Science

#### Year 2, Semester 2

LSB238 Cell and Molecular Biology 1  
LSB258 Principles of Human Physiology

#### Year 3, Semester 1

LSB468 Molecular Biology  
SCB384 Forensic Science

#### Year 3, Semester 2

JSB979 Forensic Scientific Evidence  
PCB414 Industrial and Environmental Analytical Chemistry

#### Year 4, Semester 1

PCB514 Instrumental Analysis  
PCB584 Forensic Examination of Physical Evidence

#### Year 4, Semester 2

LSB684 Forensic DNA Profiling  
PCB684 Forensic Analysis and Toxicology

### Course structure - Major in Geoscience

#### Year 1, Semester 1

NRB100 Environmental Science  
NRB230 Planet Earth

#### Year 1, Semester 2

MAB101 Statistical Data Analysis 1  
PCB142 Chemistry 1

#### Year 2, Semester 1

MAB100 Mathematical Sciences 1A  
PCB101 Physical Science

#### Year 2, Semester 2

LSB118 Life Science  
NRB240 History of Life on Earth

#### Year 3, Semester 1

NRB301 Earth Surface Systems  
NRB333 Mineralogy

#### Year 3, Semester 2

NRB434 Structural Geology  
NRB436 Introduction to Igneous and Metamorphic Petrology

#### Year 4, Semester 1

Two units selected from:

NRB534 Geophysics  
NRB536 Petrology and Geochemistry  
NRB601 Field Mapping and Monitoring of Natural Resources

#### Year 4, Semester 2

Two units selected from:

NRB633 Hydrogeology  
NRB635 Plate Tectonics and Advanced Structural Geology  
NRB636 Petroleum Geology and Basin Analysis

### Course structure - Major in Mathematics (WITH Mathematics C from Senior)

#### Year 1, Semester 1

MAB101 Statistical Data Analysis 1

MAB111 Mathematical Sciences 1B

**Year 1, Semester 2**

MAB112 Mathematical Sciences 1C

MAB210 Statistical Modelling 1

**Year 2, Semester 1**

MAB220 Computational Mathematics 1

One Science unit - selected from:

LSB118 Life Science

NRB100 Environmental Science

PCB101 Physical Science

**Year 2, Semester 2**

Science elective unit

One Science unit - selected from:

LSB118 Life Science

PCB101 Physical Science

**Year 3, Semester 1**

Two Level 2 Mathematics units\* - available units are:

MAB311 Advanced Calculus

MAB312 Linear Algebra

MAB313 Mathematics of Finance

MAB314 Statistical Modelling 2

\* Students must complete at least one of MAB311, MAB312, MAB413

**Year 3, Semester 2**

Two Level 2 Mathematics units\* - available units are:

MAB315 Operations Research 2

MAB413 Differential Equations

MAB414 Applied Statistics 2

MAB420 Computational Mathematics 2

MAB422 Mathematical Modelling

MAB480 Introduction to Scientific Computation

\* Students must complete at least one of MAB311, MAB312, MAB413

**Year 4, Semester 1**

Two Level 3 Mathematics units - available units are:

MAB521 Applied Mathematics 3

MAB522 Computational Mathematics 3

MAB523 Introduction to Quality Management

MAB525 Operations Research 3A

MAB526 Statistical Science 3

MAB672 Advanced Mathematical Modelling

**Year 4, Semester 2**

Two Level 3 Mathematics units - available units

are

MAB524 Statistical Inference

MAB613 Partial Differential Equations

MAB621 Discrete Mathematics

MAB623 Financial Mathematics

MAB624 Applied Statistics 3

MAB625 Operations Research 3B

**Course structure - Major in Mathematics (WITHOUT Mathematics C from Senior)**

**Year 1, Semester 1**

MAB100 Mathematical Sciences 1A

MAB101 Statistical Data Analysis 1

**Year 1, Semester 2**

MAB111 Mathematical Sciences 1B

MAB112 Mathematical Sciences 1C

**Year 2, Semester 1**

MAB220 Computational Mathematics 1

One Science unit - selected from:

LSB118 Life Science

NRB100 Environmental Science

PCB101 Physical Science

**Year 2, Semester 2**

MAB210 Statistical Modelling 1

One Science unit - selected from:

LSB118 Life Science

PCB101 Physical Science

**Year 3, Semester 1**

Two Level 2 Mathematics units\* - available units are:

MAB311 Advanced Calculus

MAB312 Linear Algebra

MAB313 Mathematics of Finance

MAB314 Statistical Modelling 2

\* Students must complete at least one of MAB311, MAB312, MAB413

**Year 3, Semester 2**

Two Level 2 Mathematics units\* - available units are:

MAB315 Operations Research 2

MAB413 Differential Equations

MAB414 Applied Statistics 2

MAB420 Computational Mathematics 2

MAB422 Mathematical Modelling

MAB480 Introduction to Scientific Computation

\* Students must complete at least one of MAB311, MAB312, MAB413

**Year 4, Semester 1**

Two Level 3 Mathematics units - available units are:

- MAB521 Applied Mathematics 3
- MAB522 Computational Mathematics 3
- MAB523 Introduction to Quality Management
- MAB525 Operations Research 3A
- MAB526 Statistical Science 3
- MAB672 Advanced Mathematical Modelling

**Year 4, Semester 2**

Two Level 3 Mathematics units - available units are:

- MAB524 Statistical Inference
- MAB613 Partial Differential Equations
- MAB621 Discrete Mathematics
- MAB623 Financial Mathematics
- MAB624 Applied Statistics 3
- MAB625 Operations Research 3B

**Course structure - Major in Microbiology**

**Year 1, Semester 1**

- LSB118 Life Science  
Either
- PCB140 Introductory Chemistry  
Or
- PCB142 Chemistry 1

**Year 1, Semester 2**

- LSB238 Cell and Molecular Biology 1
- PCB242 Chemistry 2

**Year 2, Semester 1**

- MAB101 Statistical Data Analysis 1
- PCB101 Physical Science

**Year 2, Semester 2**

- LSB258 Principles of Human Physiology
- NRB270 Animal and Plant Structure and Function

**Year 3, Semester 1**

- LSB308 Biochemistry
- LSB328 Microbiology 1

**Year 3, Semester 2**

- LSB428 Microbiology 2
- LSB468 Molecular Biology

**Year 4, Semester 1**

Two units selected from:

- LSB528 Environmental Microbiology

- LSB547 Bacterial Pathogenesis and Disease Diagnosis
- LSB568 Electron Microscopy
- LSB578 Virology

**Year 4, Semester 2**

Two units selected from:

- LSB628 Food Microbiology
- LSB647 Clinical Mycology and Parasitology
- LSB648 Molecular Microbiology

**Course structure - Major in Physics**

**Year 1, Semester 1**

- MAB111 Mathematical Sciences 1B
- PCB101 Physical Science

**Year 1, Semester 2**

- MAB112 Mathematical Sciences 1C
- SCB222 Exploration of the Universe

**Year 2, Semester 1**

- MAB311 Advanced Calculus
- PCB107 Physics and Quantitative Techniques

**Year 2, Semester 2**

- PCB250 Physics 1
- PCB260 Physics 1A

**Year 3, Semester 1**

- PCB361 AC Theory and Electronics
- PCB362 Physics 2

**Year 3, Semester 2**

- PCB460 Instrumentation and Computational Methods
- PCB462 Thermodynamics and Solid State Physics

**Year 4, Semester 1**

- PCB561 Quantum and Condensed Matter Physics
- PCB562 Physical Methods of Analysis

**Year 4, Semester 2**

- PCB661 Experimental Physics
- PCB665 Physics 3

**Potential Careers:**

Academic, Actuary, Administrator, Analytical Chemist, Astrophysicist, Biochemist, Biologist, Biotechnologist, Chemist, Chemist Industrial, Coastal Scientist, Conservation Biologist, Corporate Secretary, Database Manager, Ecologist, Environmental Health Officer, Environmental Scientist, Forensic Scientist, Geologist, Geophysicist, Geoscientist, Government Officer, Health Physicist, Higher Education Worker, Hydrogeologist, Immunologist, Industrial Chemist, Information Officer, Laboratory Technician (Chemistry), Manager, Mapping Scientist/Photogrammetrist,

Marine Scientist, Mathematician, Medical Biotechnologist, Medical Physicist, Microbiologist, Molecular Biologist, Natural Resource Scientist, Network Administrator, Network Manager, Physicist, Plant Biotechnologist, Policy Officer, Population Ecologist, Programmer, Project Developer, Project Manager, Public Servant, Quantitative Analyst, Statistician, Virologist.

## Bachelor of Applied Science/Bachelor of Education (Secondary) (IX02)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** 020322E

**Course duration (full-time):** 4 years

**Domestic fees (per credit point):** Commonwealth Supported Place; Full fee tuition 2007: \$210 per credit point (*subject to annual review*)

**Domestic fees (indicative):** 2007: Full fee tuition \$20,160; CSP \$7,114

**International Fees (per semester):** 2007:\$9,000 per semester (*subject to annual review*)

**Domestic Entry:** February

**International Entry:** February

**QTAC code:** 409112; Dfee: 409116

**Past rank cut-off:** 72; Dfee: 68

**Past OP cut-off:** 13; Dfee: 15

**OP Guarantee:** Yes

**Assumed knowledge:** English (4, SA) and Maths B (4, SA)

**Preparatory studies:** MATHS: QUT unit Preparatory Mathematics as a visiting student or QUT Continuing Professional Education course Mathematics Bridging. ENGLISH: Successful completion of a year of full-time vocational or tertiary study. For further information contact 07 3138 2000 or email [study@qut.com](mailto:study@qut.com)

**Total credit points:** 432

**Standard credit points per full-time semester:** 48 (semesters 1, 6-8), 60 (semesters 2-5)

**Course coordinator:** Dr Megan Hargreaves (Science); Dr Mal Shield (Secondary)

**Campus:** Gardens Point and Kelvin Grove

### Career Opportunities

The Bachelor of Applied Science allows multidisciplinary programs of study that not only help you position yourself within the broad range of science disciplines but also qualifies you as a competent professional in your chosen field. You are equipped to work as a science professional or undertake research after graduation if you desire.

The Bachelor of Education (Secondary) prepares you to teach in two curriculum areas in secondary school. The science majors that are most relevant to students intending to follow a career in secondary school teaching are Chemistry, Ecology, Geoscience, Mathematics or Physics.

### Recommended Study

At least one of the sciences. For the majors in biochemistry, biotechnology and microbiology - Biological Science and Chemistry are recommended; for the major in physics - Maths C is recommended.

### Course Design

See the Bachelor of Applied Science course information for details of major areas of study. To allow you to complete the double degree in a shorter period of time, co-majors are to be taken from the education technology program.

### Professional Recognition

Graduates are eligible for registration as teachers in Queensland through the Queensland College of Teachers. Graduates looking for employment in other parts of Australia and overseas may be required to meet additional conditions.

Graduates will satisfy the requirements for membership of the relevant professional body for their chosen science major. See the Bachelor of Applied Science (SC01) course for details.

### Working With Children Check

Working With Children Check - As required by the Commission for Children and Young People and Child Guardian Act (2000), student teachers must undergo a criminal history check and be issued with a Suitability Card (Blue Card) by the Commission.

As soon as you enter your enrolment program for the course, you must submit your Blue Card application to the QUT Student Centre immediately. You must hold a Blue Card. to undertake activities in any unit which involves contact with children, including the required field studies blocks.

If you do not apply for a Blue Card. immediately upon enrolment in the course and allow sufficient time for the police check and issuing of the Card, you will be unable to participate in the required activities and may need to be withdrawn from the unit(s) and incur both financial and academic penalty. It may take up to 12 weeks for the Commission to issue the Card. The application form is available at [bluecard.qut.com](http://bluecard.qut.com).

### Contact Details

#### Science Coordinator

Dr Megan Hargreaves

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#### Education Coordinator

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### Deferment

QUT allows current Year 12 school leavers to defer their undergraduate admission offer for one year, or for six months if offered mid-year admission, except in courses using specific admission requirements such as questionnaires, portfolios, auditions, prior study or work experience.

Non-year 12 students may also request to defer their QTAC offer on the basis of demonstrated special circumstances.

Find out more on deferment.

**Computing Requirement**

The increased and more creative use of online teaching technology in this degree requires that you have access to suitable computer facilities with a minimum equivalent of a Pentium 3 processor, 56k modem and internet access.

**Course structure - Major in Biochemistry**

**Year 1, Semester 1**

- LSB118 Life Science
- NRB100 Environmental Science
- PCB101 Physical Science  
Either
- PCB140 Introductory Chemistry  
Or
- PCB142 Chemistry 1

**Year 1, Semester 2**

- LSB238 Cell and Molecular Biology 1
- MAB101 Statistical Data Analysis 1
- NRB270 Animal and Plant Structure and Function
- PCB242 Chemistry 2
- SCB222 Exploration of the Universe

**Year 2, Semester 1**

- EDB002 Teaching and Learning Studies 2: Development and Learning
- EDB031 Secondary Field Studies 1: Development and Learning in the Field
- LSB308 Biochemistry
- LSB338 Cell and Molecular Biology 2  
Curriculum Studies 1X

**Year 2, Semester 2**

- MDB454 Science, Technology and Society
- LSB408 Metabolism
- LSB468 Molecular Biology
- LSB605 Protein Engineering and Bioprocessing
- LSB608 Protein Science

**Year 3, Semester 1**

- LSB508 Advanced Metabolism
- LSB527 Biomedical Research Technologies
- NRB230 Planet Earth  
Either
- LSB568 Electron Microscopy  
Or
- LSB537 Genetic Engineering  
Curriculum Studies 1Y

**Year 3, Semester 2**

- EDB003 Teaching and Learning Studies 3: Practising Education
- EDB032 Secondary Field Studies 2: Practising Education in the Field  
Curriculum Studies 2X  
Curriculum Studies 2Y

**Year 4, Semester 1**

- EDB004 Teaching and Learning Studies 4: Inclusive Education
- EDB033 Secondary Field Studies 3: Inclusive Educational Practices  
Curriculum Studies 3X  
Curriculum Studies 3Y

**Year 4, Semester 2**

- EDB005 Teaching and Learning Studies 5: Professional Work of Teachers
- EDB034 Secondary Field Studies 4: Professional Work of Teachers - Induction into the Field
- EDB035 Internship (Secondary)
- EDB007 Culture Studies: Indigenous Education

**Course structure - Major in Biotechnology**

**Year 1, Semester 1**

- LSB118 Life Science
- NRB100 Environmental Science
- PCB101 Physical Science  
Either
- PCB140 Introductory Chemistry  
Or
- PCB142 Chemistry 1

**Year 1, Semester 2**

- LSB238 Cell and Molecular Biology 1
- MAB101 Statistical Data Analysis 1
- NRB270 Animal and Plant Structure and Function
- PCB242 Chemistry 2
- SCB222 Exploration of the Universe

**Year 2, Semester 1**

- EDB002 Teaching and Learning Studies 2: Development and Learning
- EDB031 Secondary Field Studies 1: Development and Learning in the Field
- LSB308 Biochemistry
- LSB338 Cell and Molecular Biology 2  
Curriculum Studies 1X

**Year 2, Semester 2**

- LSB468 Molecular Biology
- LSB469 Introduction to Genomics and Bioinformatics
- LSB605 Protein Engineering and Bioprocessing

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MDB454 Science, Technology and Society  
 NRB240 History of Life on Earth

### Year 3, Semester 1

LSB527 Biomedical Research Technologies  
 LSB537 Genetic Engineering  
 LSB568 Electron Microscopy  
 Either  
 LSB509 Medical Biotechnology 1  
 Or  
 LSB577 Plant Biotechnology 1  
 Curriculum Studies 1Y

### Year 3, Semester 2

EDB003 Teaching and Learning Studies 3: Practising Education  
 EDB032 Secondary Field Studies 2: Practising Education in the Field  
 Curriculum Studies 2X  
 Curriculum Studies 2Y

### Year 4, Semester 1

EDB004 Teaching and Learning Studies 4: Inclusive Education  
 EDB033 Secondary Field Studies 3: Inclusive Educational Practices  
 Curriculum Studies 3X  
 Curriculum Studies 3Y

### Year 4, Semester 2

EDB005 Teaching and Learning Studies 5: Professional Work of Teachers  
 EDB034 Secondary Field Studies 4: Professional Work of Teachers - Induction into the Field  
 EDB035 Internship (Secondary)  
 EDB007 Culture Studies: Indigenous Education

### Course structure - Major in Chemistry

#### Year 1, Semester 1

MAB101 Statistical Data Analysis 1  
 NRB100 Environmental Science  
 PCB101 Physical Science  
 PCB142 Chemistry 1

#### Year 1, Semester 2

LSB118 Life Science  
 MAB100 Mathematical Sciences 1A  
 PCB150 Physics 1H  
 PCB242 Chemistry 2  
 SCB222 Exploration of the Universe

#### Year 2, Semester 1

EDB002 Teaching and Learning Studies 2: Development and Learning  
 EDB031 Secondary Field Studies 1: Development and Learning in the Field  
 PCB334 Inorganic Chemistry  
 PCB354 Structure and Mechanism in Organic Chemistry  
 Curriculum Studies IX

#### Year 2, Semester 2

MDB454 Science, Technology and Society  
 PCB405 Principles of Physical Chemistry  
 PCB414 Industrial and Environmental Analytical Chemistry  
 PCB444 Spectroscopy  
 PCB634 Organometallic and Coordination Chemistry

#### Year 3, Semester 1

NRB230 Planet Earth  
 PCB505 Advanced Physical Chemistry  
 PCB554 Synthesis and Reactivity in Organic Chemistry  
 One of  
 PCB514 Instrumental Analysis  
 PCB584 Forensic Examination of Physical Evidence  
 PCB604 Project  
 Curriculum Studies 1Y

#### Year 3, Semester 2

EDB003 Teaching and Learning Studies 3: Practising Education  
 EDB032 Secondary Field Studies 2: Practising Education in the Field  
 Curriculum Studies 2X  
 Curriculum Studies 2Y

#### Year 4, Semester 1

EDB004 Teaching and Learning Studies 4: Inclusive Education  
 EDB033 Secondary Field Studies 3: Inclusive Educational Practices  
 Curriculum Studies 3X  
 Curriculum Studies 3Y

#### Year 4, Semester 2

EDB005 Teaching and Learning Studies 5: Professional Work of Teachers  
 EDB034 Secondary Field Studies 4: Professional Work of Teachers - Induction into the Field  
 EDB035 Internship (Secondary)  
 EDB007 Culture Studies: Indigenous Education

### Course structure - Major in Ecology

#### Year 1, Semester 1



## SCIENCE

LSB118	Life Science	Work of Teachers
NRB100	Environmental Science	EDB034 Secondary Field Studies 4: Professional Work of Teachers - Induction into the Field
NRB230	Planet Earth	EDB035 Internship (Secondary)
PCB101	Physical Science	EDB007 Culture Studies: Indigenous Education
<b>Year 1, Semester 2</b>		
MAB101	Statistical Data Analysis 1	
NRB240	History of Life on Earth	
NRB270	Animal and Plant Structure and Function	
NRB410	Genetics and Evolution	
SCB222	Exploration of the Universe	
<b>Year 2, Semester 1</b>		
EDB002	Teaching and Learning Studies 2: Development and Learning	
EDB031	Secondary Field Studies 1: Development and Learning in the Field	
NRB301	Earth Surface Systems	
NRB311	Population Ecology	
	Curriculum Studies 1X	
<b>Year 2, Semester 2</b>		
MDB454	Science, Technology and Society	
NRB412	Experimental Design	
NRB470	Vertebrate Biology	
NRB611	Conservation Biology	
NRB672	Marine and Freshwater Ecosystems	
<b>Year 3, Semester 1</b>		
NRB510	Population Genetics	
NRB511	Population Management	
NRB572	Terrestrial Ecosystems	
	Science elective	
	Curriculum Studies 1Y	
<b>Year 3, Semester 2</b>		
EDB003	Teaching and Learning Studies 3: Practising Education	
EDB032	Secondary Field Studies 2: Practising Education in the Field	
	Curriculum Studies 2X	
	Curriculum Studies 2Y	
<b>Year 4, Semester 1</b>		
EDB004	Teaching and Learning Studies 4: Inclusive Education	
EDB033	Secondary Field Studies 3: Inclusive Educational Practices	
	Curriculum Studies 3X	
	Curriculum Studies 3Y	
<b>Year 4, Semester 2</b>		
EDB005	Teaching and Learning Studies 5: Professional	
<b>Course structure - Major in Environmental Science</b>		
<b>Year 1, Semester 1</b>		
LSB118	Life Science	
NRB100	Environmental Science	
NRB230	Planet Earth	
PCB101	Physical Science	
<b>Year 1, Semester 2</b>		
MAB101	Statistical Data Analysis 1	
NRB240	History of Life on Earth	
NRB270	Animal and Plant Structure and Function	
SCB222	Exploration of the Universe	
	Either	
PCB140	Introductory Chemistry	
	Or	
PCB142	Chemistry 1	
<b>Year 2, Semester 1</b>		
EDB002	Teaching and Learning Studies 2: Development and Learning	
EDB031	Secondary Field Studies 1: Development and Learning in the Field	
NRB301	Earth Surface Systems	
NRB311	Population Ecology	
	Curriculum Studies 1X	
<b>Year 2, Semester 2</b>		
MDB454	Science, Technology and Society	
NRB412	Experimental Design	
NRB440	Environmental Chemistry	
NRB501	Spatial Analysis of Environmental Systems	
NRB600	Sustainable Environmental Management	
<b>Year 3, Semester 1</b>		
NRB500	Environmental Systems and Modelling	
NRB601	Field Mapping and Monitoring of Natural Resources	
	Two Science electives	
	Curriculum Studies 1Y	
<b>Year 3, Semester 2</b>		
EDB003	Teaching and Learning Studies 3: Practising Education	
EDB032	Secondary Field Studies 2: Practising Education in the Field	
	Curriculum Studies 2X	

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### Curriculum Studies 2Y

### NRB440 Environmental Chemistry

#### Year 4, Semester 1

EDB004	Teaching and Learning Studies 4: Inclusive Education
EDB033	Secondary Field Studies 3: Inclusive Educational Practices
	Curriculum Studies 3X
	Curriculum Studies 3Y

#### Year 3, Semester 1

NRB301	Earth Surface Systems
NRB534	Geophysics
NRB536	Petrology and Geochemistry
NRB601	Field Mapping and Monitoring of Natural Resources
	Curriculum Studies 1Y

#### Year 4, Semester 2

EDB005	Teaching and Learning Studies 5: Professional Work of Teachers
EDB034	Secondary Field Studies 4: Professional Work of Teachers - Induction into the Field
EDB035	Internship (Secondary)
EDB007	Culture Studies: Indigenous Education

#### Year 3, Semester 2

EDB003	Teaching and Learning Studies 3: Practising Education
EDB032	Secondary Field Studies 2: Practising Education in the Field
	Curriculum Studies 2X
	Curriculum Studies 2Y

### Course structure - Major in Geoscience

#### Year 1, Semester 1

MAB100	Mathematical Sciences 1A
NRB100	Environmental Science
NRB230	Planet Earth
PCB101	Physical Science

#### Year 4, Semester 1

EDB004	Teaching and Learning Studies 4: Inclusive Education
EDB033	Secondary Field Studies 3: Inclusive Educational Practices
	Curriculum Studies 3X
	Curriculum Studies 3Y

#### Year 1, Semester 2

LSB118	Life Science
MAB101	Statistical Data Analysis 1
NRB240	History of Life on Earth
SCB222	Exploration of the Universe
	Either
PCB140	Introductory Chemistry
	Or
PCB142	Chemistry 1

#### Year 4, Semester 2

EDB005	Teaching and Learning Studies 5: Professional Work of Teachers
EDB034	Secondary Field Studies 4: Professional Work of Teachers - Induction into the Field
EDB035	Internship (Secondary)
EDB007	Culture Studies: Indigenous Education

### Course structure - Major in Mathematics (WITH Maths C)

#### Year 2, Semester 1

EDB002	Teaching and Learning Studies 2: Development and Learning
EDB031	Secondary Field Studies 1: Development and Learning in the Field
NRB331	Sedimentary Geology
NRB333	Mineralogy
	Curriculum Studies 1X

#### Year 1, Semester 1

MAB101	Statistical Data Analysis 1
MAB111	Mathematical Sciences 1B
MAB112	Mathematical Sciences 1C
PCB101	Physical Science

#### Year 2, Semester 2

MDB454	Science, Technology and Society
NRB434	Structural Geology
NRB436	Introduction to Igneous and Metamorphic Petrology
NRB633	Hydrogeology
	One unit from:
NRB437	Stratigraphy and Depositional Environments

#### Year 1, Semester 2

LSB118	Life Science
MAB210	Statistical Modelling 1
MAB220	Computational Mathematics 1
PCB142	Chemistry 1
SCB222	Exploration of the Universe

#### Year 2, Semester 1

EDB002	Teaching and Learning Studies 2: Development and Learning
EDB031	Secondary Field Studies 1: Development and Learning in the Field

Two Level 2 Mathematics units \* - available units are:

- MAB311 Advanced Calculus
  - MAB312 Linear Algebra
  - MAB313 Mathematics of Finance
  - MAB314 Statistical Modelling 2
- Curriculum Studies 1X

NOTE: Students must complete at least one of MAB311, MAB312, MAB413

**Year 2, Semester 2**

- MDB454 Science, Technology and Society
- Two Level 2 Mathematics units \* - available units are:
- MAB315 Operations Research 2
  - MAB413 Differential Equations
  - MAB414 Applied Statistics 2
  - MAB420 Computational Mathematics 2
  - MAB422 Mathematical Modelling
  - MAB480 Introduction to Scientific Computation
- Two Level 3 Mathematics units - available units are:
- MAB621 Discrete Mathematics
  - MAB623 Financial Mathematics
- NOTE: Students must complete at least one of MAB311, MAB312, MAB413

**Year 3, Semester 1**

- PCB107 Physics and Quantitative Techniques
- Three Level 3 Mathematics units - available units are:
- MAB521 Applied Mathematics 3
  - MAB522 Computational Mathematics 3
  - MAB523 Introduction to Quality Management
  - MAB525 Operations Research 3A
  - MAB526 Statistical Science 3
  - MAB672 Advanced Mathematical Modelling
- Curriculum Studies 1Y

**Year 3, Semester 2**

- EDB003 Teaching and Learning Studies 3: Practising Education
  - EDB032 Secondary Field Studies 2: Practising Education in the Field
- Curriculum Studies 2X
- Curriculum Studies 2Y

**Year 4, Semester 1**

- EDB004 Teaching and Learning Studies 4: Inclusive Education
  - EDB033 Secondary Field Studies 3: Inclusive Educational Practices
- Curriculum Studies 3X

Curriculum Studies 3Y

**Year 4, Semester 2**

- EDB005 Teaching and Learning Studies 5: Professional Work of Teachers
- EDB034 Secondary Field Studies 4: Professional Work of Teachers - Induction into the Field
- EDB035 Internship (Secondary)
- EDB007 Culture Studies: Indigenous Education

**Course structure - Major in Mathematics (WITHOUT Maths C)**

**Year 1, Semester 1**

- MAB100 Mathematical Sciences 1A
  - MAB101 Statistical Data Analysis 1
  - PCB101 Physical Science
- Either
- PCB140 Introductory Chemistry
- Or
- PCB142 Chemistry 1

**Year 1, Semester 2**

- LSB118 Life Science
- MAB111 Mathematical Sciences 1B
- MAB112 Mathematical Sciences 1C
- MAB210 Statistical Modelling 1
- SCB222 Exploration of the Universe

**Year 2, Semester 1**

- EDB002 Teaching and Learning Studies 2: Development and Learning
  - EDB031 Secondary Field Studies 1: Development and Learning in the Field
- Two Level 2 Mathematics units\* - available units are:
- MAB311 Advanced Calculus
  - MAB312 Linear Algebra
  - MAB313 Mathematics of Finance
  - MAB314 Statistical Modelling 2
- Curriculum Studies 1X

**Year 2, Semester 2**

- MDB454 Science, Technology and Society
- Two Level 2 Mathematics Units\* - available units are:
- MAB315 Operations Research 2
  - MAB413 Differential Equations
  - MAB414 Applied Statistics 2
  - MAB420 Computational Mathematics 2
  - MAB422 Mathematical Modelling
  - MAB480 Introduction to Scientific Computation
- Two Level 3 Mathematics units - available units

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are:  
 MAB621 Discrete Mathematics  
 MAB623 Financial Mathematics  
 NOTE: Students must complete at least one of  
 MAB311, MAB312, MAB413

LSB238 Cell and Molecular Biology 1  
 MAB101 Statistical Data Analysis 1  
 NRB270 Animal and Plant Structure and Function  
 PCB242 Chemistry 2  
 SCB222 Exploration of the Universe

### Year 3, Semester 1

PCB107 Physics and Quantitative Techniques  
 Three Level 3 Mathematics units - available  
 units are:  
 MAB521 Applied Mathematics 3  
 MAB522 Computational Mathematics 3  
 MAB523 Introduction to Quality Management  
 MAB525 Operations Research 3A  
 MAB526 Statistical Science 3  
 MAB672 Advanced Mathematical Modelling  
 Curriculum Studies 1Y

### Year 3, Semester 2

EDB003 Teaching and Learning Studies 3: Practising  
 Education  
 EDB032 Secondary Field Studies 2: Practising  
 Education in the Field  
 Curriculum Studies 2X  
 Curriculum Studies 2Y

### Year 4, Semester 1

EDB004 Teaching and Learning Studies 4: Inclusive  
 Education  
 EDB033 Secondary Field Studies 3: Inclusive  
 Educational Practices  
 Curriculum Studies 3X  
 Curriculum Studies 3Y

### Year 4, Semester 2

EDB005 Teaching and Learning Studies 5: Professional  
 Work of Teachers  
 EDB034 Secondary Field Studies 4: Professional Work  
 of Teachers - Induction into the Field  
 EDB035 Internship (Secondary)  
 EDB007 Culture Studies: Indigenous Education

### Course structure - Major in Microbiology

#### Year 1, Semester 1

LSB118 Life Science  
 NRB100 Environmental Science  
 PCB101 Physical Science  
 Either  
 PCB140 Introductory Chemistry  
 Or  
 PCB142 Chemistry 1

#### Year 1, Semester 2

### Year 2, Semester 1

EDB002 Teaching and Learning Studies 2:  
 Development and Learning  
 EDB031 Secondary Field Studies 1: Development and  
 Learning in the Field  
 LSB308 Biochemistry  
 LSB328 Microbiology 1  
 Curriculum Studies 1X

### Year 2, Semester 2

LSB428 Microbiology 2  
 LSB468 Molecular Biology  
 MDB454 Science, Technology and Society  
 NRB240 History of Life on Earth  
 Science elective

### Year 3, Semester 1

LSB528 Environmental Microbiology  
 LSB547 Bacterial Pathogenesis and Disease Diagnosis  
 LSB568 Electron Microscopy  
 LSB578 Virology  
 Curriculum Studies 1Y

### Year 3, Semester 2

EDB003 Teaching and Learning Studies 3: Practising  
 Education  
 EDB032 Secondary Field Studies 2: Practising  
 Education in the Field  
 Curriculum Studies 2X  
 Curriculum Studies 2Y

### Year 4, Semester 1

EDB004 Teaching and Learning Studies 4: Inclusive  
 Education  
 EDB033 Secondary Field Studies 3: Inclusive  
 Educational Practices  
 Curriculum Studies 3X  
 Curriculum Studies 3Y

### Year 4, Semester 2

EDB005 Teaching and Learning Studies 5: Professional  
 Work of Teachers  
 EDB034 Secondary Field Studies 4: Professional Work  
 of Teachers - Induction into the Field  
 EDB035 Internship (Secondary)  
 EDB007 Culture Studies: Indigenous Education

### Course structure - Major in Physics

**Year 1, Semester 1**

MAB111	Mathematical Sciences 1B
PCB101	Physical Science
PCB107	Physics and Quantitative Techniques Either
NRB100	Environmental Science Or
ITB001	Problem Solving and Programming

**Year 1, Semester 2**

MAB112	Mathematical Sciences 1C
MDB454	Science, Technology and Society
PCB250	Physics 1
PCB260	Physics 1A
SCB222	Exploration of the Universe

**Year 2, Semester 1**

EDB002	Teaching and Learning Studies 2: Development and Learning
EDB031	Secondary Field Studies 1: Development and Learning in the Field
MAB311	null
PCB361	AC Theory and Electronics Curriculum Studies 1X

**Year 2, Semester 2**

LSB118	Life Science
PCB445	Nanotechnology and Nanoscience
PCB460	Instrumentation and Computational Methods
PCB462	Thermodynamics and Solid State Physics
PCB469	Astrophysics 1

**Year 3, Semester 1**

PCB561	Quantum and Condensed Matter Physics
PCB562	Physical Methods of Analysis
PCB563	Global Energy Balance and Climate Change
PCB661	Experimental Physics Curriculum Studies 1Y

**Year 3, Semester 2**

EDB003	Teaching and Learning Studies 3: Practising Education
EDB032	Secondary Field Studies 2: Practising Education in the Field Curriculum Studies 2X Curriculum Studies 2Y

**Year 4, Semester 1**

EDB004	Teaching and Learning Studies 4: Inclusive Education
EDB033	Secondary Field Studies 3: Inclusive Educational Practices

Curriculum Studies 3X  
Curriculum Studies 3Y

**Year 4, Semester 2**

EDB005	Teaching and Learning Studies 5: Professional Work of Teachers
EDB034	Secondary Field Studies 4: Professional Work of Teachers - Induction into the Field
EDB035	Internship (Secondary)
EDB007	Culture Studies: Indigenous Education

**Science Component**

**Major in Physics (with Mathematics Studies)**

Replace one science unit (not Physics units) with MAB101 Statistical Data Analysis 1.

Optional - replace up to two other science units (not Physics units) with mathematics units from MAB210, MAB220 or Level 2 or Level 3 units.

**Mathematics Studies for Majors other than Mathematics or Physics**

The following four mathematics units should be included:

MAB100	Mathematical Sciences 1A
MAB101	Statistical Data Analysis 1
MAB111	Mathematical Sciences 1B
MAB112	Mathematical Sciences 1C

Up to two other mathematical units may also be selected.

**List 1: Curriculum Studies 1X & 1Y**

Prerequisite: Normally minimum of 24 credit points of relevant discipline. Students undertaking a double Science major will undertake an education elective in addition to MDB031

MDB021	Mathematics Curriculum Studies 1
MDB031	Science Education Curriculum Studies 1

**List 2: Curriculum Studies 2X & 2Y**

Prerequisites: Curriculum Studies 1X & 1Y

MDB010	Biology Curriculum Studies 2
MDB013	Chemistry Curriculum Studies 2
MDB019	Earth Science Curriculum Studies 2
MDB022	Mathematics Curriculum Studies 2
MDB025	Physics Curriculum Studies 2
MDB028	Science Curriculum Studies 2

**List 3: Curriculum Studies 3X & 3Y**

Prerequisite: Curriculum Studies 2X and 2Y. Students undertaking a double Science major will undertake an education elective in addition

to MDB033.

MDB023 Mathematics Curriculum Studies 3

MDB033 Science Education Curriculum Studies 3

**Potential Careers:**

Actuary, Analytical Chemist, Astrophysicist, Biochemist, Biologist, Biotechnologist, Chemist, Chemist Industrial, Coastal Scientist, Conservation Biologist, Database Manager, Ecologist, Environmental Scientist, Forensic Scientist, Geologist, Geophysicist, Geoscientist, Health Physicist, Hydrogeologist, Immunologist, Industrial Chemist, Laboratory Technician (Chemistry), Marine Scientist, Mathematician, Medical Biotechnologist, Medical Physicist, Microbiologist, Natural Resource Scientist, Physicist, Plant Biotechnologist, Population Ecologist, Programmer, Quantitative Analyst, Statistician, Virologist.

## Bachelor of Applied Science/Bachelor of Education (Primary) (IX14)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** 037540M

**Course duration (full-time):** 4 years

**Domestic fees (per credit point):** Commonwealth Supported Place; Full fee tuition 2007: \$210 per credit point (*subject to annual review*)

**Domestic fees (indicative):** 2007: Full fee tuition \$20,160; CSP \$6,213

**International Fees (per semester):** 2007:\$9,000 per semester (*subject to annual review*)

**Domestic Entry:** February

**International Entry:** February

**QTAC code:** 409142; Dfee: 409146

**Past rank cut-off:** 72; Dfee: 70

**Past OP cut-off:** 13; Dfee: 14

**OP Guarantee:** Yes

**Assumed knowledge:** English (4, SA) and Maths B (4, SA)

**Preparatory studies:** MATHS: QUT unit Preparatory Mathematics as a visiting student or QUT Continuing Professional Education course Mathematics Bridging. ENGLISH: Successful completion of a year of full-time vocational or tertiary study. For further information contact 07 3138 2000 or email [study@qut.com](mailto:study@qut.com)

**Total credit points:** 384

**Standard credit points per full-time semester:** 48

**Course coordinator:** Dr Megan Hargreaves (Science); Dr Mary Ryan (Education)

**Campus:** Gardens Point and Kelvin Grove

### Career Opportunities

The Bachelor of Applied Science allows multidisciplinary programs of study that not only help you position yourself within the broad range of science disciplines but also qualifies you as a competent professional in your chosen field. You will be equipped to work as a science professional or undertake research after graduation if you desire.

The Bachelor of Education (Primary) prepares you to teach at all levels of primary school. Students may also complete a discipline/content studies major in one of the key learning areas of the Queensland school curriculum.

### Course Design

Graduates from this double degree will have a science degree with the same core support and choice of major study areas as the graduates from the Bachelor of Applied Science (SC01) program. Education studies will comprise the co-major component.

### Professional Recognition

Graduates are eligible for registration as teachers in Queensland through the Queensland College of Teachers. Graduates looking for employment in other parts of Australia and overseas may be required to meet additional conditions.

Graduates will satisfy the requirements for membership of the relevant professional body for their chosen science

major. See the Bachelor of Applied Science course for details.

### Working With Children Check

Working With Children Check - As required by the Commission for Children and Young People and Child Guardian Act (2000), student teachers must undergo a criminal history check and be issued with a Suitability Card (Blue Card) by the Commission.

As soon as you enter your enrolment program for the course, you must submit your Blue Card application to the QUT Student Centre immediately. You must hold a Blue Card. to undertake activities in any unit which involves contact with children, including the required field studies blocks.

If you do not apply for a Blue Card. immediately upon enrolment in the course and allow sufficient time for the police check and issuing of the Card, you will be unable to participate in the required activities and may need to be withdrawn from the unit(s) and incur both financial and academic penalty. It may take up to 12 weeks for the Commission to issue the Card. The application form is available at [bluecard.qut.com](http://bluecard.qut.com).

### Contact Details

#### Science Coordinator

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### Deferment

QUT allows current Year 12 school leavers to defer their undergraduate admission offer for one year, or for six months if offered mid-year admission, except in courses using specific admission requirements such as questionnaires, portfolios, auditions, prior study or work experience.

Non-year 12 students may also request to defer their QTAC offer on the basis of demonstrated special circumstances.

Find out more on deferment.

### Computing Requirement

The increased and more creative use of online teaching technology in this degree requires that you have access to suitable computer facilities with a minimum equivalent of a Pentium 3 processor, 56k modem and internet access.

**Course structure - Major in Biochemistry**

**Year 1, Semester 1**

EDB002	Teaching and Learning Studies 2: Development and Learning
LSB118	Life Science
PCB101	Physical Science
	Either
PCB140	Introductory Chemistry
	Or
PCB142	Chemistry 1

**Year 1, Semester 2**

EDB021	Primary Field Studies 1: Development and Learning in the Field
LSB238	Cell and Molecular Biology 1
NRB270	Animal and Plant Structure and Function
PCB242	Chemistry 2

**Year 2, Semester 1**

LSB308	Biochemistry
LSB338	Cell and Molecular Biology 2
MAB101	Statistical Data Analysis 1
MDB120	Mathematics Curriculum and Pedagogies

**Year 2, Semester 2**

CLB008	Primary Curriculum and Pedagogies: Studies of Society and Environment
LSB408	Metabolism
LSB468	Molecular Biology
LSB608	Protein Science

**Year 3, Semester 1**

LSB508	Advanced Metabolism
LSB527	Biomedical Research Technologies
	Either
LSB537	Genetic Engineering
	Or
LSB568	Electron Microscopy
	One Science Elective

**Year 3, Semester 2**

EDB003	Teaching and Learning Studies 3: Practising Education
EDB022	Primary Field Studies 2: Practising Education in the Field (Primary)
HMB300	Primary Curriculum and Pedagogies: Health and Physical Education
CLP400	Middle Years: Multiliteracies

**Year 4, Semester 1**

EDB004	Teaching and Learning Studies 4: Inclusive
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	Education
EDB023	Primary Field Studies 3: Inclusive Educational Practices
KKB201	Primary Curriculum and Pedagogies: Music, Visual Arts and Media
	OR
KKB202	Primary Curriculum and Pedagogies: Dance and Drama
MDB006	Primary Curriculum and Pedagogies: Science

**Year 4, Semester 2**

EDB005	Teaching and Learning Studies 5: Professional Work of Teachers
EDB024	Primary Field Studies 4: Professional Work of Teachers - Induction into the Field
EDB025	Internship (Primary)
MDB004	Primary Curriculum and Pedagogies: Information and Communication Technologies

**Course structure - Major in Biotechnology**

**Year 1, Semester 1**

EDB002	Teaching and Learning Studies 2: Development and Learning
LSB118	Life Science
PCB101	Physical Science
	Either
PCB140	Introductory Chemistry
	Or
PCB142	Chemistry 1

**Year 1, Semester 2**

EDB021	Primary Field Studies 1: Development and Learning in the Field
LSB238	Cell and Molecular Biology 1
NRB270	Animal and Plant Structure and Function
PCB242	Chemistry 2

**Year 2, Semester 1**

LSB308	Biochemistry
LSB338	Cell and Molecular Biology 2
MAB101	Statistical Data Analysis 1
MDB120	Mathematics Curriculum and Pedagogies

**Year 2, Semester 2**

CLB008	Primary Curriculum and Pedagogies: Studies of Society and Environment
LSB468	Molecular Biology
LSB469	Introduction to Genomics and Bioinformatics
LSB497	Plant Molecular Biology

**Year 3, Semester 1**

LSB537	Genetic Engineering
	One Science Elective



## SCIENCE

	Two of
LSB509	Medical Biotechnology 1
LSB568	Electron Microscopy
LSB577	Plant Biotechnology 1

### Year 3, Semester 2

EDB003	Teaching and Learning Studies 3: Practising Education
EDB022	Primary Field Studies 2: Practising Education in the Field (Primary)
HMB300	Primary Curriculum and Pedagogies: Health and Physical Education
CLP400	Middle Years: Multiliteracies

### Year 4, Semester 1

EDB004	Teaching and Learning Studies 4: Inclusive Education
EDB023	Primary Field Studies 3: Inclusive Educational Practices
KKB201	Primary Curriculum and Pedagogies: Music, Visual Arts and Media
OR	null
KKB202	Primary Curriculum and Pedagogies: Dance and Drama
MDB006	Primary Curriculum and Pedagogies: Science

### Year 4, Semester 2

EDB005	Teaching and Learning Studies 5: Professional Work of Teachers
EDB024	Primary Field Studies 4: Professional Work of Teachers - Induction into the Field
EDB025	Internship (Primary)
MDB004	Primary Curriculum and Pedagogies: Information and Communication Technologies

### Course structure - Major in Chemistry

#### Year 1, Semester 1

EDB002	Teaching and Learning Studies 2: Development and Learning
MAB100	Mathematical Sciences 1A
PCB101	Physical Science
PCB142	Chemistry 1

#### Year 1, Semester 2

EDB021	Primary Field Studies 1: Development and Learning in the Field
MAB101	Statistical Data Analysis 1
PCB150	Physics 1H
PCB242	Chemistry 2

#### Year 2, Semester 1

MDB120	Mathematics Curriculum and Pedagogies
NRB100	Environmental Science
PCB334	Inorganic Chemistry

PCB354	Structure and Mechanism in Organic Chemistry
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### Year 2, Semester 2

CLB008	Primary Curriculum and Pedagogies: Studies of Society and Environment
PCB405	Principles of Physical Chemistry
PCB414	Industrial and Environmental Analytical Chemistry
PCB444	Spectroscopy
PCB634	Organometallic and Coordination Chemistry

### Year 3, Semester 1

PCB505	Advanced Physical Chemistry
PCB554	Synthesis and Reactivity in Organic Chemistry
	One of
PCB514	Instrumental Analysis
PCB584	Forensic Examination of Physical Evidence
PCB604	Project

### Year 3, Semester 2

EDB003	Teaching and Learning Studies 3: Practising Education
EDB022	Primary Field Studies 2: Practising Education in the Field (Primary)
HMB300	Primary Curriculum and Pedagogies: Health and Physical Education
CLP400	Middle Years: Multiliteracies

### Year 4, Semester 1

EDB004	Teaching and Learning Studies 4: Inclusive Education
EDB023	Primary Field Studies 3: Inclusive Educational Practices
KKB201	Primary Curriculum and Pedagogies: Music, Visual Arts and Media
OR	null
KKB202	Primary Curriculum and Pedagogies: Dance and Drama
MDB006	Primary Curriculum and Pedagogies: Science

### Year 4, Semester 2

EDB005	Teaching and Learning Studies 5: Professional Work of Teachers
EDB024	Primary Field Studies 4: Professional Work of Teachers - Induction into the Field
EDB025	Internship (Primary)
MDB004	Primary Curriculum and Pedagogies: Information and Communication Technologies

### Course structure - Major in Ecology

#### Year 1, Semester 1

EDB002	Teaching and Learning Studies 2: Development and Learning
LSB118	Life Science

## SCIENCE

NRB100 Environmental Science  
PCB101 Physical Science

### Year 1, Semester 2

EDB021 Primary Field Studies 1: Development and Learning in the Field  
MAB101 Statistical Data Analysis 1  
NRB270 Animal and Plant Structure and Function  
NRB410 Genetics and Evolution

### Year 2, Semester 1

MDB120 Mathematics Curriculum and Pedagogies  
NRB301 Earth Surface Systems  
NRB311 Population Ecology  
NRB370 Invertebrate Biology

### Year 2, Semester 2

CLB008 Primary Curriculum and Pedagogies: Studies of Society and Environment  
NRB412 Experimental Design  
NRB470 Vertebrate Biology  
NRB611 Conservation Biology

### Year 3, Semester 1

NRB510 Population Genetics  
NRB511 Population Management  
NRB572 Terrestrial Ecosystems  
One Science Elective

### Year 3, Semester 2

EDB003 Teaching and Learning Studies 3: Practising Education  
EDB022 Primary Field Studies 2: Practising Education in the Field (Primary)  
HMB300 Primary Curriculum and Pedagogies: Health and Physical Education  
CLP400 Middle Years: Multiliteracies

### Year 4, Semester 1

EDB004 Teaching and Learning Studies 4: Inclusive Education  
EDB023 Primary Field Studies 3: Inclusive Educational Practices  
KKB201 Primary Curriculum and Pedagogies: Music, Visual Arts and Media  
OR null  
KKB202 Primary Curriculum and Pedagogies: Dance and Drama  
MDB006 Primary Curriculum and Pedagogies: Science

### Year 4, Semester 2

EDB005 Teaching and Learning Studies 5: Professional Work of Teachers  
EDB024 Primary Field Studies 4: Professional Work of Teachers - Induction into the Field

EDB025 Internship (Primary)  
MDB004 Primary Curriculum and Pedagogies: Information and Communication Technologies

### Course structure - Major in Environmental Science

#### Year 1, Semester 1

EDB002 Teaching and Learning Studies 2: Development and Learning  
NRB100 Environmental Science  
NRB230 Planet Earth  
PCB101 Physical Science

#### Year 1, Semester 2

EDB021 Primary Field Studies 1: Development and Learning in the Field  
LSB118 Life Science  
MAB101 Statistical Data Analysis 1  
PCB142 Chemistry 1

#### Year 2, Semester 1

MDB120 Mathematics Curriculum and Pedagogies  
NRB301 Earth Surface Systems  
NRB311 Population Ecology  
One of  
NRB331 Sedimentary Geology  
NRB370 Invertebrate Biology  
NRB371 Plant Biology  
ITB849 Introduction To Technical Computing

#### Year 2, Semester 2

CLB008 Primary Curriculum and Pedagogies: Studies of Society and Environment  
NRB412 Experimental Design  
NRB440 Environmental Chemistry  
NRB600 Sustainable Environmental Management

#### Year 3, Semester 1

NRB500 Environmental Systems and Modelling  
NRB511 Population Management  
NRB601 Field Mapping and Monitoring of Natural Resources  
One Science Elective

#### Year 3, Semester 2

EDB003 Teaching and Learning Studies 3: Practising Education  
EDB022 Primary Field Studies 2: Practising Education in the Field (Primary)  
HMB300 Primary Curriculum and Pedagogies: Health and Physical Education  
CLP400 Middle Years: Multiliteracies

#### Year 4, Semester 1

EDB004	Teaching and Learning Studies 4: Inclusive Education
EDB023	Primary Field Studies 3: Inclusive Educational Practices
KKB201	Primary Curriculum and Pedagogies: Music, Visual Arts and Media
OR	null
KKB202	Primary Curriculum and Pedagogies: Dance and Drama
MDB006	Primary Curriculum and Pedagogies: Science

**Year 4, Semester 2**

EDB005	Teaching and Learning Studies 5: Professional Work of Teachers
EDB024	Primary Field Studies 4: Professional Work of Teachers - Induction into the Field
EDB025	Internship (Primary)
MDB004	Primary Curriculum and Pedagogies: Information and Communication Technologies

**Course structure - Major in Geoscience**

**Year 1, Semester 1**

EDB002	Teaching and Learning Studies 2: Development and Learning
NRB100	Environmental Science
NRB230	Planet Earth
PCB101	Physical Science

**Year 1, Semester 2**

EDB021	Primary Field Studies 1: Development and Learning in the Field
MAB100	Mathematical Sciences 1A
NRB240	History of Life on Earth
PCB142	Chemistry 1

**Year 2, Semester 1**

MDB120	Mathematics Curriculum and Pedagogies
NRB301	Earth Surface Systems
NRB331	Sedimentary Geology
NRB333	Mineralogy

**Year 2, Semester 2**

CLB008	Primary Curriculum and Pedagogies: Studies of Society and Environment
NRB434	Structural Geology
NRB436	Introduction to Igneous and Metamorphic Petrology
NRB633	Hydrogeology

**Year 3, Semester 1**

MAB101	Statistical Data Analysis 1
NRB534	Geophysics
NRB536	Petrology and Geochemistry
NRB601	Field Mapping and Monitoring of Natural

**Resources**

**Year 3, Semester 2**

EDB003	Teaching and Learning Studies 3: Practising Education
EDB022	Primary Field Studies 2: Practising Education in the Field (Primary)
HMB300	Primary Curriculum and Pedagogies: Health and Physical Education
CLP400	Middle Years: Multiliteracies

**Year 4, Semester 1**

EDB004	Teaching and Learning Studies 4: Inclusive Education
EDB023	Primary Field Studies 3: Inclusive Educational Practices
KKB201	Primary Curriculum and Pedagogies: Music, Visual Arts and Media
OR	null
KKB202	Primary Curriculum and Pedagogies: Dance and Drama
MDB006	Primary Curriculum and Pedagogies: Science

**Year 4, Semester 2**

EDB005	Teaching and Learning Studies 5: Professional Work of Teachers
EDB024	Primary Field Studies 4: Professional Work of Teachers - Induction into the Field
EDB025	Internship (Primary)
MDB004	Primary Curriculum and Pedagogies: Information and Communication Technologies

**Course structure - Major in Mathematics (WITH Maths C)**

**Year 1, Semester 1**

EDB002	Teaching and Learning Studies 2: Development and Learning
MAB101	Statistical Data Analysis 1
MAB111	Mathematical Sciences 1B
MAB112	Mathematical Sciences 1C

**Year 1, Semester 2**

EDB021	Primary Field Studies 1: Development and Learning in the Field
MAB210	Statistical Modelling 1
MAB220	Computational Mathematics 1
PCB142	Chemistry 1

**Year 2, Semester 1**

MDB120	Mathematics Curriculum and Pedagogies One Science unit - selected from:
LSB118	Life Science
NRB100	Environmental Science
	Two Level 2 Mathematics units - available units are:

## SCIENCE

MAB311	Advanced Calculus
MAB312	Linear Algebra
MAB313	Mathematics of Finance
MAB314	Statistical Modelling 2
NOTE:	Students must complete at least one of MAB311, MAB312, MAB413

### Year 2, Semester 2

CLB008	Primary Curriculum and Pedagogies: Studies of Society and Environment
	Two Level 2 Mathematics units - available units are:
MAB315	Operations Research 2
MAB413	Differential Equations
MAB414	Applied Statistics 2
MAB420	Computational Mathematics 2
MAB422	Mathematical Modelling
MAB480	Introduction to Scientific Computation
	One Level 3 Mathematics unit - available units are:
MAB621	Discrete Mathematics
MAB623	Financial Mathematics
NOTE:	Students must complete at least one of MAB311, MAB312, MAB413

### Year 3, Semester 1

	One Science Elective
	Three Level 3 Mathematics units - available units are:
MAB521	Applied Mathematics 3
MAB522	Computational Mathematics 3
MAB523	Introduction to Quality Management
MAB525	Operations Research 3A
MAB526	Statistical Science 3
MAB672	Advanced Mathematical Modelling

### Year 3, Semester 2

EDB003	Teaching and Learning Studies 3: Practising Education
EDB022	Primary Field Studies 2: Practising Education in the Field (Primary)
HMB300	Primary Curriculum and Pedagogies: Health and Physical Education
CLP400	Middle Years: Multiliteracies

### Year 4, Semester 1

EDB004	Teaching and Learning Studies 4: Inclusive Education
EDB023	Primary Field Studies 3: Inclusive Educational Practices
KKB201	Primary Curriculum and Pedagogies: Music, Visual Arts and Media
OR	null
KKB202	Primary Curriculum and Pedagogies: Dance

	and Drama
MDB006	Primary Curriculum and Pedagogies: Science

### Year 4, Semester 2

EDB005	Teaching and Learning Studies 5: Professional Work of Teachers
EDB024	Primary Field Studies 4: Professional Work of Teachers - Induction into the Field
EDB025	Internship (Primary)
MDB004	Primary Curriculum and Pedagogies: Information and Communication Technologies

### Course structure - Major in Mathematics (WITHOUT Maths C)

#### Year 1, Semester 1

EDB002	Teaching and Learning Studies 2: Development and Learning
MAB100	Mathematical Sciences 1A
MAB101	Statistical Data Analysis 1
PCB101	Physical Science

#### Year 1, Semester 2

EDB021	Primary Field Studies 1: Development and Learning in the Field
MAB111	Mathematical Sciences 1B
MAB112	Mathematical Sciences 1C
MAB210	Statistical Modelling 1

#### Year 2, Semester 1

MDB120	Mathematics Curriculum and Pedagogies
MAB220	Computational Mathematics 1
	Two Level 2 Mathematics units - available units are:
MAB311	Advanced Calculus
MAB312	Linear Algebra
MAB313	Mathematics of Finance
MAB314	Statistical Modelling 2
NOTE:	Students must complete at least one of MAB311, MAB312, MAB413

#### Year 2, Semester 2

CLB008	Primary Curriculum and Pedagogies: Studies of Society and Environment
	Two Level 2 Mathematics units - available units are:
MAB315	Operations Research 2
MAB413	Differential Equations
MAB414	Applied Statistics 2
MAB420	Computational Mathematics 2
MAB422	Mathematical Modelling
MAB480	Introduction to Scientific Computation
	One Level 3 Mathematics unit - available units are:

## SCIENCE

MAB621	Discrete Mathematics	Either
MAB623	Financial Mathematics	PCB140
NOTE:	Students must complete at least one of MAB311, MAB312, MAB413	Introductory Chemistry
		Or
		PCB142
		Chemistry 1

### Year 3, Semester 1

	One Science unit - selected from:
LSB118	Life Science
NRB100	Environmental Science
	Three Level 3 Mathematics units - available units are:
MAB521	Applied Mathematics 3
MAB522	Computational Mathematics 3
MAB523	Introduction to Quality Management
MAB525	Operations Research 3A
MAB526	Statistical Science 3
MAB672	Advanced Mathematical Modelling

### Year 3, Semester 2

EDB003	Teaching and Learning Studies 3: Practising Education
EDB022	Primary Field Studies 2: Practising Education in the Field (Primary)
HMB300	Primary Curriculum and Pedagogies: Health and Physical Education
CLP400	Middle Years: Multiliteracies

### Year 4, Semester 1

EDB004	Teaching and Learning Studies 4: Inclusive Education
EDB023	Primary Field Studies 3: Inclusive Educational Practices
KKB201	Primary Curriculum and Pedagogies: Music, Visual Arts and Media
OR	null
KKB202	Primary Curriculum and Pedagogies: Dance and Drama
MDB006	Primary Curriculum and Pedagogies: Science

### Year 4, Semester 2

EDB005	Teaching and Learning Studies 5: Professional Work of Teachers
EDB024	Primary Field Studies 4: Professional Work of Teachers - Induction into the Field
EDB025	Internship (Primary)
MDB004	Primary Curriculum and Pedagogies: Information and Communication Technologies

### Course structure - Major in Microbiology

#### Year 1, Semester 1

EDB002	Teaching and Learning Studies 2: Development and Learning
LSB118	Life Science
PCB101	Physical Science

#### Year 1, Semester 2

EDB021	Primary Field Studies 1: Development and Learning in the Field
LSB238	Cell and Molecular Biology 1
NRB270	Animal and Plant Structure and Function
PCB242	Chemistry 2

#### Year 2, Semester 1

LSB308	Biochemistry
LSB328	Microbiology 1
MAB101	Statistical Data Analysis 1
MDB120	Mathematics Curriculum and Pedagogies

#### Year 2, Semester 2

CLB008	Primary Curriculum and Pedagogies: Studies of Society and Environment
LSB428	Microbiology 2
	null
	Plus either
LSB628	Food Microbiology
	Or
LSB647	Clinical Mycology and Parasitology

#### Year 3, Semester 1

LSB528	Environmental Microbiology
LSB547	Bacterial Pathogenesis and Disease Diagnosis
LSB568	Electron Microscopy
	One Science Elective (eg LSB338)

#### Year 3, Semester 2

EDB003	Teaching and Learning Studies 3: Practising Education
EDB022	Primary Field Studies 2: Practising Education in the Field (Primary)
HMB300	Primary Curriculum and Pedagogies: Health and Physical Education
CLP400	Middle Years: Multiliteracies

#### Year 4, Semester 1

EDB004	Teaching and Learning Studies 4: Inclusive Education
EDB023	Primary Field Studies 3: Inclusive Educational Practices
KKB201	Primary Curriculum and Pedagogies: Music, Visual Arts and Media
OR	null
KKB202	Primary Curriculum and Pedagogies: Dance and Drama
MDB006	Primary Curriculum and Pedagogies: Science

EDB005	Teaching and Learning Studies 5: Professional Work of Teachers
EDB024	Primary Field Studies 4: Professional Work of Teachers - Induction into the Field
EDB025	Internship (Primary)
MDB004	Primary Curriculum and Pedagogies: Information and Communication Technologies

**Course structure - Major in Physics**

**Year 1, Semester 1**

EDB002	Teaching and Learning Studies 2: Development and Learning
MAB111	Mathematical Sciences 1B
PCB101	Physical Science
PCB107	Physics and Quantitative Techniques

**Year 1, Semester 2**

EDB021	Primary Field Studies 1: Development and Learning in the Field
MAB112	Mathematical Sciences 1C
PCB250	Physics 1
PCB260	Physics 1A

**Year 2, Semester 1**

MAB311	Advanced Calculus
MDB120	Mathematics Curriculum and Pedagogies
PCB361	AC Theory and Electronics
PCB362	Physics 2

**Year 2, Semester 2**

CLB008	Primary Curriculum and Pedagogies: Studies of Society and Environment
PCB445	Nanotechnology and Nanoscience
PCB460	Instrumentation and Computational Methods
PCB462	Thermodynamics and Solid State Physics

**Year 3, Semester 1**

PCB561	Quantum and Condensed Matter Physics
PCB562	Physical Methods of Analysis
PCB661	Experimental Physics
	Either
LSB118	Life Science
	Or
NRB100	Environmental Science

**Year 3, Semester 2**

EDB003	Teaching and Learning Studies 3: Practising Education
EDB022	Primary Field Studies 2: Practising Education in the Field (Primary)
HMB300	Primary Curriculum and Pedagogies: Health and Physical Education

CLP400 Middle Years: Multiliteracies

**Year 4, Semester 1**

EDB004	Teaching and Learning Studies 4: Inclusive Education
EDB023	Primary Field Studies 3: Inclusive Educational Practices
KKB201	Primary Curriculum and Pedagogies: Music, Visual Arts and Media
OR	null
KKB202	Primary Curriculum and Pedagogies: Dance and Drama
MDB006	Primary Curriculum and Pedagogies: Science

**Year 4, Semester 2**

EDB005	Teaching and Learning Studies 5: Professional Work of Teachers
EDB024	Primary Field Studies 4: Professional Work of Teachers - Induction into the Field
EDB025	Internship (Primary)
MDB004	Primary Curriculum and Pedagogies: Information and Communication Technologies

**Potential Careers:**

Actuary, Analytical Chemist, Astrophysicist, Biochemist, Biologist, Biotechnologist, Chemist, Chemist Industrial, Coastal Scientist, Conservation Biologist, Database Manager, Ecologist, Environmental Scientist, Forensic Scientist, Geologist, Geophysicist, Geoscientist, Health Physicist, Hydrogeologist, Immunologist, Industrial Chemist, Laboratory Technician (Chemistry), Marine Scientist, Mathematician, Medical Biotechnologist, Medical Physicist, Microbiologist, Molecular Biologist, Natural Resource Scientist, Physicist, Plant Biotechnologist, Population Ecologist, Programmer, Quantitative Analyst, Statistician, Virologist.

## Bachelor of Applied Science / Bachelor of Information Technology (IX26)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** 020327M

**Course duration (full-time):** 4 years

**Domestic fees (per credit point):** Commonwealth Supported Place; Full fee tuition 2007: \$210 per credit point (*subject to annual review*)

**Domestic fees (indicative):** 2007: Full fee tuition \$20,160; CSP \$7,118

**International Fees (per semester):** 2007:\$9,000 per semester (*subject to annual review*)

**Domestic Entry:** February

**QTAC code:** 419302; Dfee: 419306

**Past rank cut-off:** 72; Dfee: 68

**Past OP cut-off:** 13; Dfee: 15

**OP Guarantee:** Yes

**Assumed knowledge:** English (4, SA) and Maths B (4, SA)

**Preparatory studies:** MATHS: QUT unit Preparatory Mathematics as a visiting student or QUT Continuing Professional Education course Mathematics Bridging. ENGLISH: Successful completion of a year of full-time vocational or tertiary study. For further information contact 07 3138 2000 or email [study@qut.com](mailto:study@qut.com)

**Course coordinator:** Dr Megan Hargreaves (Science), Ms Ruth Christie (IT)

**Campus:** Gardens Point

### Professional Recognition

Graduates will satisfy the requirements for membership in the relevant professional body for their chosen science major. See the Bachelor of Applied Science (SC01) course for details. Graduates are also eligible for membership of the Australian Computer Society (ACS).

### Course Design

The science component of the course offers students a choice of one of nine majors: Biochemistry, Biotechnology, Chemistry, Ecology, Environmental Science, Forensic Science, Geoscience, Microbiology and Physics. See the Bachelor of Applied Science (SC01) course information for more details. So that students can complete the double degree in a shorter period of time, co-majors are to be taken from the information technology program.

The information technology component gives students the opportunity to undertake a combined major in Data Communications and Software Engineering. Theoretical aspects are balanced by strong practical components in both of the science and information technology degrees.

### Cooperative Education Program

An optional one-year period of paid work experience in an area of information technology is available to eligible full-time students. The Cooperative Education Program is a joint venture between employers and educators to better prepare students for employment upon graduation. Companies that QUT's Cooperative Education students have worked with include Energex, Boeing, CITEC, Global Banking and Securities Transaction, various Queensland Government

departments, Dialog, TABQ, RACQ and Sun Microsystems.

For more information visit [www.fit.qut.edu.au/courses/undergrad/coop/](http://www.fit.qut.edu.au/courses/undergrad/coop/)

### Deferment

QUT allows current Year 12 school leavers to defer their undergraduate admission offer for one year, or for six months if offered mid-year admission, except in courses using specific admission requirements such as questionnaires, portfolios, auditions, prior study or work experience.

Non-year 12 students may also request to defer their QTAC offer on the basis of demonstrated special circumstances.

Find out more on deferment.

### IX26 - Bachelor of Applied Science/Bachelor of Information Technology Course Structure

#### Year 1, Semester 1

ITB002	IT Professional Studies
ITB005	Systems Architecture
	Science Core Unit
	Science Core Unit

#### Year 1, Semester 2

ITB004	Database Systems
ITB006	Networks
	Science Core Unit
	Science Core Unit

#### Year 2, Semester 1

ITB001	Problem Solving and Programming
ITB008	Modelling Analysis and Design
	Science Core Unit
	Science Major Unit

#### Year 2, Semester 2

ITB003	Object Oriented Programming
ITB007	Web Development
	Science Core Unit
	Science Major Unit

#### Year 3, Semester 1

	IT Major Unit
	IT Major Unit
	Science Major Unit
	Science Major Unit

#### Year 3, Semester 2

ITB009	Core Project Initiation
	IT Major Unit
	Science Major Unit

## SCIENCE

Science Major Unit

ITB255 Knowledge Management

### Year 4, Semester 1

ITB010 Core Project Implementation  
IT Major Unit  
Science Major Unit  
Science Major Unit

ITB266 Information Management  
ITB267 Business Analytics  
ITB272 Information Technology Project Management  
ITB294 Information Quality  
ITB322 Information Resources

### Year 4, Semester 2

IT Major Unit  
IT Major Unit  
Science Major Unit  
Science Major Unit

### Information and Knowledge Management Major

Please contact the Course Coordinator for enrolment advice

### Business Systems Engineering Major

#### Compulsory Units

ITB222 Systems Analysis and Design  
ITB228 Enterprise Systems  
ITB245 R/3 System Administration  
ITB298 Business Process Engineering

### Electronic Business Major

#### Compulsory Units

ITB233 Enterprise Systems Applications  
ITB239 Enterprise Data Mining  
ITB260 E-Commerce Site Development  
BSB212 Electronic Business Applications  
BSB213 Governance Issues in E-Business  
BSB314 E-Business Intelligence

#### IS Elective Units

Select two (2) units from the following list

ITB218 Applications Programming  
ITB223 Software Development with ORACLE  
ITB230 Project  
ITB237 Advanced Databases  
ITB245 R/3 System Administration  
ITB255 Knowledge Management  
ITB266 Information Management  
ITB267 Business Analytics  
ITB272 Information Technology Project Management  
ITB294 Information Quality  
ITB322 Information Resources

### Games Technology Major

#### Compulsory Units

ITB711 Programming Abstraction  
ITB743 Artificial Intelligence  
ITB746 Modelling and Animation Techniques  
ITB747 Real Time Rendering Techniques  
ITB749 Scientific Programming  
MAB281 Mathematics for Computer Graphics

### Databases Major

#### Compulsory Units

ITB229 Database Design  
ITB232 Database Management  
ITB239 Enterprise Data Mining  
ITB295 XML: Data and Document Processing

### Information Technology Management Major

#### Compulsory Units

ITB222 Systems Analysis and Design  
ITB241 Information Technology Management  
ITB264 Information Systems Consulting  
ITB272 Information Technology Project Management

#### IS Elective Units

Select two (2) units from the following list

ITB218 Applications Programming  
ITB223 Software Development with ORACLE  
ITB230 Project  
ITB237 Advanced Databases  
ITB245 R/3 System Administration

#### IS Elective Units

Select two (2) units from the following list

ITB218 Applications Programming  
ITB223 Software Development with ORACLE  
ITB230 Project  
ITB237 Advanced Databases  
ITB245 R/3 System Administration  
ITB255 Knowledge Management  
ITB266 Information Management  
ITB267 Business Analytics  
ITB272 Information Technology Project Management  
ITB294 Information Quality



ITB322 Information Resources

**Intelligent Systems Major**

**Compulsory Units**

ITB239 Enterprise Data Mining  
 ITB295 XML: Data and Document Processing  
 ITB740 Agent Based Software Engineering  
 ITB741 Information Retrieval Technology

**Elective Units**

Select two (2) units from the following list

ITB322 Information Resources  
 ITB710 Fundamentals of Computer Science  
 ITB715 Web Services  
 ITB742 Computational Intelligence  
 ITB743 Artificial Intelligence

**Information Systems Major**

**Compulsory Units**

ITB228 Enterprise Systems  
 ITB229 Database Design  
 ITB260 E-Commerce Site Development

**IS Elective Units**

Select two (2) units from the following list

ITB218 Applications Programming  
 ITB223 Software Development with ORACLE  
 ITB230 Project  
 ITB237 Advanced Databases  
 ITB266 Information Management  
 ITB267 Business Analytics  
 ITB322 Information Resources

**Interactive Media Major**

**Compulsory Units**

ITB254 Interaction Design  
 ITB257 Multimedia Systems  
 ITB259 Advanced Multimedia Systems  
 KIB101 Foundations of Communication Design 1  
 KIB102 Foundations of Communication Design 2

**Elective Units**

Select one (1) unit from the following list

KIB103 Media Technology 1  
 KIB105 Animation and Motion Graphics  
 KIB108 Animation Practices

**Network Systems Major**

**Compulsory Units**

ITB720 Internet Protocols and Services  
 ITB721 Unix Network Administration  
 ITB722 Network Planning and Deployment

**Elective Units**

Select three (3) units from the following list

ITB710 Fundamentals of Computer Science  
 ITB723 Wireless and Mobile Devices  
 ITB745 Operating Systems  
 ITS701 Ccna 1 & 2: Internetworking and Routing Basics  
 ITS702 Ccna 3 & 4: Switching and Wide Area Networking

**Security Major**

**Compulsory Units**

ITB720 Internet Protocols and Services  
 ITB721 Unix Network Administration  
 ITB730 Information Security Fundamentals  
 ITB731 Security Technologies  
 ITB732 Cryptology and Protocols  
 ITB733 Network Security

**Software Architecture Major**

**Compulsory Units**

ITB229 Database Design  
 ITB710 Fundamentals of Computer Science  
 ITB711 Programming Abstraction  
 ITB712 Software Engineering Studies  
 ITB713 Advanced Java Programming  
 ITB717 Enterprise Software Architecture

**Web Services and Applications Major**

**Compulsory Units**

ITB254 Interaction Design  
 ITB260 E-Commerce Site Development  
 ITB295 XML: Data and Document Processing  
 ITB716 Advanced Web Applications Development  
 ITB717 Enterprise Software Architecture  
 ITB715 Web Services

**Course structure - Major in Biochemistry**

**Year 1, Semester 1**

LSB118 Life Science  
 Either  
 PCB140 Introductory Chemistry  
 Or  
 PCB142 Chemistry 1

## SCIENCE

### Year 1, Semester 2

LSB238 Cell and Molecular Biology 1

PCB242 Chemistry 2

### Year 2, Semester 1

MAB101 Statistical Data Analysis 1

PCB101 Physical Science

### Year 2, Semester 2

LSB258 Principles of Human Physiology

NRB270 Animal and Plant Structure and Function

### Year 3, Semester 1

LSB308 Biochemistry

LSB338 Cell and Molecular Biology 2

### Year 3, Semester 2

LSB408 Metabolism

LSB468 Molecular Biology

### Year 4, Semester 1

LSB508 Advanced Metabolism

LSB527 Biomedical Research Technologies

### Year 4, Semester 2

LSB607 Protein Purification

LSB608 Protein Science

### Course structure - Major in Biotechnology

#### Year 1, Semester 1

LSB118 Life Science

Either

PCB140 Introductory Chemistry

Or

PCB142 Chemistry 1

#### Year 1, Semester 2

LSB238 Cell and Molecular Biology 1

PCB242 Chemistry 2

#### Year 2, Semester 1

MAB101 Statistical Data Analysis 1

PCB101 Physical Science

#### Year 2, Semester 2

LSB258 Principles of Human Physiology

NRB270 Animal and Plant Structure and Function

#### Year 3, Semester 1

LSB308 Biochemistry

LSB338 Cell and Molecular Biology 2

#### Year 3, Semester 2

LSB468 Molecular Biology

LSB469 Introduction to Genomics and Bioinformatics

#### Year 4, Semester 1

LSB537 Genetic Engineering

Either

LSB509 Medical Biotechnology 1

Or

LSB577 Plant Biotechnology 1

#### Year 4, Semester 2

LSB619 Genomics and Bioinformatics

Either

LSB609 Medical Biotechnology 2

Or

LSB677 Plant Biotechnology 2

### Course structure - Major in Chemistry

#### Year 1, Semester 1

MAB100 Mathematical Sciences 1A

Either

PCB140 Introductory Chemistry

Or

PCB142 Chemistry 1

#### Year 1, Semester 2

MAB101 Statistical Data Analysis 1

PCB242 Chemistry 2

#### Year 2, Semester 1

LSB118 Life Science

PCB101 Physical Science

#### Year 2, Semester 2

PCB150 Physics 1H

PCB200 Chemical Technology 1

#### Year 3, Semester 1

PCB334 Inorganic Chemistry

PCB354 Structure and Mechanism in Organic Chemistry

#### Year 3, Semester 2

PCB405 Principles of Physical Chemistry

PCB444 Spectroscopy

#### Year 4, Semester 1

PCB505 Advanced Physical Chemistry

PCB554 Synthesis and Reactivity in Organic Chemistry

#### Year 4, Semester 2

PCB634 Organometallic and Coordination Chemistry

## SCIENCE

PCB604    Either  
Project  
Or

PCB644    Frontiers in Chemistry

### Course structure - Major in Ecology

#### Year 1, Semester 1

LSB118    Life Science  
NRB100    Environmental Science

#### Year 1, Semester 2

MAB101    Statistical Data Analysis 1  
NRB270    Animal and Plant Structure and Function

#### Year 2, Semester 1

NRB230    Planet Earth  
PCB101    Physical Science

#### Year 2, Semester 2

LSB238    Cell and Molecular Biology 1  
NRB240    History of Life on Earth

#### Year 3, Semester 1

NRB301    Earth Surface Systems  
NRB311    Population Ecology

#### Year 3, Semester 2

NRB410    Genetics and Evolution  
NRB412    Experimental Design

#### Year 4, Semester 1

NRB510    Population Genetics  
NRB511    Population Management

#### Year 4, Semester 2

NRB610    Ecological Applications  
NRB611    Conservation Biology

### Course structure - Major in Environmental Science

#### Year 1, Semester 1

LSB118    Life Science  
NRB100    Environmental Science

#### Year 1, Semester 2

MAB101    Statistical Data Analysis 1  
NRB270    Animal and Plant Structure and Function

#### Year 2, Semester 1

NRB230    Planet Earth  
PCB101    Physical Science

#### Year 2, Semester 2

NRB240    History of Life on Earth  
PCB142    Chemistry 1

#### Year 3, Semester 1

NRB301    Earth Surface Systems  
NRB311    Population Ecology

#### Year 3, Semester 2

NRB412    Experimental Design  
NRB440    Environmental Chemistry

#### Year 4, Semester 1

NRB500    Environmental Systems and Modelling  
NRB601    Field Mapping and Monitoring of Natural Resources

#### Year 4, Semester 2

NRB501    Spatial Analysis of Environmental Systems  
NRB600    Sustainable Environmental Management

### Course structure - Major in Forensic Science

#### Year 1, Semester 1

LSB118    Life Science  
Either  
PCB140    Introductory Chemistry  
Or  
PCB142    Chemistry 1

#### Year 1, Semester 2

MAB101    Statistical Data Analysis 1  
PCB242    Chemistry 2

#### Year 2, Semester 1

MAB100    Mathematical Sciences 1A  
PCB101    Physical Science

#### Year 2, Semester 2

LSB238    Cell and Molecular Biology 1  
LSB258    Principles of Human Physiology

#### Year 3, Semester 1

LSB468    Molecular Biology  
SCB384    Forensic Science

#### Year 3, Semester 2

JSB979    Forensic Scientific Evidence  
PCB414    Industrial and Environmental Analytical Chemistry

#### Year 4, Semester 1

PCB514    Instrumental Analysis  
PCB584    Forensic Examination of Physical Evidence

# SCIENCE

## Year 4, Semester 2

LSB684	Forensic DNA Profiling
PCB684	Forensic Analysis and Toxicology

## Course structure - Major in Geoscience

### Year 1, Semester 1

NRB100	Environmental Science
NRB230	Planet Earth

### Year 1, Semester 2

MAB101	Statistical Data Analysis 1
PCB142	Chemistry 1

### Year 2, Semester 1

MAB100	Mathematical Sciences 1A
PCB101	Physical Science

### Year 2, Semester 2

LSB118	Life Science
NRB240	History of Life on Earth

### Year 3, Semester 1

NRB301	Earth Surface Systems
NRB333	Mineralogy

### Year 3, Semester 2

NRB434	Structural Geology
NRB436	Introduction to Igneous and Metamorphic Petrology

### Year 4, Semester 1

Two units selected from:

NRB534	Geophysics
NRB536	Petrology and Geochemistry
NRB601	Field Mapping and Monitoring of Natural Resources

### Year 4, Semester 2

Two units selected from:

NRB633	Hydrogeology
NRB635	Plate Tectonics and Advanced Structural Geology
NRB636	Petroleum Geology and Basin Analysis

## Course structure - Major in Microbiology

### Year 1, Semester 1

LSB118	Life Science
	Either
PCB140	Introductory Chemistry
	Or
PCB142	Chemistry 1

## Year 1, Semester 2

LSB238	Cell and Molecular Biology 1
PCB242	Chemistry 2

## Year 2, Semester 1

MAB101	Statistical Data Analysis 1
PCB101	Physical Science

## Year 2, Semester 2

LSB258	Principles of Human Physiology
NRB270	Animal and Plant Structure and Function

## Year 3, Semester 1

LSB308	Biochemistry
LSB328	Microbiology 1

## Year 3, Semester 2

LSB428	Microbiology 2
LSB468	Molecular Biology

## Year 4, Semester 1

Two units selected from:

LSB528	Environmental Microbiology
LSB547	Bacterial Pathogenesis and Disease Diagnosis
LSB568	Electron Microscopy
LSB578	Virology

## Year 4, Semester 2

Two units selected from:

LSB628	Food Microbiology
LSB647	Clinical Mycology and Parasitology
LSB648	Molecular Microbiology

## Course structure - Major in Physics

### Year 1, Semester 1

MAB111	Mathematical Sciences 1B
PCB101	Physical Science

### Year 1, Semester 2

MAB112	Mathematical Sciences 1C
SCB222	Exploration of the Universe

### Year 2, Semester 1

MAB311	Advanced Calculus
PCB107	Physics and Quantitative Techniques

### Year 2, Semester 2

PCB250	Physics 1
PCB260	Physics 1A

### Year 3, Semester 1

PCB361	AC Theory and Electronics
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PCB362 Physics 2

**Year 3, Semester 2**

PCB460 Instrumentation and Computational Methods

PCB462 Thermodynamics and Solid State Physics

**Year 4, Semester 1**

PCB561 Quantum and Condensed Matter Physics

PCB562 Physical Methods of Analysis

**Year 4, Semester 2**

PCB661 Experimental Physics

PCB665 Physics 3

**Minors Unit Sets**

You can pick from x of these

ASF001 Australian Studies 1

PYB159 Alcohol & Other Drug Studies

BSD117 Professional Communication and Negotiation

HMB317 Outdoor Education

There is more

**Potential Careers:**

Analytical Chemist, Astrophysicist, Biochemist, Biologist, Biotechnologist, Chemist, Chemist Industrial, Coastal Scientist, Conservation Biologist, Data Communications Specialist, Ecologist, Environmental Scientist, Forensic Scientist, Geologist, Geophysicist, Geoscientist, Health Physicist, Hydrogeologist, Immunologist, Industrial Chemist, Laboratory Technician (Chemistry), Marine Scientist, Medical Biotechnologist, Medical Physicist, Microbiologist, Molecular Biologist, Natural Resource Scientist, Network Administrator, Network Manager, Physicist, Plant Biotechnologist, Population Ecologist, Software Engineer, Systems Analyst, Virologist.

## Bachelor of Information Technology / Bachelor of Mathematics (IX29)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** 059226F

**Course duration (full-time):** 4 years

**Domestic fees (per credit point):** Commonwealth Supported Place; Full fee tuition 2007: \$210 per credit point (*subject to annual review*)

**Domestic fees (indicative):** 2007: Full fee tuition \$20,160; CSP \$7,118

**International Fees (per semester):** 2007:\$9,000 per semester (*subject to annual review*)

**Domestic Entry:** February

**International Entry:** February

**QTAC code:** 419552; Dfee: 419556

**Past rank cut-off:** 70. Dfee places were not offered last year.

**Past OP cut-off:** 14. Dfee places were not offered last year.

**OP Guarantee:** Yes

**Assumed knowledge:** English (4,SA) and Maths B (4,SA)

**Preparatory studies:** MATHS: QUT unit Preparatory Mathematics as a visiting student or QUT Continuing Professional Education course Mathematics Bridging. ENGLISH: Successful completion of a year of full-time vocational or tertiary study. For further information contact 07 3138 2000 or email [study@qut.com](mailto:study@qut.com)

**Total credit points:** 384

**Course coordinator:** Professor Helen MacGillivray (Science), Ms Ruth Christie (IT)

**Discipline coordinator:** Dr Gary Carter (Mathematics)

**Campus:** Gardens Point

### Professional Recognition

On graduation, students will be eligible for membership of the Mathematical Society of Australia, the Statistical Society of Australia Inc and, depending on unit selection, the Australian Society for Operations Research. Graduates of the Bachelor of Information Technology meet the knowledge requirement for admission to the Australian Computer Society.

### Course Design

This double degree comprises 384 credit points with 192 credit points from Information Technology and 192 credit points from Mathematics. All majors in the Bachelor of Information Technology are available.

### Cooperative Education Program

An optional one-year period of paid work experience in an area of information technology is available to eligible full-time students. The Cooperative Education Program is a joint venture between employers and educators to better prepare students for employment upon graduation. Companies that QUT's Cooperative Education students have worked with include Energex, Boeing, CITEC, Global Banking and Securities Transaction, various Queensland Government departments, Dialog, TABQ, RACQ and Sun Microsystems.

For more information visit [www.fit.qut.edu.au/courses/undergrad/coop/](http://www.fit.qut.edu.au/courses/undergrad/coop/)

### Mathematics Bursaries

Students enrolled in this course can apply for industry-sponsored bursaries. These bursaries are awarded to Australian citizens or permanent residents on a competitive basis. Applications should be submitted by 1 December of the year preceding entry to the course. For further information see [www.maths.qut.edu.au](http://www.maths.qut.edu.au)

### Contact Details

#### Information Technology Coordinator

Ms Ruth Christie

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#### Science Coordinator

Professor Helen MacGillivray

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### Associate Course Coordinator

#### Mathematics

Dr Gary Carter

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### Deferment

QUT allows current Year 12 school leavers to defer their undergraduate admission offer for one year, or for six months if offered mid-year admission, except in courses using specific admission requirements such as questionnaires, folios, auditions, prior study or work experience.

Non-year 12 students may also request to defer their QTAC offer on the basis of demonstrated special circumstances.

Find out more on deferment.

### Course Structure for students with four semesters of Senior Mathematics B and Senior Mathematics C

For students with four semesters of Senior Mathematics B and Senior Mathematics C (or equivalent) with an exit assessment of at least Sound Achievement in both

#### Year 1, Semester 1

ITB002 IT Professional Studies

ITB005 Systems Architecture

MAB111 Mathematical Sciences 1B

MAB112 Mathematical Sciences 1C

#### Year 1, Semester 2

ITB004 Database Systems

ITB006 Networks

MAB210 Statistical Modelling 1

MAB220 Computational Mathematics 1

## SCIENCE

### Year 2, Semester 1

ITB001	Problem Solving and Programming
ITB008	Modelling Analysis and Design
MAB101	Statistical Data Analysis 1
MAB312	Linear Algebra

### Year 2, Semester 2

ITB003	Object Oriented Programming
ITB007	Web Development
	Level 2 or 3 Maths Unit
	Level 2 or 3 Maths Unit

### Year 3, Semester 1

	IT Major Unit
	IT Major Unit
MAB311	Advanced Calculus
	Level 2 or 3 Maths unit

### Year 3, Semester 2

ITB009	Core Project Initiation
	IT Major Unit
	Level 2 or 3 Maths Unit
	Level 2 or 3 Maths Unit

### Year 4, Semester 1

ITB010	Core Project Implementation
	IT Major Unit
	Level 2 or 3 Maths Unit
	Level 2 or 3 Maths Unit

### Year 4, Semester 2

	IT Major Unit
	IT Major Unit
	Level 2 or 3 Maths Unit
	Level 2 or 3 Maths Unit

### Course Structure for students with four semesters of Senior Mathematics B (or equivalent) only

For students with four semesters of Senior Mathematics B (or equivalent) only, with an exit assessment of at least Sound Achievement

### Year 1, Semester 1

ITB002	IT Professional Studies
ITB005	Systems Architecture
MAB100	Mathematical Sciences 1A
MAB101	Statistical Data Analysis 1

### Year 1, Semester 2

ITB004	Database Systems
ITB006	Networks

MAB111	Mathematical Sciences 1B
MAB112	Mathematical Sciences 1C

### Year 2, Semester 1

ITB001	Problem Solving and Programming
ITB008	Modelling Analysis and Design
MAB220	Computational Mathematics 1
MAB312	Linear Algebra

### Year 2, Semester 2

ITB003	Object Oriented Programming
ITB007	Web Development
MAB210	Statistical Modelling 1
	Level 2 or 3 Maths Unit

### Year 3, Semester 1

	IT Major Unit
	IT Major Unit
MAB311	Advanced Calculus
	Level 2 or 3 Maths unit

### Year 3, Semester 2

ITB009	Core Project Initiation
	IT Major Unit
	Level 2 or 3 Maths Unit
	Level 2 or 3 Maths Unit

### Year 4, Semester 1

ITB010	Core Project Implementation
	IT Major Unit
	Level 2 or 3 Maths Unit
	Level 2 or 3 Maths Unit

### Year 4, Semester 2

	IT Major Unit
	IT Major Unit
	Level 2 or 3 Maths Unit
	Level 2 or 3 Maths Unit

### Mathematics Units

Students must complete at least 48 credit points from Level 3 Mathematics units

### Level 2 Units

MAB311	Advanced Calculus
MAB312	Linear Algebra
MAB313	Mathematics of Finance
MAB314	Statistical Modelling 2
MAB315	Operations Research 2
MAB413	Differential Equations
MAB414	Applied Statistics 2

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MAB420	Computational Mathematics 2
MAB422	Mathematical Modelling
MAB480	Introduction to Scientific Computation
MAB481	Visualisation and Data Analysis

### Level 3 Units

MAB521	Applied Mathematics 3
MAB522	Computational Mathematics 3
MAB523	Introduction to Quality Management
MAB524	Statistical Inference
MAB525	Operations Research 3A
MAB526	Statistical Science 3
MAB613	Partial Differential Equations
MAB621	Discrete Mathematics
MAB623	Financial Mathematics
MAB624	Applied Statistics 3
MAB625	Operations Research 3B
MAB640	Industry Project
MAB672	Advanced Mathematical Modelling
MAB681	Advanced Visualisation and Data Analysis

### Notes:

In 2008, MAB313 Mathematics of Finance will be offered in Semester 2 and MAB315 Operations Research 2 will be offered in Semester 1.

MAB523 Introduction to Quality Management and MAB621 Discrete Mathematics do not contribute to the mandatory 48 credit points minimum from Level 3 Mathematics units.

All Mathematics units have 4 contact hours per week.

### Business Systems Engineering Major

#### Compulsory Units

ITB222	Systems Analysis and Design
ITB228	Enterprise Systems
ITB245	R/3 System Administration
ITB298	Business Process Engineering

#### IS Elective Units

Select two (2) units from the following list

ITB218	Applications Programming
ITB223	Software Development with ORACLE
ITB230	Project
ITB237	Advanced Databases
ITB245	R/3 System Administration
ITB255	Knowledge Management
ITB266	Information Management
ITB267	Business Analytics
ITB272	Information Technology Project Management

ITB294	Information Quality
ITB322	Information Resources

### Databases Major

#### Compulsory Units

ITB229	Database Design
ITB232	Database Management
ITB239	Enterprise Data Mining
ITB295	XML: Data and Document Processing

#### IS Elective Units

Select two (2) units from the following list

ITB218	Applications Programming
ITB223	Software Development with ORACLE
ITB230	Project
ITB237	Advanced Databases
ITB245	R/3 System Administration
ITB255	Knowledge Management
ITB266	Information Management
ITB267	Business Analytics
ITB272	Information Technology Project Management
ITB294	Information Quality
ITB322	Information Resources

### Electronic Business Major

#### Compulsory Units

ITB233	Enterprise Systems Applications
ITB239	Enterprise Data Mining
ITB260	E-Commerce Site Development
BSB212	Electronic Business Applications
BSB213	Governance Issues in E-Business
BSB314	E-Business Intelligence

### Games Technology Major

#### Compulsory Units

ITB711	Programming Abstraction
ITB743	Artificial Intelligence
ITB746	Modelling and Animation Techniques
ITB747	Real Time Rendering Techniques
ITB749	Scientific Programming
MAB281	Mathematics for Computer Graphics

### Information and Knowledge Management Major

Please contact the Course Coordinator for enrolment advice

### Information Systems Major

#### Compulsory Units



ITB228	Enterprise Systems
ITB229	Database Design
ITB260	E-Commerce Site Development

**IS Elective Units**

Select two (2) units from the following list

ITB218	Applications Programming
ITB223	Software Development with ORACLE
ITB230	Project
ITB237	Advanced Databases
ITB266	Information Management
ITB267	Business Analytics
ITB322	Information Resources

**Information Technology Management Major**

**Compulsory Units**

ITB222	Systems Analysis and Design
ITB241	Information Technology Management
ITB264	Information Systems Consulting
ITB272	Information Technology Project Management

**IS Elective Units**

Select two (2) units from the following list

ITB218	Applications Programming
ITB223	Software Development with ORACLE
ITB230	Project
ITB237	Advanced Databases
ITB245	R/3 System Administration
ITB255	Knowledge Management
ITB266	Information Management
ITB267	Business Analytics
ITB272	Information Technology Project Management
ITB294	Information Quality
ITB322	Information Resources

**Intelligent Systems Major**

**Compulsory Units**

ITB239	Enterprise Data Mining
ITB295	XML: Data and Document Processing
ITB740	Agent Based Software Engineering
ITB741	Information Retrieval Technology

**Elective Units**

Select two (2) units from the following list

ITB322	Information Resources
ITB710	Fundamentals of Computer Science
ITB715	Web Services
ITB742	Computational Intelligence
ITB743	Artificial Intelligence

**Interactive Media Major**

**Compulsory Units**

ITB254	Interaction Design
ITB257	Multimedia Systems
ITB259	Advanced Multimedia Systems
KIB101	Foundations of Communication Design 1
KIB102	Foundations of Communication Design 2

**Elective Units**

Select one (1) unit from the following list

KIB103	Media Technology 1
KIB105	Animation and Motion Graphics
KIB108	Animation Practices

**Network Systems Major**

**Compulsory Units**

ITB720	Internet Protocols and Services
ITB721	Unix Network Administration
ITB722	Network Planning and Deployment

**Elective Units**

Select three (3) units from the following list

ITB710	Fundamentals of Computer Science
ITB723	Wireless and Mobile Devices
ITB745	Operating Systems
ITS701	Ccna 1 & 2: Internetworking and Routing Basics
ITS702	Ccna 3 & 4: Switching and Wide Area Networking

**Security Major**

**Compulsory Units**

ITB720	Internet Protocols and Services
ITB721	Unix Network Administration
ITB730	Information Security Fundamentals
ITB731	Security Technologies
ITB732	Cryptology and Protocols
ITB733	Network Security

**Software Architecture Major**

**Compulsory Units**

ITB229	Database Design
ITB710	Fundamentals of Computer Science
ITB711	Programming Abstraction
ITB712	Software Engineering Studies
ITB713	Advanced Java Programming
ITB717	Enterprise Software Architecture

**Web Services and Applications Major**

**Compulsory Units**

ITB254	Interaction Design
ITB260	E-Commerce Site Development
ITB295	XML: Data and Document Processing
ITB716	Advanced Web Applications Development
ITB717	Enterprise Software Architecture
ITB715	Web Services

**Potential Careers:**

Actuary, Computer Game Programmer, Data Communications Specialist, Database Manager, Market Research Manager, Mathematician, Network Administrator, Network Manager, Programmer, Quantitative Analyst, Software Engineer, Statistician, Systems Analyst.

## Bachelor of Applied Science / Bachelor of Business (IX31)

**Year offered:** 2007

**Admissions:** Yes

**Course duration (full-time):** 4 years

**Domestic fees (per credit point):** Commonwealth Supported Place; Full fee tuition 2007: \$210 per credit point (*subject to annual review*)

**Domestic fees (indicative):** 2007:\$20160

**International Fees (per semester):** 2007:\$9,000 per semester (*subject to annual review*)

**Domestic Entry:** February

**International Entry:** February

**QTAC code:** 419832; Dfee: 419836

**Past rank cut-off:** 75; Dfee: 70

**Past OP cut-off:** 12; Dfee: 14

**OP Guarantee:** Yes

**Assumed knowledge:** English (4, SA) and Maths B (4, SA)

**Preparatory studies:** MATHS: QUT unit Preparatory Mathematics as a visiting student or QUT Continuing Professional Education course Mathematics Bridging. ENGLISH: Successful completion of a year of full-time vocational or tertiary study. For further information contact 07 3138 2000 or email [study@qut.com](mailto:study@qut.com)

**Course coordinator:** Dr Megan Hargreaves (Science); Mr Andrew Paltridge (Business)

**Discipline coordinator:** Dr John Sweeting (Accountancy); Ms Gayle Kerr (Advertising); Dr John Chen (Banking & Finance); Dr Radhika Lahiri (Economics); Ms Sherrena Buckby (Electronic Business); Dr Paul Barnes (Human Resource Management); Mr Simon Ridings (International Business); Dr Paul Barnes (Management); Mr Bill Proud (Marketing); and Ms Robina Xavier (Public Relations).

**Campus:** Gardens Point

### Career Opportunities

By combining your science studies with the Bachelor of Business you will develop the entrepreneurial skills necessary to sell your abilities to a range of employers. As a graduate of the Bachelor of Applied Science/Bachelor of Business, you will be able to work at the cutting edge of scientific innovation within a range of public, private and non-profit industries. As well as the range of science-based careers available, you could expect to gain employment as a consultant, marketer, or project manager within firms developing and taking scientific research to the marketplace.

### Course Design

The Bachelor of Applied Science allows multi-disciplinary programs of study to help position you within the broad range of science disciplines and qualify you as a competent professional within your chosen field. You can specialise in one of the major areas of study available in the Bachelor of Applied Science course (Biochemistry, Biotechnology, Chemistry, Ecology, Environmental Science, Forensic Science, Geoscience, Microbiology or Physics). See the Bachelor of Applied Science (SC01) course for more details.

To allow you to complete the double degree in a shorter period of time, your co-major will be taken from the business

program therefore it is not possible to choose any of the co-majors listed under the Bachelor of Applied Science course.

You can specialise in one or more of the following business majors: Accountancy, Advertising, Banking and Finance, Economics, Electronic Business, Human Resource Management, International Business, Management, Marketing or Public Relations.

### Professional Recognition

The Bachelor of Business degree may, subject to choice of major, extended major, or specialisation, allow graduates to satisfy the academic requirements for membership as follows:

\*All majors: Chartered Secretaries Australia (CSA) - enrolment in the Graduate Diploma in Applied Corporate Governance.

\*Accountancy: CPA Australia (associate membership & enrolment in the CPA Program), Institute of Chartered Accountants in Australia (ICAA)(enrolment in the CA Program).

\*Advertising - Advertising Federation of Australia, Australian Association of National Advertisers, Australian Direct Marketing Association and the Queensland Commercial Radio Association;

\*Banking and Finance: Australasian Institute of Banking and Finance (AIBF).

\*Economics: Economic Society of Australia (Queensland Division).

\*Human Resource Management - Australian Human Resources Institute, Australian Institute of Training and Development, Australian Institute of Management;

\*International Business - Australian Institute of Export;

\*Management - Australian Institute of Management;

\*Marketing: Australian Marketing Institute, Market Research Society of Australia, Australian Institute of Management, Australian Institute of Export (Qld) Ltd, American Marketing Association.

\*Public Relations - Public Relations Institute of Australia.

Graduates will satisfy the requirements for membership of the relevant professional body for their chosen science major. See the Bachelor of Applied Science (SC01) course for details.

### Contact Details

#### Science Coordinator

Dr Megan Hargreaves

Phone: +61 7 3138 2244

Email: [m.hargreaves@qut.edu.au](mailto:m.hargreaves@qut.edu.au)

#### Business Coordinator

Mr Andrew Paltridge

Email: [a.paltridge@qut.edu.au](mailto:a.paltridge@qut.edu.au)

### Discipline Coordinators

#### Biochemistry

Dr Perry Hartfield

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*Biotechnology*

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*Physics*

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**Deferment**

QUT allows current Year 12 school leavers to defer their undergraduate admission offer for one year, or for six months if offered mid-year admission, except in courses using specific admission requirements such as questionnaires, portfolios, auditions, prior study or work experience.

Non-year 12 students may also request to defer their QTAC offer on the basis of demonstrated special circumstances.

Find out more on deferment.

**Full Time Course structure**

**Year 1 Semester 1**

- Business Faculty Core Unit
- Business Faculty Core Unit
- Science Faculty Unit
- Science Faculty Unit

**Year 1 Semester 2**

- Business Faculty Core Unit
- Business Faculty Core Unit
- Science Faculty Unit
- Science Faculty Unit

**Year 2 Semester 1**

- Business Faculty Core Unit
- Business Faculty Core Unit
- Science Faculty Unit
- Science Faculty Unit

**Year 2 Semester 2**

- Business Faculty Core Unit
- Business Faculty Major Unit
- Science Faculty Unit
- Science Faculty Unit

**Year 3 Semester 1**

- Business Faculty Major Unit
- Business Faculty Major Unit
- Science Faculty Unit
- Science Faculty Unit

**Year 3 Semester 2**

- Business Faculty Major Unit
- Business Faculty Major Unit
- Science Faculty Unit
- Science Faculty Unit

**Year 4 Semester 1**

- Business Faculty Major Unit
- Business Faculty Major Unit
- Science Faculty Unit
- Science Faculty Unit

**Year 4 Semester 2**

- Business Faculty Major Unit
- Business Faculty Major Unit
- Science Faculty Unit
- Science Faculty Unit

**Advertising Major**

**Year 1 Semester 1**

- BSB119 International and Electronic Business
- BSB126 Marketing

**Year 1 Semester 2**

- BSB110 Accounting
- BSB115 Management, People and Organisations

## SCIENCE

### Year 2 Semester 1

BSB114 Government, Business and Society  
AMB200 Consumer Behaviour

### Year 2 Semester 2

BSB111 Business Law and Ethics  
BSB113 Economics

### Year 3 Semester 1

AMB230 Internet Promotion  
AMB220 Advertising Theory and Practice

### Year 3 Semester 2

AMB221 Advertising Copywriting  
AMB222 Media Planning

### Year 4 Semester 1

AMB320 Advertising Management  
AMB330 Advertising Strategy and Planning

### Year 4 Semester 2

AMB321 Advertising Campaigns  
AMB202 Integrated Marketing Communication

### Accountancy Major

#### Year 1 Semester 1

BSB110 Accounting  
BSB115 Management, People and Organisations

#### Year 1 Semester 2

BSB114 Government, Business and Society  
BSB126 Marketing  
or  
BSB119 International and Electronic Business

#### Year 2 Semester 1

BSB111 Business Law and Ethics  
BSB113 Economics

#### Year 2 Semester 2

AYB121 Financial Accounting  
AYB223 Law of Business Associations

#### Year 3 Semester 1

AYB225 Management Accounting  
AYB220 Company Accounting

#### Year 3 Semester 2

AYB221 Computerised Accounting Systems  
AYB325 Taxation Law

#### Year 4 Semester 1

AYB301 Auditing

AYB311 Financial Accounting Issues  
or  
AYB321 Strategic Management Accounting

### Year 4 Semester 2

AYB339 Accountancy Capstone  
EFB210 Finance 1

### Banking and Finance Major

#### Year 1 Semester 1

BSB113 Economics  
BSB115 Management, People and Organisations

#### Year 1 Semester 2

BSB114 Government, Business and Society  
BSB126 Marketing

#### Year 2 Semester 1

BSB110 Accounting  
BSB111 Business Law and Ethics

#### Year 2 Semester 2

EFB102 Economics 2  
BSB119 International and Electronic Business

#### Year 3 Semester 1

EFB210 Finance 1  
EFB201 Financial Markets

#### Year 3 Semester 2

EFB307 Finance 2  
EFB312 International Finance

#### Year 4 Semester 1

EFB200 Applied Regression Analysis  
EFB318 Portfolio and Security Analysis

#### Year 4 Semester 2

Any Finance Unit  
Any Finance Unit

### Economics Major

#### Year 1 Semester 1

BSB113 Economics  
BSB115 Management, People and Organisations

#### Year 1 Semester 2

BSB114 Government, Business and Society  
BSB126 Marketing

#### Year 2 Semester 1

BSB110 Accounting

## SCIENCE

EFB102 Economics 2

### Year 2 Semester 2

EFB210 Finance 1

BSB119 International and Electronic Business

### Year 3 Semester 1

EFB211 Firms, Markets and Resources

EFB202 Business Cycles and Economic Growth

### Year 3 Semester 2

EFB328 Public Economics and Finance  
Any Economics unit

### Year 4 Semester 1

BSB111 Business Law and Ethics

EFB200 Applied Regression Analysis

### Year 4 Semester 2

EFB329 Contemporary Applications of Economics Theory

EFB314 International Trade and Economic Competitiveness

### Electronic Business Major

#### Year 1 Semester 1

BSB115 Management, People and Organisations

BSB119 International and Electronic Business

#### Year 1 Semester 2

BSB114 Government, Business and Society

BSB126 Marketing

#### Year 2 Semester 1

BSB110 Accounting

BSB111 Business Law and Ethics

#### Year 2 Semester 2

BSB113 Economics

AMB230 Internet Promotion

#### Year 3 Semester 1

BSB212 Electronic Business Applications

ITB233 Enterprise Systems Applications

#### Year 3 Semester 2

BSB213 Governance Issues in E-Business

ITB823 Web Sites For Electronic Commerce

#### Year 4 Semester 1

MGB334 Managing in a Changing Environment

AYB221 Computerised Accounting Systems

#### Year 4 Semester 2

ITB239 Enterprise Data Mining

BSB314 E-Business Intelligence

### Human Resource Management Major

#### Year 1 Semester 1

BSB113 Economics

BSB115 Management, People and Organisations

#### Year 1 Semester 2

BSB114 Government, Business and Society

BSB126 Marketing

#### Year 2 Semester 1

BSB110 Accounting

BSB111 Business Law and Ethics

#### Year 2 Semester 2

MGB207 Human Resource Issues and Strategy

BSB119 International and Electronic Business

#### Year 3 Semester 1

MGB220 Management Research Methods  
HRM Option Unit

#### Year 3 Semester 2

MGB211 Organisational Behaviour  
HRM Option Unit

#### Year 4 Semester 1

MGB221 Performance and Reward  
HRM Option Unit

#### Year 4 Semester 2

MGB320 Recruitment and Selection

MGB331 Training and Development

#### HRM Option Unit List:

MGB201 The Legal Context of Employment Relations

MGB209 Occupational Health and Safety Management

MGB224 Australian Industrial Relations

MGB304 Human Resource Information Management

MGB305 Human Resource Management Strategy and Policy

MGB314 Organisational Consulting and Change

MGB315 Personal and Professional Development

MGB325 Advanced Practice in Training and Development

HRM students must choose three from the above list (one must be a Level 3 unit).

### International Business Major

#### Year 1 Semester 1

## SCIENCE

BSB126 Marketing  
BSB119 International and Electronic Business

### Year 1 Semester 2

BSB110 Accounting  
BSB115 Management, People and Organisations

### Year 2 Semester 1

BSB114 Government, Business and Society  
IBB202 Fundamentals of International Finance

### Year 2 Semester 2

BSB111 Business Law and Ethics  
BSB113 Economics

### Year 3 Semester 1

IBB205 Cross-Cultural Communication and Negotiation  
IBB217 Asian Business Development  
or  
IBB208 European Business Development

### Year 3 Semester 2

IBB210 Export Management  
IBB317 Contemporary Business in Asia  
or  
IBB308 Contemporary Business in Europe

### Year 4 Semester 1

IBB300 International Business Strategy  
IBB304 Global Industry Analysis

### Year 4 Semester 2

IBB213 International Marketing  
IBB303 International Logistics

## Management Major

### Year 1 Semester 1

BSB113 Economics  
BSB115 Management, People and Organisations

### Year 1 Semester 2

BSB114 Government, Business and Society  
BSB126 Marketing

### Year 2 Semester 1

BSB110 Accounting  
BSB111 Business Law and Ethics

### Year 2 Semester 2

MGB220 Management Research Methods  
BSB119 International and Electronic Business

### Year 3 Semester 1

MGB210 Production and Service Management  
MGB211 Organisational Behaviour

### Year 3 Semester 2

MGB222 Managing Organisations  
Management Option Unit

### Year 4 Semester 1

MGB334 Managing in a Changing Environment  
Management Option Unit

### Year 4 Semester 2

MGB309 Strategic Management  
Management Option Unit

### Management Option Unit List:

MGB216 Managing Technological Innovation in Global Business  
MGB218 Venture Skills  
MGB223 Creating New Enterprises  
MGB312 Negotiation Skills  
MGB315 Personal and Professional Development  
MGB335 Project Management  
Management students must choose three from the above list (one must be a Level 3 unit).

## Public Relations Major

### Year 1 Semester 1

BSB119 International and Electronic Business  
BSB126 Marketing

### Year 1 Semester 2

BSB110 Accounting  
BSB115 Management, People and Organisations

### Year 2 Semester 1

BSB114 Government, Business and Society  
AMB201 Marketing and Audience Research

### Year 2 Semester 2

BSB111 Business Law and Ethics  
BSB113 Economics

### Year 3 Semester 1

AMB202 Integrated Marketing Communication  
AMB260 Public Relations Theory and Practice

### Year 3 Semester 2

AMB261 Media Relations and Publicity  
AMB262 Public Relations Writing

### Year 4 Semester 1

AMB360 Corporate Communication Management

AMB370 Public Relations Cases

**Year 4 Semester 2**

AMB361 Public Relations Campaigns

AMB371 Corporate Communication Strategies

**Marketing Major**

**Year 1 Semester 1**

BSB119 International and Electronic Business

BSB126 Marketing

**Year 1 Semester 2**

BSB110 Accounting

BSB115 Management, People and Organisations

**Year 2 Semester 1**

BSB114 Government, Business and Society

AMB200 Consumer Behaviour

**Year 2 Semester 2**

BSB111 Business Law and Ethics

BSB113 Economics

**Year 3 Semester 1**

AMB202 Integrated Marketing Communication

AMB240 Marketing Planning and Management

**Year 3 Semester 2**

AMB201 Marketing and Audience Research

AMB241 E-Marketing Strategies

**Year 4 Semester 1**

AMB340 Services Marketing  
Any Marketing unit

**Year 4 Semester 2**

AMB341 Strategic Marketing

AMB352 Marketing Decision Making  
or

IBB213 International Marketing

**Course structure - Major in Biochemistry**

**Year 1, Semester 1**

LSB118 Life Science  
Either

PCB140 Introductory Chemistry  
Or

PCB142 Chemistry 1

**Year 1, Semester 2**

LSB238 Cell and Molecular Biology 1

PCB242 Chemistry 2

**Year 2, Semester 1**

MAB101 Statistical Data Analysis 1

PCB101 Physical Science

**Year 2, Semester 2**

LSB258 Principles of Human Physiology

NRB270 Animal and Plant Structure and Function

**Year 3, Semester 1**

LSB308 Biochemistry

LSB338 Cell and Molecular Biology 2

**Year 3, Semester 2**

LSB408 Metabolism

LSB468 Molecular Biology

**Year 4, Semester 1**

LSB508 Advanced Metabolism

LSB527 Biomedical Research Technologies

**Year 4, Semester 2**

LSB607 Protein Purification

LSB608 Protein Science

**Course structure - Major in Biotechnology**

**Year 1, Semester 1**

LSB118 Life Science  
Either

PCB140 Introductory Chemistry  
Or

PCB142 Chemistry 1

**Year 1, Semester 2**

LSB238 Cell and Molecular Biology 1

PCB242 Chemistry 2

**Year 2, Semester 1**

MAB101 Statistical Data Analysis 1

PCB101 Physical Science

**Year 2, Semester 2**

LSB258 Principles of Human Physiology

NRB270 Animal and Plant Structure and Function

**Year 3, Semester 1**

LSB308 Biochemistry

LSB338 Cell and Molecular Biology 2

**Year 3, Semester 2**

LSB468 Molecular Biology

LSB469 Introduction to Genomics and Bioinformatics



**Year 4, Semester 1**

LSB537 Genetic Engineering

Either

LSB509 Medical Biotechnology 1

Or

LSB577 Plant Biotechnology 1

**Year 4, Semester 2**

LSB619 Genomics and Bioinformatics

Either

LSB609 Medical Biotechnology 2

Or

LSB677 Plant Biotechnology 2

**Course structure - Major in Chemistry**

**Year 1, Semester 1**

MAB100 Mathematical Sciences 1A

Either

PCB140 Introductory Chemistry

Or

PCB142 Chemistry 1

**Year 1, Semester 2**

MAB101 Statistical Data Analysis 1

PCB242 Chemistry 2

**Year 2, Semester 1**

LSB118 Life Science

PCB101 Physical Science

**Year 2, Semester 2**

PCB150 Physics 1H

PCB200 Chemical Technology 1

**Year 3, Semester 1**

PCB334 Inorganic Chemistry

PCB354 Structure and Mechanism in Organic Chemistry

**Year 3, Semester 2**

PCB405 Principles of Physical Chemistry

PCB444 Spectroscopy

**Year 4, Semester 1**

PCB505 Advanced Physical Chemistry

PCB554 Synthesis and Reactivity in Organic Chemistry

**Year 4, Semester 2**

PCB634 Organometallic and Coordination Chemistry

Either

PCB604 Project

Or

PCB644 Frontiers in Chemistry

**Course structure - Major in Ecology**

**Year 1, Semester 1**

LSB118 Life Science

NRB100 Environmental Science

**Year 1, Semester 2**

MAB101 Statistical Data Analysis 1

NRB270 Animal and Plant Structure and Function

**Year 2, Semester 1**

NRB230 Planet Earth

PCB101 Physical Science

**Year 2, Semester 2**

LSB238 Cell and Molecular Biology 1

NRB240 History of Life on Earth

**Year 3, Semester 1**

NRB301 Earth Surface Systems

NRB311 Population Ecology

**Year 3, Semester 2**

NRB410 Genetics and Evolution

NRB412 Experimental Design

**Year 4, Semester 1**

NRB510 Population Genetics

NRB511 Population Management

**Year 4, Semester 2**

NRB610 Ecological Applications

NRB611 Conservation Biology

**Course structure - Major in Environmental Science**

**Year 1, Semester 1**

LSB118 Life Science

NRB100 Environmental Science

**Year 1, Semester 2**

MAB101 Statistical Data Analysis 1

NRB270 Animal and Plant Structure and Function

**Year 2, Semester 1**

NRB230 Planet Earth

PCB101 Physical Science

**Year 2, Semester 2**

NRB240 History of Life on Earth

PCB142 Chemistry 1

**Year 3, Semester 1**

NRB301 Earth Surface Systems  
NRB311 Population Ecology

**Year 3, Semester 2**

NRB412 Experimental Design  
NRB440 Environmental Chemistry

**Year 4, Semester 1**

NRB500 Environmental Systems and Modelling  
NRB601 Field Mapping and Monitoring of Natural Resources

**Year 4, Semester 2**

NRB501 Spatial Analysis of Environmental Systems  
NRB600 Sustainable Environmental Management

**Course structure - Major in Forensic Science**

**Year 1, Semester 1**

LSB118 Life Science  
Either  
PCB140 Introductory Chemistry  
Or  
PCB142 Chemistry 1

**Year 1, Semester 2**

MAB101 Statistical Data Analysis 1  
PCB242 Chemistry 2

**Year 2, Semester 1**

MAB100 Mathematical Sciences 1A  
PCB101 Physical Science

**Year 2, Semester 2**

LSB238 Cell and Molecular Biology 1  
LSB258 Principles of Human Physiology

**Year 3, Semester 1**

LSB468 Molecular Biology  
SCB384 Forensic Science

**Year 3, Semester 2**

JSB979 Forensic Scientific Evidence  
PCB414 Industrial and Environmental Analytical Chemistry

**Year 4, Semester 1**

PCB514 Instrumental Analysis  
PCB584 Forensic Examination of Physical Evidence

**Year 4, Semester 2**

LSB684 Forensic DNA Profiling  
PCB684 Forensic Analysis and Toxicology

**Course structure - Major in Geoscience**

**Year 1, Semester 1**

NRB100 Environmental Science  
NRB230 Planet Earth

**Year 1, Semester 2**

MAB101 Statistical Data Analysis 1  
PCB142 Chemistry 1

**Year 2, Semester 1**

MAB100 Mathematical Sciences 1A  
PCB101 Physical Science

**Year 2, Semester 2**

LSB118 Life Science  
NRB240 History of Life on Earth

**Year 3, Semester 1**

NRB301 Earth Surface Systems  
NRB333 Mineralogy

**Year 3, Semester 2**

NRB434 Structural Geology  
NRB436 Introduction to Igneous and Metamorphic Petrology

**Year 4, Semester 1**

Two units selected from:  
NRB534 Geophysics  
NRB536 Petrology and Geochemistry  
NRB601 Field Mapping and Monitoring of Natural Resources

**Year 4, Semester 2**

Two units selected from:  
NRB633 Hydrogeology  
NRB635 Plate Tectonics and Advanced Structural Geology  
NRB636 Petroleum Geology and Basin Analysis

**Course structure - Major in Microbiology**

**Year 1, Semester 1**

LSB118 Life Science  
Either  
PCB140 Introductory Chemistry  
Or  
PCB142 Chemistry 1

**Year 1, Semester 2**

LSB238 Cell and Molecular Biology 1  
PCB242 Chemistry 2

**Year 2, Semester 1**

MAB101 Statistical Data Analysis 1  
PCB101 Physical Science

**Year 2, Semester 2**

LSB258 Principles of Human Physiology  
NRB270 Animal and Plant Structure and Function

**Year 3, Semester 1**

LSB308 Biochemistry  
LSB328 Microbiology 1

**Year 3, Semester 2**

LSB428 Microbiology 2  
LSB468 Molecular Biology

**Year 4, Semester 1**

Two units selected from:

LSB528 Environmental Microbiology  
LSB547 Bacterial Pathogenesis and Disease Diagnosis  
LSB568 Electron Microscopy  
LSB578 Virology

**Year 4, Semester 2**

Two units selected from:

LSB628 Food Microbiology  
LSB647 Clinical Mycology and Parasitology  
LSB648 Molecular Microbiology

**Course structure - Major in Physics**

**Year 1, Semester 1**

MAB111 Mathematical Sciences 1B  
PCB101 Physical Science

**Year 1, Semester 2**

MAB112 Mathematical Sciences 1C  
SCB222 Exploration of the Universe

**Year 2, Semester 1**

MAB311 Advanced Calculus  
PCB107 Physics and Quantitative Techniques

**Year 2, Semester 2**

PCB250 Physics 1  
PCB260 Physics 1A

**Year 3, Semester 1**

PCB361 AC Theory and Electronics  
PCB362 Physics 2

**Year 3, Semester 2**

PCB460 Instrumentation and Computational Methods

PCB462 Thermodynamics and Solid State Physics

**Year 4, Semester 1**

PCB561 Quantum and Condensed Matter Physics  
PCB562 Physical Methods of Analysis

**Year 4, Semester 2**

PCB661 Experimental Physics  
PCB665 Physics 3

**Potential Careers:**

Academic, Account Executive, Accountant, Advertising Professional, Analytical Chemist, Astrophysicist, Banker, Banking and Finance Professional, Biochemist, Biologist, Biomechanical Engineer, Biomedical Engineer, Biotechnologist, Business Analyst, Chemist, Chemist Industrial, Clinical Laboratory Scientist, Coastal Scientist, Conservation Biologist, Ecologist, Economist, Environmental Scientist, Estimator, Exchange Student, Financial Advisor/Analyst, Financial Project Manager, Forensic Scientist, Funds Manager, Geologist, Geophysicist, Geoscientist, Government Officer, Health Physicist, Home Economist, Human Resource Developer, Human Resource Manager, Hydrogeologist, Immunologist, Industrial Chemist, International Business Specialist, Investment Manager, Laboratory Technician (Chemistry), Manager, Marine Scientist, Marketing Officer/Manager, Medical Biotechnologist, Medical Physicist, Microbiologist, Molecular Biologist, Natural Resource Scientist, Physicist, Plant Biotechnologist, Policy Officer, Population Ecologist, Programmer, Public Relations Officer/Consultant, Public Servant, Stockbroker, Virologist.

## Bachelor of Business / Bachelor of Mathematics (IX37)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** 059601K

**Course duration (full-time):** 4 years

**Domestic fees (per credit point):** Commonwealth Supported Place; Full fee tuition 2007: \$210 per credit point (*subject to annual review*)

**Domestic fees (indicative):** 2007:\$20160

**International Fees (per semester):** 2007:\$9,000 per semester (*subject to annual review*)

**Domestic Entry:** February

**International Entry:** February

**QTAC code:** 419212; Dfee: 419216

**Past rank cut-off:** 75; Dfee: 70

**Past OP cut-off:** 12; Dfee: 14

**OP Guarantee:** Yes

**Assumed knowledge:** English (4, SA) and Maths B (4, SA)

**Preparatory studies:** MATHS: QUT unit Preparatory Mathematics as a visiting student or QUT Continuing Professional Education course Mathematics Bridging. ENGLISH: Successful completion of a year of full-time vocational or tertiary study. For further information contact 07 3138 2000 or email [study@qut.com](mailto:study@qut.com)

**Total credit points:** 384

**Standard credit points per full-time semester:** 48

**Course coordinator:** Prof Erhan Kozan (Mathematics); Mr Andrew Paltridge (Business)

**Discipline coordinator:** Dr John Sweeting (Accountancy); Ms Gayle Kerr (Advertising); Dr John Chen (Banking & Finance); Dr Radhika Lahiri (Economics); Ms Sherrena Buckby (Electronic Business); Dr Paul Barnes (Human Resource Management); Mr Simon Ridings (International Business); Dr Paul Barnes (Management); Mr Bill Proud (Marketing); and Ms Robina Xavier (Public Relations).

**Campus:** Gardens Point

### Career Opportunities

Graduates are equipped to undertake sophisticated economic and financial modelling which is important in business and government decision making. Quantitative analysts are employed by the financial sector in order to optimise returns both in the short and long-term. Graduates may also become actuarial trainees in the insurance and superannuation area although further study is required in order to qualify as an actuary.

Graduates may find employment as Accountants, Advertising Professionals, Banking and Finance Consultants, Economists, Human Resource Managers, International Business Specialists, Managers, Marketing Officers, Public Relations Officers.

### Professional Recognition

The Bachelor of Business degree may, subject to choice of major, extended major, or specialisation, allow graduates to satisfy the academic requirements for membership as follows:

\*All majors: Chartered Secretaries Australia (CSA) - enrolment in the Graduate Diploma in Applied Corporate

Governance.

\*Accountancy: CPA Australia (associate membership & enrolment in the CPA Program), Institute of Chartered Accountants in Australia (ICAA)(enrolment in the CA Program).

\*Advertising - Advertising Federation of Australia, Australian Association of National Advertisers, Australian Direct Marketing Association and the Queensland Commercial Radio Association;

\*Banking and Finance: Australasian Institute of Banking and Finance (AIBF).

\*Economics: Economic Society of Australia (Queensland Division).

\*Human Resource Management - Australian Human Resources Institute, Australian Institute of Training and Development, Australian Institute of Management;

\*International Business - Australian Institute of Export;

\*Management - Australian Institute of Management;

\*Marketing: Australian Marketing Institute, Market Research Society of Australia, Australian Institute of Management, Australian Institute of Export (Qld) Ltd, American Marketing Association.

\*Public Relations - Public Relations Institute of Australia.

Graduates of the Bachelor of Mathematics degree will be eligible for membership of the Mathematical Society of Australia, the Statistical Society of Australia, and depending on unit selection, the Australian Society of Operations Research.

### Course Design

The course offers the opportunity to combine Mathematics with a business course.

This course is made up of 384 credit points. Each component (i.e. Business and Mathematics) comprises 192 credit points.

### Mathematics Bursaries

Students enrolled in this course can apply for industry-sponsored bursaries. These bursaries are awarded to Australian citizens or permanent residents on a competitive basis. Applications should be submitted by 1 December of the year preceding entry to the course. For further information see [www.maths.qut.edu.au](http://www.maths.qut.edu.au)

### Deferment

QUT allows current Year 12 school leavers to defer their undergraduate admission offer for one year, or for six months if offered mid-year admission, except in courses using specific admission requirements such as questionnaires, folios, auditions, prior study or work experience.

Non-year 12 students may also request to defer their QTAC offer on the basis of demonstrated special circumstances.

Find out more on deferment.

### Contact Details

#### Science Coordinator

Prof Erhan Kozan

Phone: +61 7 3138 1029  
 Email: e.kozan@qut.edu.au

**Business Coordinator**

Mr Andrew Paltridge  
 Phone: +61 7 3138 2343  
 Email: a.paltridge@qut.edu.au

Business Faculty Major Unit  
 Business Faculty Major Unit  
 Mathematics Unit  
 Mathematics Unit

**Full Time Course structure**

**Year 1 Semester 1**

Business Faculty Core Unit  
 Business Faculty Core Unit  
 Mathematics Unit  
 Mathematics Unit

**Year 1 Semester 2**

Business Faculty Core Unit  
 Business Faculty Core Unit  
 Mathematics Unit  
 Mathematics Unit

**Year 2 Semester 1**

Business Faculty Core Unit  
 Business Faculty Core Unit  
 Mathematics Unit  
 Mathematics Unit

**Year 2 Semester 2**

Business Faculty Core Unit  
 Business Faculty Major Unit  
 Mathematics Unit  
 Mathematics Unit

**Year 3 Semester 1**

Business Faculty Major Unit  
 Business Faculty Major Unit  
 Mathematics Unit  
 Mathematics Unit

**Year 3 Semester 2**

Business Faculty Major Unit  
 Business Faculty Major Unit  
 Mathematics Unit  
 Mathematics Unit

**Year 4 Semester 1**

Business Faculty Major Unit  
 Business Faculty Major Unit  
 Mathematics Unit  
 Mathematics Unit

**Year 4 Semester 2**

**Advertising Major Course Structure for Students with Maths B and C**

**Year 1 Semester 1**

BSB119 International and Electronic Business  
 BSB126 Marketing

**Year 1 Semester 2**

BSB110 Accounting  
 BSB115 Management, People and Organisations

**Year 2 Semester 1**

BSB114 Government, Business and Society  
 AMB200 Consumer Behaviour

**Year 2 Semester 2**

BSB111 Business Law and Ethics  
 BSB113 Economics

**Year 3 Semester 1**

AMB230 Internet Promotion  
 AMB220 Advertising Theory and Practice

**Year 3 Semester 2**

AMB221 Advertising Copywriting  
 AMB222 Media Planning

**Year 4 Semester 1**

AMB320 Advertising Management  
 AMB330 Advertising Strategy and Planning

**Year 4 Semester 2**

AMB321 Advertising Campaigns  
 AMB202 Integrated Marketing Communication

**Management Major Course Structure for Students with Maths B and C**

**Year 1 Semester 1**

BSB113 Economics  
 BSB115 Management, People and Organisations

**Year 1 Semester 2**

BSB114 Government, Business and Society  
 BSB126 Marketing

**Year 2 Semester 1**

BSB110 Accounting  
 BSB111 Business Law and Ethics

**Year 2 Semester 2**

MGB220 Management Research Methods  
BSB119 International and Electronic Business

**Year 3 Semester 1**

MGB210 Production and Service Management  
MGB211 Organisational Behaviour

**Year 3 Semester 2**

MGB222 Managing Organisations  
Management Option Unit

**Year 4 Semester 1**

MGB334 Managing in a Changing Environment  
Management Option Unit

**Year 4 Semester 2**

MGB309 Strategic Management  
Management Option Unit

**Management Option Unit List:**

MGB216 Managing Technological Innovation in Global Business  
MGB218 Venture Skills  
MGB223 Creating New Enterprises  
MGB312 Negotiation Skills  
MGB315 Personal and Professional Development  
MGB335 Project Management

Management students must choose three from the above list (one must be a Level 3 unit).

**International Business Major Course Structure for Students with Maths B and C**

**Year 1 Semester 1**

BSB126 Marketing  
BSB119 International and Electronic Business

**Year 1 Semester 2**

BSB110 Accounting  
BSB115 Management, People and Organisations

**Year 2 Semester 1**

BSB114 Government, Business and Society  
IBB202 Fundamentals of International Finance

**Year 2 Semester 2**

BSB111 Business Law and Ethics  
BSB113 Economics

**Year 3 Semester 1**

IBB205 Cross-Cultural Communication and Negotiation  
IBB217 Asian Business Development  
or

IBB208 European Business Development

**Year 3 Semester 2**

IBB210 Export Management  
IBB317 Contemporary Business in Asia  
or  
IBB308 Contemporary Business in Europe

**Year 4 Semester 1**

IBB300 International Business Strategy  
IBB304 Global Industry Analysis

**Year 4 Semester 2**

IBB213 International Marketing  
IBB303 International Logistics

**Human Resource Management Major Course Structure for Students with Maths B and C**

**Year 1 Semester 1**

BSB113 Economics  
BSB115 Management, People and Organisations

**Year 1 Semester 2**

BSB114 Government, Business and Society  
BSB126 Marketing

**Year 2 Semester 1**

BSB110 Accounting  
BSB111 Business Law and Ethics

**Year 2 Semester 2**

MGB207 Human Resource Issues and Strategy  
BSB119 International and Electronic Business

**Year 3 Semester 1**

MGB220 Management Research Methods  
HRM Option Unit

**Year 3 Semester 2**

MGB211 Organisational Behaviour  
HRM Option Unit

**Year 4 Semester 1**

MGB221 Performance and Reward  
HRM Option Unit

**Year 4 Semester 2**

MGB320 Recruitment and Selection  
MGB331 Training and Development

**HRM Option Unit List:**

MGB201 The Legal Context of Employment Relations  
MGB209 Occupational Health and Safety Management

## SCIENCE

MGB224	Australian Industrial Relations
MGB304	Human Resource Information Management
MGB305	Human Resource Management Strategy and Policy
MGB314	Organisational Consulting and Change
MGB315	Personal and Professional Development
MGB325	Advanced Practice in Training and Development

HRM students must choose three from the above list (one must be a Level 3 unit).

### Banking and Finance Major Course Structure for Students with Maths B and C

#### Year 1 Semester 1

BSB113	Economics
BSB115	Management, People and Organisations

#### Year 1 Semester 2

BSB114	Government, Business and Society
BSB126	Marketing

#### Year 2 Semester 1

BSB110	Accounting
BSB111	Business Law and Ethics

#### Year 2 Semester 2

EFB102	Economics 2
BSB119	International and Electronic Business

#### Year 3 Semester 1

EFB210	Finance 1
EFB201	Financial Markets

#### Year 3 Semester 2

EFB307	Finance 2
EFB312	International Finance

#### Year 4 Semester 1

EFB200	Applied Regression Analysis
EFB318	Portfolio and Security Analysis

#### Year 4 Semester 2

Any Finance Unit  
Any Finance Unit

### Accountancy Major Course Structure for Students with Maths B and C

#### Year 1 Semester 1

BSB110	Accounting
BSB115	Management, People and Organisations

#### Year 1 Semester 2

BSB114	Government, Business and Society
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BSB126	Marketing
	or
BSB119	International and Electronic Business

#### Year 2 Semester 1

BSB111	Business Law and Ethics
BSB113	Economics

#### Year 2 Semester 2

AYB121	Financial Accounting
AYB223	Law of Business Associations

#### Year 3 Semester 1

AYB225	Management Accounting
AYB220	Company Accounting

#### Year 3 Semester 2

AYB221	Computerised Accounting Systems
AYB325	Taxation Law

#### Year 4 Semester 1

AYB301	Auditing
AYB311	Financial Accounting Issues
	or
AYB321	Strategic Management Accounting

#### Year 4 Semester 2

AYB339	Accountancy Capstone
EFB210	Finance 1

### Economics Major Course Structure for Students with Maths B and C

#### Year 1 Semester 1

BSB113	Economics
BSB115	Management, People and Organisations

#### Year 1 Semester 2

BSB114	Government, Business and Society
BSB126	Marketing

#### Year 2 Semester 1

BSB110	Accounting
EFB102	Economics 2

#### Year 2 Semester 2

EFB210	Finance 1
BSB119	International and Electronic Business

#### Year 3 Semester 1

EFB211	Firms, Markets and Resources
EFB202	Business Cycles and Economic Growth

#### Year 3 Semester 2

EFB328 Public Economics and Finance  
Any Economics unit

**Year 4 Semester 1**

BSB111 Business Law and Ethics  
EFB200 Applied Regression Analysis

**Year 4 Semester 2**

EFB329 Contemporary Applications of Economics Theory  
EFB314 International Trade and Economic Competitiveness

**Electronic Business Major Course Structure for Students with Maths B and C**

**Year 1 Semester 1**

BSB115 Management, People and Organisations  
BSB119 International and Electronic Business

**Year 1 Semester 2**

BSB114 Government, Business and Society  
BSB126 Marketing

**Year 2 Semester 1**

BSB110 Accounting  
BSB111 Business Law and Ethics

**Year 2 Semester 2**

BSB113 Economics  
AMB230 Internet Promotion

**Year 3 Semester 1**

BSB212 Electronic Business Applications  
ITB233 Enterprise Systems Applications

**Year 3 Semester 2**

BSB213 Governance Issues in E-Business  
ITB823 Web Sites For Electronic Commerce

**Year 4 Semester 1**

MGB334 Managing in a Changing Environment  
AYB221 Computerised Accounting Systems

**Year 4 Semester 2**

ITB239 Enterprise Data Mining  
BSB314 E-Business Intelligence

**Public Relations Major Course Structure for Students with Maths B and C**

**Year 1 Semester 1**

BSB119 International and Electronic Business  
BSB126 Marketing

**Year 1 Semester 2**

BSB110 Accounting  
BSB115 Management, People and Organisations

**Year 2 Semester 1**

BSB114 Government, Business and Society  
AMB201 Marketing and Audience Research

**Year 2 Semester 2**

BSB111 Business Law and Ethics  
BSB113 Economics

**Year 3 Semester 1**

AMB202 Integrated Marketing Communication  
AMB260 Public Relations Theory and Practice

**Year 3 Semester 2**

AMB261 Media Relations and Publicity  
AMB262 Public Relations Writing

**Year 4 Semester 1**

AMB360 Corporate Communication Management  
AMB370 Public Relations Cases

**Year 4 Semester 2**

AMB361 Public Relations Campaigns  
AMB371 Corporate Communication Strategies

**Marketing Major Course Structure for Students with Maths B and C**

**Year 1 Semester 1**

BSB119 International and Electronic Business  
BSB126 Marketing

**Year 1 Semester 2**

BSB110 Accounting  
BSB115 Management, People and Organisations

**Year 2 Semester 1**

BSB114 Government, Business and Society  
AMB200 Consumer Behaviour

**Year 2 Semester 2**

BSB111 Business Law and Ethics  
BSB113 Economics

**Year 3 Semester 1**

AMB202 Integrated Marketing Communication  
AMB240 Marketing Planning and Management

**Year 3 Semester 2**

AMB201 Marketing and Audience Research  
AMB241 E-Marketing Strategies



**Year 4 Semester 1**

AMB340 Services Marketing  
Any Marketing unit

**Year 4 Semester 2**

AMB341 Strategic Marketing  
AMB352 Marketing Decision Making  
or  
IBB213 International Marketing

**Accountancy Course Structure for Students with Maths B**

**Year 1 Semester 1**

BSB110 Accounting  
BSB115 Management, People and Organisations

**Year 1 Semester 2**

BSB126 Marketing  
or  
BSB119 International and Electronic Business

**Year 2 Semester 1**

BSB111 Business Law and Ethics  
BSB113 Economics

**Year 2 Semester 2**

AYB121 Financial Accounting  
AYB223 Law of Business Associations  
BSB114 Government, Business and Society

**Year 3 Semester 1**

AYB225 Management Accounting  
AYB220 Company Accounting

**Year 3 Semester 2**

AYB221 Computerised Accounting Systems  
AYB325 Taxation Law

**Year 4 Semester 1**

AYB301 Auditing  
AYB311 Financial Accounting Issues  
or  
AYB321 Strategic Management Accounting

**Year 4 Semester 2**

AYB339 Accountancy Capstone  
EFB210 Finance 1

**Economics Course Structure for Students with Maths B**

**Year 1 Semester 1**

BSB113 Economics

BSB115 Management, People and Organisations

**Year 1 Semester 2**

BSB114 Government, Business and Society

**Year 2 Semester 1**

BSB110 Accounting  
EFB102 Economics 2

**Year 2 Semester 2**

BSB119 International and Electronic Business  
EFB210 Finance 1  
BSB126 Marketing

**Year 3 Semester 1**

EFB211 Firms, Markets and Resources  
EFB202 Business Cycles and Economic Growth

**Year 3 Semester 2**

Any Economics Unit  
EFB328 Public Economics and Finance

**Year 4 Semester 1**

BSB111 Business Law and Ethics  
EFB200 Applied Regression Analysis

**Year 4 Semester 2**

EFB329 Contemporary Applications of Economics Theory  
EFB314 International Trade and Economic Competitiveness

**Advertising Course Structure for Students with Maths B**

**Year 1 Semester 1**

BSB119 International and Electronic Business  
BSB126 Marketing

**Year 1 Semester 2**

BSB115 Management, People and Organisations

**Year 2 Semester 1**

BSB114 Government, Business and Society  
AMB200 Consumer Behaviour

**Year 2 Semester 2**

BSB111 Business Law and Ethics  
BSB113 Economics  
BSB110 Accounting

**Year 3 Semester 1**

AMB220 Advertising Theory and Practice  
AMB230 Internet Promotion

**Year 3 Semester 2**

AMB221 Advertising Copywriting

AMB222 Media Planning

**Year 4 Semester 1**

AMB320 Advertising Management

AMB330 Advertising Strategy and Planning

**Year 4 Semester 2**

AMB321 Advertising Campaigns

AMB202 Integrated Marketing Communication

**Banking & Finance Course Structure for Students with Maths B**

**Year 1 Semester 1**

BSB113 Economics

BSB115 Management, People and Organisations

**Year 1 Semester 2**

BSB114 Government, Business and Society

**Year 2 Semester 1**

BSB110 Accounting

BSB111 Business Law and Ethics

**Year 2 Semester 2**

EFB102 Economics 2

BSB119 International and Electronic Business

BSB126 Marketing

**Year 3 Semester 1**

EFB210 Finance 1

EFB201 Financial Markets

**Year 3 Semester 2**

EFB307 Finance 2

EFB312 International Finance

**Year 4 Semester 1**

EFB200 Applied Regression Analysis

EFB318 Portfolio and Security Analysis

**Year 4 Semester 2**

Any Finance Unit

Any Finance Unit

**Electronic Business Course Structure for Students with Maths B**

**Year 1 Semester 1**

BSB115 Management, People and Organisations

BSB119 International and Electronic Business

**Year 1 Semester 2**

BSB126 Marketing

**Year 2 Semester 1**

BSB110 Accounting

BSB111 Business Law and Ethics

**Year 2 Semester 2**

BSB113 Economics

AMB230 Internet Promotion

BSB114 Government, Business and Society

**Year 3 Semester 1**

BSB212 Electronic Business Applications

ITB233 Enterprise Systems Applications

**Year 3 Semester 2**

BSB213 Governance Issues in E-Business

ITB823 Web Sites For Electronic Commerce

**Year 4 Semester 1**

MGB334 Managing in a Changing Environment

AYB221 Computerised Accounting Systems

**Year 4 Semester 2**

BSB314 E-Business Intelligence

ITB239 Enterprise Data Mining

**Human Resource Management Course Structure for Students with Maths B**

**Year 1 Semester 1**

BSB113 Economics

BSB115 Management, People and Organisations

**Year 1 Semester 2**

BSB114 Government, Business and Society

**Year 2 Semester 1**

BSB110 Accounting

BSB111 Business Law and Ethics

**Year 2 Semester 2**

MGB207 Human Resource Issues and Strategy

BSB119 International and Electronic Business

BSB126 Marketing

**Year 3 Semester 1**

MGB220 Management Research Methods

HRM Option Unit

**Year 3 Semester 2**

MGB211 Organisational Behaviour

HRM Option Unit

**Year 4 Semester 1**

MGB221 Performance and Reward  
HRM Option Unit

**Year 4 Semester 2**

MGB320 Recruitment and Selection  
MGB331 Training and Development

**HRM Option Unit List:**

MGB201 The Legal Context of Employment Relations  
MGB209 Occupational Health and Safety Management  
MGB224 Australian Industrial Relations  
MGB304 Human Resource Information Management  
MGB305 Human Resource Management Strategy and Policy  
MGB314 Organisational Consulting and Change  
MGB315 Personal and Professional Development  
MGB325 Advanced Practice in Training and Development

HRM students must choose two units from the above list (one must be a Level 3 unit).

**International Business Course Structure for Students with Maths B**

**Year 1 Semester 1**

BSB119 International and Electronic Business  
BSB126 Marketing

**Year 1 Semester 2**

BSB110 Accounting

**Year 2 Semester 1**

BSB114 Government, Business and Society  
IBB202 Fundamentals of International Finance

**Year 2 Semester 2**

BSB111 Business Law and Ethics  
BSB113 Economics  
BSB115 Management, People and Organisations

**Year 3 Semester 1**

IBB205 Cross-Cultural Communication and Negotiation  
IBB217 Asian Business Development  
or  
IBB208 European Business Development

**Year 3 Semester 2**

IBB210 Export Management  
IBB317 Contemporary Business in Asia  
or  
IBB308 Contemporary Business in Europe

**Year 4 Semester 1**

IBB300 International Business Strategy

IBB304 Global Industry Analysis

**Year 4 Semester 2**

IBB213 International Marketing  
IBB303 International Logistics

**Marketing Course Structure for Students with Maths B**

**Year 1 Semester 1**

BSB119 International and Electronic Business  
BSB126 Marketing

**Year 1 Semester 2**

BSB110 Accounting

**Year 2 Semester 1**

BSB114 Government, Business and Society  
AMB200 Consumer Behaviour

**Year 2 Semester 2**

BSB111 Business Law and Ethics  
BSB113 Economics  
BSB115 Management, People and Organisations

**Year 3 Semester 1**

AMB202 Integrated Marketing Communication  
AMB240 Marketing Planning and Management

**Year 3 Semester 2**

AMB201 Marketing and Audience Research  
AMB241 E-Marketing Strategies

**Year 4 Semester 1**

AMB340 Services Marketing  
Any Marketing Unit

**Year 4 Semester 2**

AMB341 Strategic Marketing  
AMB352 Marketing Decision Making  
or  
IBB213 International Marketing

**Management Course Structure for Students with Maths B**

**Year 1 Semester 1**

BSB113 Economics  
BSB115 Management, People and Organisations

**Year 1 Semester 2**

BSB114 Government, Business and Society

**Year 2 Semester 1**

BSB110 Accounting

## SCIENCE

BSB111 Business Law and Ethics

### Year 2 Semester 2

MGB220 Management Research Methods

BSB119 International and Electronic Business

BSB126 Marketing

### Year 3 Semester 1

MGB210 Production and Service Management

MGB211 Organisational Behaviour

### Year 3 Semester 2

MGB222 Managing Organisations

Management Option List

### Year 4 Semester 1

MGB334 Managing in a Changing Environment

Management Option List

### Year 4 Semester 2

MGB309 Strategic Management

Management Option List

### Management Option Unit List:

MGB216 Managing Technological Innovation in Global Business

MGB218 Venture Skills

MGB223 Creating New Enterprises

MGB312 Negotiation Skills

MGB315 Personal and Professional Development

MGB335 Project Management

Management students must choose two from the above list (one must be a Level 3 unit).

### Public Relations Course Structure for Students with Maths B

#### Year 1 Semester 1

BSB119 International and Electronic Business

BSB126 Marketing

#### Year 1 Semester 2

BSB110 Accounting

#### Year 2 Semester 1

BSB114 Government, Business and Society

AMB201 Marketing and Audience Research

#### Year 2 Semester 2

BSB111 Business Law and Ethics

BSB113 Economics

BSB115 Management, People and Organisations

#### Year 3 Semester 1

AMB202 Integrated Marketing Communication

AMB260 Public Relations Theory and Practice

### Year 3 Semester 2

AMB261 Media Relations and Publicity

AMB262 Public Relations Writing

### Year 4 Semester 1

AMB360 Corporate Communication Management

AMB370 Public Relations Cases

### Year 4 Semester 2

AMB361 Public Relations Campaigns

AMB371 Corporate Communication Strategies

### Course structure - For students with four semesters of Senior Mathematics B and Senior Mathematics C

For students with four semesters of Senior Mathematics B and Senior Mathematics C, at a level of Sound Achievement or better, (or equivalent)

#### Year 1, Semester 1

MAB101 Statistical Data Analysis 1

MAB111 Mathematical Sciences 1B

#### Year 1, Semester 2

MAB112 Mathematical Sciences 1C

MAB210 Statistical Modelling 1

#### Year 2, Semester 1

MAB311 Advanced Calculus

MAB313 Mathematics of Finance

#### Year 2, Semester 2

MAB220 Computational Mathematics 1

Mathematics Elective

#### Year 3, Semester 1

MAB312 Linear Algebra

Mathematics Elective

#### Year 3, Semester 2

Mathematics Elective

Mathematics Elective

#### Year 4, Semester 1

Mathematics Elective

Mathematics Elective

#### Year 4, Semester 2

Mathematics Elective

Mathematics Elective

### Course structure - For students with four semester of

**Senior Maths B**

For students with four semesters of Senior Mathematics B (or equivalent) only, at a level of Sound Achievement or better

**Year 1, Semester 1**

- MAB100 Mathematical Sciences 1A
- MAB101 Statistical Data Analysis 1

**Year 1, Semester 2**

- MAB111 Mathematical Sciences 1B
- MAB112 Mathematical Sciences 1C
- MAB210 Statistical Modelling 1
- OR null
- Business Faculty Core Unit

**Year 2, Semester 1**

- MAB311 Advanced Calculus
- MAB313 Mathematics of Finance

**Year 2, Semester 2**

- MAB220 Computational Mathematics 1
- Mathematics Elective
- OR null
- MAB210 Statistical Modelling 1

**Year 3, Semester 1**

- MAB312 Linear Algebra
- Mathematics Elective

**Year 3, Semester 2**

- Mathematics Elective
- Mathematics Elective

**Year 4, Semester 1**

- Mathematics Elective
- Mathematics Elective

**Year 4, Semester 2**

- Mathematics Elective
- Mathematics Elective

**Mathematics Units**

**Level 1 Units:**

- MAB100 Mathematical Sciences 1A
- MAB101 Statistical Data Analysis 1
- MAB111 Mathematical Sciences 1B
- MAB112 Mathematical Sciences 1C
- MAB210 Statistical Modelling 1
- MAB220 Computational Mathematics 1

**Level 2 Units - You must complete:**

- MAB311 Advanced Calculus
- MAB312 Linear Algebra
- MAB313 Mathematics of Finance

**Level 2 Units - Select from:**

- MAB314 Statistical Modelling 2
- MAB315 Operations Research 2
- MAB413 Differential Equations
- MAB414 Applied Statistics 2
- MAB420 Computational Mathematics 2
- MAB422 Mathematical Modelling
- MAB480 Introduction to Scientific Computation
- MAB481 Visualisation and Data Analysis

**Level 3 Units: You must complete at least 4 units from:**

- MAB521 Applied Mathematics 3
- MAB522 Computational Mathematics 3
- MAB524 Statistical Inference
- MAB525 Operations Research 3A
- MAB526 Statistical Science 3
- MAB613 Partial Differential Equations
- MAB623 Financial Mathematics
- MAB624 Applied Statistics 3
- MAB625 Operations Research 3B
- MAB640 Industry Project
- MAB672 Advanced Mathematical Modelling
- MAB681 Advanced Visualisation and Data Analysis

**Other Level 3 Units:**

- MAB523 Introduction to Quality Management
- MAB621 Discrete Mathematics
- null

**NOTE:** In 2008, MAB313 Mathematics of Finance will be in Semester 2 and MAB315 Operations Research 2 will be in Semester 1

**Potential Careers:**

Account Executive, Accountant, Actuary, Banker, Banking and Finance Professional, Business Analyst, Certified Practising Accountant, Computer Game Programmer, Corporate Secretary, Economist, Financial Advisor/Analyst, Financial Project Manager, Funds Manager, Government Officer, Investment Manager, Market Research Manager, Mathematician, Quantitative Analyst, Risk Manager, Statistician, Stockbroker.

## Graduate Certificate In Research Commercialisation (IX97)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** External

**Course duration (full-time):** 1 semesters. The course must be completed within a maximum time period of 4 years.

**Course duration (part-time):** 2 semesters. The course must be completed within a maximum period of 8 years.

**Course duration (external):** 2 semesters. The course must be completed within a maximum period of 8 years.

**Domestic fees (per credit point):** 2007: \$167 per credit point (*subject to annual review*)

**Domestic fees (indicative):** 2007: \$16,000

**International Fees (per semester):** 2007:\$12,000 per semester (*subject to annual review*)

**Domestic Entry:** 2 entry points per year

**International Entry:** 2 entry points per year

**Course coordinator:** Professor Rod Wissler

**Campus:** Internet

### course structure

IFP100	Knowledge Transfer and Research Commercialisation (Core Unit)
IFP103	Public Policy and Research
IFP101	Leadership and Workplace Communication
IFP102	Project Management and Research
IFP104	Entrepreneurial Foundations

### Potential Careers:

Academic, Administrator, Arts Administrator, Biochemist, Bioengineer, Bioinformatician, Biologist, Biomechanical Engineer, Biomedical Engineer, Biotechnologist, Biotechnologist, Biotechnology Business/Investment Analyst, Business Analyst, Business Development Officer, Cell Biologist, Civil Engineer, Contract Administrator, Financial Advisor/Analyst, Government Officer, International Business Specialist, Marine Scientist, Market Research Manager, Marketing Officer/Manager, Mathematician, Microbiologist, Policy Officer, Public Servant, Scientist, Social Scientist, Urban Designer, Visual Artist, Web Designer.

## Bachelor of Applied Science (Medical Science) (LS37)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** 020331D

**Course duration (full-time):** 3 Years

**Course duration (part-time):** 6 Years

**Domestic fees (per credit point):** Commonwealth Supported Place; Full fee tuition 2007: \$210 per credit point (*subject to annual review*)

**Domestic fees (indicative):** 2007: Full fee tuition \$20,160; CSP \$7,101

**International Fees (per semester):** 2007:\$9,000 per semester (*subject to annual review*)

**Domestic Entry:** February

**International Entry:** February and July (Conditions apply for July entry)

**QTAC code:** 418201; Dfee: 418206

**Past rank cut-off:** 80; Dfee: 75

**Past OP cut-off:** 10; Dfee: 12

**OP Guarantee:** Yes

**Assumed knowledge:** English (4, SA), Maths B (4, SA) and Chemistry (4, SA)

**Preparatory studies:** MATHS: QUT unit Preparatory Mathematics as a visiting student or QUT Continuing Professional Education course Mathematics Bridging. CHEMISTRY: QUT unit Introductory Chemistry as a visiting student or QUT Continuing Professional Chemistry Bridging. ENGLISH: Successful completion of a year of full-time vocational or tertiary study. For further information contact 07 3138 2000 or email [study@qut.com](mailto:study@qut.com)

**Total credit points:** 288

**Standard credit points per full-time semester:** 48

**Standard credit points per part-time semester:** 24

**Course coordinator:** Dr Trevor Forster

**Campus:** Gardens Point

### Career Opportunities

This course can provide a range of exciting opportunities in the field of medical science.

The degree is the preferred qualification for employment in the pathology industry as a scientist. Scientists in the pathology industry perform tests on human blood or tissue and other forms of testing in the areas of immunology, haematology, microbiology, histopathology, cytology and biochemistry. You may decide to specialise in areas such as leukaemia diagnosis, cytogenetics, stem cell manipulation, tumour diagnosis, cytological diagnosis, DNA testing or forensic testing, or proceed to a managerial position within a pathology laboratory or hospital.

The course also provides a first degree for students wishing to undertake postgraduate studies in medicine. Graduates also have the opportunity to proceed to postgraduate studies leading to a career in medical research. Graduates are currently working as researchers in areas such as malaria, virology, stem cells, immunology and molecular biology.

### Special Course Requirements

Students are required to undertake a minimum six-week work experience program in a practising pathology laboratory. This takes place at the end of the second year in the full-time program and in a suitable vacation period during the part-time program. Proof of successful vaccination against Hepatitis B must be provided by students at the end of first semester of year two of the program.

### Professional Recognition

Graduates are immediately eligible for graduate membership of the Australian Institute of Medical Scientists and will have completed the academic requirements for admission as Members.

### Why Choose this Course?

This is the only medical science degree in southern Queensland which is accredited with the Australian Institute of Medical Scientists (AIMS). In recent years more than 90 per cent of graduates seeking employment were successful within four months of graduation.

The course is designed in consultation with senior staff in pathology laboratories, so you'll gain advanced knowledge of new diagnostic techniques used in the workplace. QUT has state-of-the-art laboratories, allowing you to graduate with extensive experience using equipment found in industry. Medical Science students also undertake clinical placements in pathology laboratories during the course giving you a chance to use your skills in a real workplace.

### Contact Details

#### Course Coordinator

Dr Trevor Forster

Phone: +61 7 3138 2559

Email: [t.forster@qut.edu.au](mailto:t.forster@qut.edu.au)

### Deferment

QUT allows current Year 12 school leavers to defer their undergraduate admission offer for one year, or for six months if offered mid-year admission, except in courses using specific admission requirements such as questionnaires, portfolios, auditions, prior study or work experience.

Non-year 12 students may also request to defer their QTAC offer on the basis of demonstrated special circumstances.

Find out more on deferment.

### Course structure - Full-time

#### Year 1, Semester 1

LSB118	Life Science
MAB141	Mathematics and Statistics for Medical Science
PCB142	Chemistry 1
PCB150	Physics 1H

#### Year 1, Semester 2

LSB238	Cell and Molecular Biology 1
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## SCIENCE

LSB250 Human Physiology  
LSB255 Human Anatomy  
PCB242 Chemistry 2

### Year 2, Semester 1

LSB325 Biochemistry  
LSB328 Microbiology 1  
LSB338 Cell and Molecular Biology 2  
LSB365 Pathology

### Year 2, Semester 2

LSB425 Quantitative Medical Science  
LSB435 Diagnostic Microbiology 1  
LSB438 Immunology 1  
LSB465 Histopathology 1  
LSB480 Professional Practice

### Year 3, Semester 1

LSB525 Clinical Biochemistry 1  
LSB535 Microbial Immunology  
LSB555 Haematology 1  
LSB565 Histopathology 2

### Year 3, Semester 2

LSB625 Clinical Biochemistry 2  
LSB635 Diagnostic Microbiology 2  
LSB655 Haematology 2  
LSB665 Immunohaematology

### Course structure - Part-time

#### Year 1, Semester 1

LSB118 Life Science  
MAB141 Mathematics and Statistics for Medical Science

#### Year 1, Semester 2

LSB238 Cell and Molecular Biology 1  
PCB142 Chemistry 1

#### Year 2, Semester 1

PCB150 Physics 1H  
PCB242 Chemistry 2

#### Year 2, Semester 2

LSB250 Human Physiology  
LSB255 Human Anatomy

#### Year 3, Semester 1

LSB325 Biochemistry  
LSB328 Microbiology 1

#### Year 3, Semester 2

LSB425 Quantitative Medical Science

LSB435 Diagnostic Microbiology 1

#### Year 4, Semester 1

LSB338 Cell and Molecular Biology 2  
LSB365 Pathology

#### Year 4, Semester 2

LSB438 Immunology 1  
LSB465 Histopathology 1

#### Year 5, Semester 1

LSB525 Clinical Biochemistry 1  
LSB535 Microbial Immunology

#### Year 5, Semester 2

LSB480 Professional Practice  
LSB625 Clinical Biochemistry 2  
LSB635 Diagnostic Microbiology 2

#### Year 6, Semester 1

LSB555 Haematology 1  
LSB565 Histopathology 2

#### Year 6, Semester 2

LSB655 Haematology 2  
LSB665 Immunohaematology

### Potential Careers:

Biochemist, Clinical Laboratory Scientist, Medical Scientist, Microbiologist, Operations Manager, Pathology Scientist.



## Bachelor of Biotechnology Innovation (LS50)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** 037681J

**Course duration (full-time):** 4 years

**Course duration (part-time):** 8 years

**Domestic fees (per credit point):** Commonwealth Supported Place; Full fee tuition 2007: \$210 per credit point (*subject to annual review*)

**Domestic fees (indicative):** 2007: Full fee tuition \$20,160; CSP \$7,128

**International Fees (per semester):** 2007:\$9,000 per semester (*subject to annual review*)

**Domestic Entry:** February

**International Entry:** February and July

**QTAC code:** 418311; Dfee: 418316

**Past rank cut-off:** 70; Dfee: 75

**Past OP cut-off:** 12; Dfee: 14

**OP Guarantee:** Yes

**Assumed knowledge:** English (4, SA), Maths B (4, SA) and Chemistry (4, SA)

**Preparatory studies:** MATHS: QUT unit Preparatory Mathematics as a visiting student or QUT Continuing Professional Education course Mathematics Bridging. CHEMISTRY: QUT unit Introductory Chemistry as a visiting student or QUT Continuing Professional Chemistry Bridging. ENGLISH: Successful completion of a year of full-time vocational or tertiary study. For further information contact 07 3138 2000 or email [study@qut.com](mailto:study@qut.com)

**Total credit points:** 384

**Standard credit points per full-time semester:** 48

**Standard credit points per part-time semester:** 24

**Course coordinator:** Associate Professor Chris Collet

**Campus:** Gardens Point

### Career Opportunities

The Bachelor of Biotechnology Innovation is training the next generation of bioentrepreneurs to translate research outcomes into business opportunities. Graduates can be business-savvy scientists, or operate in the world of commercialisation and technology transfer or start up their own biotechnology-based enterprise bringing their own products to market. The emphasis on innovation and entrepreneurship means that graduates are comfortable working in a start up company environment or on new projects in established enterprises. Traditional roles in research-focussed organisations are also available.

Graduates are taking up key positions in the biotechnology industry sector as scientists, business development officers building new businesses from emerging technologies and as commercialisation officers evaluating and financing the commercialisation of new biotechnology products.

Biotechnology is a global industry with many countries promoting the sector as a major pillar of future economic development. Career opportunities exist internationally and graduates are encouraged to think beyond Australia. Graduates are eligible to apply directly for Masters or Doctor of Philosophy studies.

### Recommended Study

Biological Science is recommended.

### Course Design

The Bachelor of Biotechnology Innovation, a degree with Honours, was the first degree of its type in Australia and aims to provide highly trained and motivated graduates skilled in the science and business and biotechnology. Graduates undertake the same basic and advanced biotechnology science as students in other science-based courses, gaining requisite theoretical and practical skills. In this course, however, basic and advanced business units are undertaken highlighting entrepreneurial skills and biotechnology commercialisation. Integration and synthesis of the disparate disciplines is an essential component of the course.

Unique to the course is the Student BioEnterprise Scheme, a proactive project-based learning exercise promoting the integration of theory and practice in business and science. Students form companies and operate in the company environment over the entire duration of their course. Companies invent biotechnology-oriented products or processes and formulate strategies to bring them from laboratory to the marketplace under the guidance of industry and academic mentors. Students have many opportunities to network with industry through the Student BioEnterprise Scheme and numerous Ausbiotech functions, events and conferences. Companies can also undertake industry-based or consultancy projects with an industry partner in the final year of the course.

### Professional Recognition

On graduation, students are immediately eligible for graduate membership of AusBiotech Ltd and the Australian Society for Biochemistry and Molecular Biology.

### Why Choose this Course?

If you'd like to work in the dynamic world of translating science discoveries into money-making enterprises, meeting people, evaluating projects, picking winners and running with them, then this course is for you!

While research innovation is critical to the future of Australian industry, and that of many other nations, it is the commercialisation of innovations that will realise any potential and serve to build and strengthen local biotechnology industry. Australia already produces many competent and highly regarded scientists but has a poor history and capitalising on research outcomes. The Federal and various State Governments are investing hundreds of millions of dollars in research innovation and commercialisation and the emphasis has moved to bringing emerging technologies into the marketplace. There is an increasing demand for skilled professionals who can drive research commercialisation in the science and technology sector in Australia and in the global marketplace. The Bachelor of Biotechnology Innovation has created a new rapid pathway into the high-flying world of commercialisation and technology transfer.

Graduates of the Bachelor of Biotechnology Innovation have realised outstanding job outcomes and continue to be quickly employed by industry, often successfully competing against graduates with PhDs and MBAs.

**Contact Details**

**Course Coordinator**

Associate Professor Chris Collet  
 Phone: +61 7 3138 5173  
 Email: c.collet@qut.edu.au

**Deferment**

QUT allows current Year 12 school leavers to defer their undergraduate admission offer for one year, or for six months if offered mid-year admission, except in courses using specific admission requirements such as questionnaires, folios, auditions, prior study or work experience.

Non-year 12 students may also request to defer their QTAC offer on the basis of demonstrated special circumstances.

Find out more on deferment.

**Course structure - Full-time**

**Year 1 - Semester 1**

BSB110	Accounting
LSB118	Life Science
MAB101	Statistical Data Analysis 1
PCB142	Chemistry 1

**Year 1, Semester 2**

BSB115	Management, People and Organisations
LSB238	Cell and Molecular Biology 1
LSB258	Principles of Human Physiology
PCB242	Chemistry 2

**Year 2, Semester 1**

BSB113	Economics
LSB325	Biochemistry
LSB338	Cell and Molecular Biology 2
LSB397	Plant Physiology

**Year 2, Semester 2**

BSB126	Marketing
LSB468	Molecular Biology
LSB469	Introduction to Genomics and Bioinformatics
LSB497	Plant Molecular Biology

**Year 3, Semester 1**

LSB309	Introduction to Intellectual Property Law
LSB328	Microbiology 1
LSB509	Medical Biotechnology 1
LSB577	Plant Biotechnology 1

**Year 3, Semester 2**

AMB251	Innovation and Market Development
LSB609	Medical Biotechnology 2
LSB677	Plant Biotechnology 2
MGB218	Venture Skills

**Year 4, Semester 1**

BSB310	Business and Biotechnology
LSB409	Readings in Biotechnology
LSB537	Genetic Engineering
LSB709-1	Biotechnology Research Project

**Year 4, Semester 2**

BSB311	Research, Development and Commercialisation Strategies
LSB619	Genomics and Bioinformatics
LSB709-2	Biotechnology Research Project
LSB709-3	Biotechnology Research Project

**Course structure - Part-time**

**Year 1, Semester 1**

LSB118	Life Science
MAB101	Statistical Data Analysis 1

**Year 1, Semester 2**

LSB238	Cell and Molecular Biology 1
LSB258	Principles of Human Physiology

**Year 2, Semester 1**

BSB110	Accounting
PCB142	Chemistry 1

**Year 2, Semester 2**

BSB115	Management, People and Organisations
PCB242	Chemistry 2

**Year 3, Semester 1**

BSB113	Economics
LSB338	Cell and Molecular Biology 2

**Year 3, Semester 2**

BSB126	Marketing
LSB468	Molecular Biology

**Year 4, Semester 1**

LSB325	Biochemistry
LSB397	Plant Physiology

**Year 4, Semester 2**

LSB469	Introduction to Genomics and Bioinformatics
LSB497	Plant Molecular Biology

**Year 5, Semester 1**

LSB328 Microbiology 1  
LSB509 Medical Biotechnology 1

**Year 5, Semester 2**

AMB251 Innovation and Market Development  
LSB609 Medical Biotechnology 2

**Year 6, Semester 1**

LSB309 Introduction to Intellectual Property Law  
LSB577 Plant Biotechnology 1

**Year 6, Semester 2**

LSB677 Plant Biotechnology 2  
MGB218 Venture Skills

**Year 7, Semester 1**

BSB310 Business and Biotechnology  
LSB537 Genetic Engineering

**Year 7, Semester 2**

BSB311 Research, Development and  
Commercialisation Strategies  
LSB619 Genomics and Bioinformatics

**Year 8, Semester 1**

LSB409 Readings in Biotechnology  
LSB709-1 Biotechnology Research Project

**Year 8, Semester 2**

LSB709-2 Biotechnology Research Project  
LSB709-3 Biotechnology Research Project

**Potential Careers:**

Biotechnologist, Biotechnology Business/Investment Analyst, Business Development Officer, Cell Biologist, Commercialisation Officer, Medical Biotechnologist, Molecular Biologist, Plant Biotechnologist, Technology Transfer Officer.

## Graduate Certificate in Biotechnology (LS66)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** 054278A

**Course duration (full-time):** 1 semester (0.5 year)

**Course duration (part-time):** 2 semesters (1 year)

**Domestic fees (per credit point):** 2007: \$130 per credit point (*subject to annual review*)

**Domestic fees (indicative):** 2007: \$12480

**International Fees (per semester):** 2007: \$9,000 per semester (*subject to annual review*)

**Domestic Entry:** July (Note: Students commencing in July, enrol in Semester 2 units first) (Students are NOT able to commence LS66 in February)

**International Entry:** July (Students are NOT able to commence LS66 in February)

**Total credit points:** 48

**Standard credit points per full-time semester:** 48

**Standard credit points per part-time semester:** 24

**Course coordinator:** Dr Mark O'Brien

**Campus:** Gardens Point

### Entry Requirements

A bachelor degree or equivalent, preferably but not necessarily in science, is advised. Please contact the course coordinator for further information on the entry requirements for this course.

### Career Outcomes

Career opportunities include employment as research and support staff in the biotechnology industry - private or public biotechnology companies, universities, CSIRO, research institutes, government departments, pathology laboratories and hospitals.

### Professional Recognition

Graduates are eligible to join the AusBiotech, the Australian Society for Biochemistry and Molecular Biology, and the Australian Society for Microbiology.

### Course Design

LS66 Graduate Certificate in Biotechnology is a foundation program for those people without a science degree or for those who do not have a recent background in the biomolecular sciences. Fundamental aspects of cell and molecular biology, biochemistry and microbiology are covered in this first program which comprises 48 credit points of assessed coursework. Successful completion of this program allows students to then specialise in more advanced aspects of biotechnology. The Graduate Certificate in Biotechnology also allows students to gain essential generic skills and attributes for successful postgraduate research and learning. Students must commence in July and enrol in Semester 2 units first. Advanced standing may be given for this foundation program if the student has a bachelor degree or equivalent with a recent and appropriate undergraduate-level knowledge and practical experience in the key areas of molecular biology, cell biology, biochemistry and/or microbiology at an advanced level. If advanced standing is

granted, students can enrol directly in any of the more advanced biotechnology programs (LS76, LS86 or LS96) in their first semester.

### Overview

LS66 Graduate Certificate in Biotechnology is the first of four nested postgraduate coursework programs in biotechnology offered by the School of Life Sciences. This particular course will suit anyone who has a recent undergraduate degree (preferably, but not necessarily in science) and who wishes to gain training in general biotechnology. LS66 Graduate Certificate in Biotechnology, a 6-month full-time foundation program, provides those students without a sound background in the biomolecular sciences the opportunity for direct entry into more advanced biotechnology streams. Science-based biomolecular science units emphasise both theoretical and laboratory skills and cover contemporary fundamental techniques underpinning the science of biotechnology.

### Contact Details

#### Course Coordinator

Dr Mark O'Brien

Phone: +61 7 3138 2568

Email: m.obrien@qut.edu.au

### Course structure - Full-time

#### Year 1, Semester 2 (MODULE 1)

LSN101	Molecular Biosciences
LSN102	Cellular Biosciences
LSN103	Postgraduate Learning and Research Skills
LSB468	Molecular Biology

### Course structure - Part-time

#### Year 1, Semester 2 (MODULE 1)

LSN101	Molecular Biosciences
LSN102	Cellular Biosciences

#### Year 2, Semester 1 (MODULE 1)

LSN103	Postgraduate Learning and Research Skills
LSB468	Molecular Biology

### Potential Careers:

Biochemist, Biotechnologist, Medical Biotechnologist, Microbiologist, Molecular Biologist, Plant Biotechnologist, Research Assistant, Scientist, Virologist.

## Graduate Diploma in Biotechnology (LS76)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** 016975B

**Course duration (full-time):** 2 semesters (1 year)

**Course duration (part-time):** 4 semesters (2 years)

**Domestic fees (per credit point):** 2007: \$130 per credit point (*subject to annual review*)

**Domestic fees (indicative):** 2007: \$12480

**International Fees (per semester):** 2007:\$9,000 per semester (*subject to annual review*)

**Domestic Entry:** July (Note: Students commencing in July, enrol in Semester 2 units first) \*Also see "ENTRY REQUIREMENTS" below

**International Entry:** July (Note: Students commencing in July, enrol in Semester 2 units first) \*Also see "ENTRY REQUIREMENTS" below

**Total credit points:** 96

**Standard credit points per full-time semester:** 48

**Standard credit points per part-time semester:** 24

**Course coordinator:** Dr Mark O'Brien

**Campus:** Gardens Point

### Entry Requirements

A bachelor degree or equivalent, preferably but not necessarily in science, is required. Please contact the course coordinator for further information on the entry requirements for this course.

*\*LS76 commences in July (Module 1 entry). Students with advanced standing for Module 1 should commence in February as the Faculty does not offer sufficient units in Module 2 in second semester. Note especially that the February entry point for this course is for students with advanced standing for Module 1. It is not possible to commence Module 1 in February.*

*For students with advanced standing for Module 1 and who wish to enter LS76 in July, a modified program will be required and this should be discussed with the course coordinator prior to enrolment. Students should note that this may require them to study business electives only in their first semester and could lead to them having to take an additional semester to complete the requirements of their program.*

### Professional Recognition

Graduates are eligible to join the AusBiotech, the Australian Society for Biochemistry and Molecular Biology, and the Australian Society for Microbiology.

### Career Outcomes

Career opportunities include employment as research and support staff in the biotechnology industry - private or public biotechnology companies, universities, CSIRO, research institutes, government departments, pathology laboratories and hospitals.

### Course Design

The program of study for an individual student will be decided in consultation with the course coordinator and will take into account the student's background in the biomolecular sciences and area of interest in biotechnology. The LS76 Graduate Diploma in Biotechnology builds upon concepts covered in the foundation program, LS66 Graduate Certificate in Biotechnology. The Graduate Diploma in Biotechnology not only offers students opportunities to pursue study in several relevant focus areas including the theoretical and practical aspects of biotechnology, but also the business of biotechnology, marketing, commercialisation, as well as the legal and ethical aspects of biotechnological applications. The Graduate Diploma in Biotechnology is comprised of 96 credit points of assessed coursework. Advanced standing may be given for the suite of units offered in the foundation program, LS66 Graduate Certificate in Biotechnology, if the student has a bachelor degree or equivalent with a recent and appropriate undergraduate-level knowledge and practical experience in the key areas of molecular biology, cell biology, biochemistry and/or microbiology at an advanced level. If advanced standing is granted, students can enrol directly in LS76 in their first semester.

### Overview

LS76 Graduate Diploma in Biotechnology is one of four nested postgraduate coursework programs in biotechnology offered by the School of Life Sciences. The Graduate Diploma in Biotechnology will suit anyone who has a recent undergraduate degree (preferably, but not necessarily in science) and who wishes to gain training and advanced specialisation in general, medical and/or plant biotechnology. The program also caters for working scientists, support staff, or students involved in commercial aspects of biotechnology, who wish to update their theoretical and practical biotechnology skills for a current or future position. Science-based biotechnology units emphasise laboratory skills and hands-on laboratory experimentation feature prominently in the program, which covers contemporary techniques in biotechnology. New technology is incorporated as it becomes available. The program also offers students opportunities to pursue studies related to the business of biotechnology, marketing, commercialisation, as well as the legal and ethical aspects of biotechnological applications. LS76 Graduate Diploma in Biotechnology, a one year full-time program, builds upon the knowledge and skills base developed in the Graduate Certificate in Biotechnology and allows the student to stream into either medical or plant biotechnology or both.

### Contact Details

#### Course Coordinator

Dr Mark O'Brien

Phone: +61 7 3138 2568

Email: m.obrien@qut.edu.au

### Course structure - Full-time

#### Year 1, Semester 2 (MODULE 1)

LSN101 Molecular Biosciences

LSN102 Cellular Biosciences

LSN103	Postgraduate Learning and Research Skills	Or	
LSB468	Molecular Biology	LSB577	Plant Biotechnology 1

**Year 2, Semester 1 (MODULE 2)**

- LSP127 Business Aspects of Biotechnology  
Either
- LSB509 Medical Biotechnology 1  
Or
- LSB577 Plant Biotechnology 1  
null  
In consultation with the course coordinator,  
choose 24 credit points from the following  
units:
- LSB509 Medical Biotechnology 1
- LSB527 Biomedical Research Technologies
- LSB537 Genetic Engineering
- LSB577 Plant Biotechnology 1
- LSN103 Postgraduate Learning and Research Skills
- GSN408 Fundamentals of Marketing Management
- GSN418 Marketing Strategy Development
- HHB270 Gene Technology And Ethics
- IBN408 Global Business Operations
- LWN135 Law, Justice and New Genetic Technologies
- MAB523 Introduction to Quality Management

**Potential Careers:**

Biochemist, Biotechnologist, Medical Biotechnologist, Microbiologist, Molecular Biologist, Plant Biotechnologist, Research Assistant, Scientist, Virologist.

**Course structure - Part-time**

**Year 1, Semester 2 (MODULE 1)**

- LSN101 Molecular Biosciences
- LSN102 Cellular Biosciences

**Year 2, Semester 1 (MODULE 1)**

- LSN103 Postgraduate Learning and Research Skills
- LSB468 Molecular Biology

**Year 2, Semester 2 (MODULE 3)**

In consultation with the course coordinator,  
choose 24 credit points from the following  
units:

- LSB605 Protein Engineering and Bioprocessing
- LSB607 Protein Purification
- LSB608 Protein Science
- LSN103 Postgraduate Learning and Research Skills
- GSN408 Fundamentals of Marketing Management
- GSN418 Marketing Strategy Development
- MGN409 Introduction to Management
- MGN428 Creating New Businesses

**Year 3, Semester 1 (MODULE 2)**

- LSP127 Business Aspects of Biotechnology  
Either
- LSB509 Medical Biotechnology 1

## Master of Biotechnology (LS86)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** 018479B

**Course duration (full-time):** 3 semesters (1.5 years)

**Course duration (part-time):** 6 semesters (3 years)

**Domestic fees (per credit point):** 2007: \$130 per credit point (*subject to annual review*)

**Domestic fees (indicative):** 2007: \$12480

**International Fees (per semester):** 2007:\$9,000 per semester (*subject to annual review*)

**Domestic Entry:** July (Note: Students commencing in July, enrol in Semester 2 units first) \*Also see "ENTRY REQUIREMENTS" below

**International Entry:** July (Note: Students commencing in July, enrol in Semester 2 units first) \*Also see "ENTRY REQUIREMENTS" below

**Total credit points:** 144

**Standard credit points per full-time semester:** 48

**Standard credit points per part-time semester:** 24

**Campus:** Gardens Point

### Entry Requirements

A bachelor degree or equivalent, preferably but not necessarily in science, is required. Please contact the course coordinator for further information on the entry requirements for this course.

*\*LS86 commences in July (Module 1 entry). Students with advanced standing for Module 1 should commence in February as the Faculty does not offer sufficient units in Module 2 in second semester. Note especially that the February entry point for this course is for students with advanced standing for Module 1. It is not possible to commence Module 1 in February.*

*For students with advanced standing for Module 1 and who wish to enter LS86 in July, a modified program will be required and this should be discussed with the course coordinator prior to enrolment. Students should note that this may require them to study business electives only in their first semester and could lead to them having to take an additional semester to complete the requirements of their program.*

### Career Outcomes

Career opportunities include employment as research and support staff in the biotechnology industry - private or public biotechnology companies, universities, CSIRO, research institutes, government departments, pathology laboratories and hospitals.

### Professional Recognition

Graduates are eligible to join the AusBiotech, the Australian Society for Biochemistry and Molecular Biology, and the Australian Society for Microbiology.

### Course Design

The program of study for an individual student will be decided in consultation with the course coordinator and will take into account the student's background in the

biomolecular sciences and area of interest in biotechnology. The LS86 Master of Biotechnology program follows on from successful completion of core and elective units offered in both LS66 Graduate Certificate in Biotechnology and LS76 Graduate Diploma in Biotechnology. The program not only offers students opportunities to pursue study in several relevant focus areas including the theoretical and practical aspects of biotechnology, but also the business of biotechnology, marketing, commercialisation, as well as the legal and ethical aspects of biotechnological applications. LS86 Master of Biotechnology is comprised of 144 credit points of assessed coursework and is designed to give students further training and specialisation in general, medical and/or plant biotechnology. Advanced standing may be given for the suite of units offered in the foundation program, LS66 Graduate Certificate in Biotechnology, if the student has a bachelor degree or equivalent with a recent and appropriate undergraduate-level knowledge and practical experience in the key areas of molecular biology, cell biology, biochemistry and/or microbiology at an advanced level. If advanced standing is granted, students can enrol directly in LS86 in their first semester.

### Overview

LS86 Master of Biotechnology is one of four nested postgraduate coursework programs in biotechnology offered by the School of Life Sciences. LS86 Master of Biotechnology extends the LS76 Graduate Diploma in Biotechnology program by providing additional training and specialisation in either medical or plant biotechnology or both. The program can be completed in 1.5 years full-time. The Master of Biotechnology program will suit anyone who has a recent undergraduate degree (preferably, but not necessarily in science) and who wishes to gain training and advanced specialisation in general, medical and/or plant biotechnology. The program also caters for working scientists, support staff, or students involved in commercial aspects of biotechnology, who wish to update their theoretical and practical biotechnology skills for a current or future position. Science-based biotechnology units emphasise laboratory skills and hands-on laboratory experimentation feature prominently in the program, which covers contemporary techniques in biotechnology. New technology is incorporated as it becomes available. The program also offers students opportunities to pursue studies related to the business of biotechnology, marketing, commercialisation, as well as the legal and ethical aspects of biotechnological applications.

### Contact Details

#### Coordinator

Dr Mark O'Brien

Phone: +61 7 3138 2568

Email: m.obrien@qut.edu.au

### Course structure - Full-time

#### Year 1, Semester 2 (MODULE 1)

LSN101 Molecular Biosciences

LSN102 Cellular Biosciences

LSN103 Postgraduate Learning and Research Skills

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LSB468 Molecular Biology

LSN102 Cellular Biosciences

### Year 2, Semester 1 (MODULE 2)

LSP127 Business Aspects of Biotechnology  
Either

LSB509 Medical Biotechnology 1  
Or

LSB577 Plant Biotechnology 1  
null  
In consultation with the course coordinator,  
choose 24 credit points from the following  
units:

LSB509 Medical Biotechnology 1  
LSB527 Biomedical Research Technologies  
LSB537 Genetic Engineering  
LSB577 Plant Biotechnology 1  
LSN103 Postgraduate Learning and Research Skills  
GSN408 Fundamentals of Marketing Management  
GSN418 Marketing Strategy Development  
HHB270 Gene Technology And Ethics  
IBN408 Global Business Operations  
LWN135 Law, Justice and New Genetic Technologies  
MAB523 Introduction to Quality Management

### Year 2, Semester 2 (MODULE 3)

BSB311 Research, Development and  
Commercialisation Strategies  
Either

LSB609 Medical Biotechnology 2  
Or

LSB677 Plant Biotechnology 2  
null  
In consultation with the course coordinator,  
choose 24 credit points from the following  
units:

LSB605 Protein Engineering and Bioprocessing  
LSB607 Protein Purification  
LSB608 Protein Science  
LSB609 Medical Biotechnology 2  
LSB619 Genomics and Bioinformatics  
LSB677 Plant Biotechnology 2  
LSN103 Postgraduate Learning and Research Skills  
GSN408 Fundamentals of Marketing Management  
GSN418 Marketing Strategy Development  
MGN409 Introduction to Management  
MGN428 Creating New Businesses

### Course structure - Part-time

### Year 1, Semester 2 (MODULE 1)

LSN101 Molecular Biosciences

### Year 2, Semester 1 (MODULE 1)

LSN103 Postgraduate Learning and Research Skills  
LSB468 Molecular Biology

### Year 2, Semester 2 (MODULE 3)

In consultation with the course coordinator,  
choose 12 credit points from the following  
units:

LSB605 Protein Engineering and Bioprocessing  
LSB607 Protein Purification  
LSB608 Protein Science  
LSN103 Postgraduate Learning and Research Skills  
GSN408 Fundamentals of Marketing Management  
GSN418 Marketing Strategy Development  
MGN409 Introduction to Management  
MGN428 Creating New Businesses

### Year 3, Semester 1 (MODULE 2)

LSP127 Business Aspects of Biotechnology  
Either

LSB509 Medical Biotechnology 1  
Or

LSB577 Plant Biotechnology 1

### Year 3, Semester 2 (MODULE 3)

BSB311 Research, Development and  
Commercialisation Strategies  
Either

LSB609 Medical Biotechnology 2  
Or

LSB677 Plant Biotechnology 2

### Year 4, Semester 1 (MODULE 2)

In consultation with the course coordinator,  
choose 24 credit points from the following  
units:

LSB509 Medical Biotechnology 1  
LSB527 Biomedical Research Technologies  
LSB537 Genetic Engineering  
LSB577 Plant Biotechnology 1  
LSN103 Postgraduate Learning and Research Skills  
GSN408 Fundamentals of Marketing Management  
GSN418 Marketing Strategy Development  
HHB270 Gene Technology And Ethics  
IBN408 Global Business Operations  
LWN135 Law, Justice and New Genetic Technologies  
MAB523 Introduction to Quality Management

### Potential Careers:



Biochemist, Biotechnologist, Medical Biotechnologist,  
Microbiologist, Molecular Biologist, Plant Biotechnologist,  
Research Assistant, Scientist, Virologist.

## Graduate Diploma in Medical Science (Anatomical Pathology) (LS90)

**Year offered:** 2007

**Admissions:** Yes

**Course duration (part-time):** 4 semesters (13 months)

**Domestic fees (per credit point):** 2007: \$130 per credit point (*subject to annual review*)

**Domestic fees (indicative):** 2007: \$12480

**Total credit points:** 96

**Standard credit points per part-time semester:** 24

**Course coordinator:** Dr Trevor Forster

**Campus:** Gardens Point

### Objective

This course aims to:

- Formalise advancement of knowledge and skills of medical scientists in the specialist discipline of Anatomical Pathology.
- To promote teamwork and effective communications between scientists and pathologists.
- To enable scientists to undertake some of the surgical cut-up procedures normally assigned to pathologists.

### Course Design

This course is designed to make use of learning that takes place in the workplace. It provides close collaboration between QUT, the pathology industry and pathology professionals.

As a special feature, this course avoids the traditional mode of study ie weekly attendance at lectures, practical sessions and tutorials by: intensive study mode in the form of one week modules; on-line discussion forums; work-based learning; tele & video conferencing.

### Entry Requirements

A Bachelor Applied Science (Medical Science) or equivalent degree incorporating human anatomy, histology and pathology with recent work experience in a histology laboratory and currently working in an appropriate capacity in an accredited pathology laboratory.

### Contact Details

#### Course Coordinator

Dr Trevor Forster

Phone: +61 7 3138 2559

Email: t.forster@qut.edu.au

### Course structure

#### First Semester (January to February)

LSN220 Surgical Anatomy

LSN223-1 Surgical Grossing

#### Second Semester (March to June)

LSN221-1 Pathology

LSN223-2 Surgical Grossing

#### Third Semester (July to November)

LSN221-2 Pathology

LSN223-3 Surgical Grossing

#### Fourth Semester (January to February following year)

JSN014 Law, Justice and New Genetic Technologies

LSN223-4 Surgical Grossing

### Potential Careers:

Biochemist, Clinical Laboratory Scientist, Medical Scientist, Microbiologist, Operations Manager, Pathology Scientist.

## Master of Biotechnology (Advanced) (LS96)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** 054279M

**Course duration (full-time):** 4 semesters (2 years)

**Course duration (part-time):** 8 semesters (4 years)

**Domestic fees (per credit point):** 2007: \$130 per credit point (*subject to annual review*)

**Domestic fees (indicative):** 2007: \$12480

**International Fees (per semester):** 2007:\$9,000 per semester (*subject to annual review*)

**Domestic Entry:** July (Note: Students commencing in July, enrol in Semester 2 units first) \*Also see "ENTRY REQUIREMENTS" below

**International Entry:** July (Note: Students commencing in July, enrol in Semester 2 units first) \*Also see "ENTRY REQUIREMENTS" below

**Total credit points:** 192

**Standard credit points per full-time semester:** 48

**Standard credit points per part-time semester:** 24

**Course coordinator:** Dr Mark O'Brien

**Campus:** Gardens Point

### Entry Requirements

A bachelor degree or equivalent, preferably but not necessarily in science, is required. Please contact the course coordinator for further information on the entry requirements for this course.

*\*LS96 commences in July (Module 1 entry). Students with advanced standing for Module 1 should commence in February as the Faculty does not offer sufficient units in Module 2 in second semester. Note especially that the February entry point for this course is for students with advanced standing for Module 1. It is not possible to commence Module 1 in February.*

*For students with advanced standing for Module 1 and who wish to enter LS96 in July, a modified program will be required and this should be discussed with the course coordinator prior to enrolment. Students should note that this may require them to study business electives only in their first semester and could lead to them having to take an additional semester to complete the requirements of their program. Also, students may not be able to undertake the project component of LS96.*

### Career Outcomes

Career opportunities include employment as research and support staff in the biotechnology industry - private or public biotechnology companies, universities, CSIRO, research institutes, government departments, pathology laboratories and hospitals.

### Professional Recognition

Graduates are eligible to join the AusBiotech, the Australian Society for Biochemistry and Molecular Biology, and the Australian Society for Microbiology.

### Course Design

The program of study for an individual student will be decided in consultation with the course coordinator and will take into account the student's background in the biomolecular sciences and area of interest in biotechnology. LS96 Master of Biotechnology (Advanced) completes the comprehensive training of students and follows successful completion of core and elective units offered in LS66, LS76 and LS86. It is comprised of 192 credit points of assessed coursework in general, medical and/or plant biotechnology. In their final semester of the program, students may undertake a supervised research project either at QUT or in the workplace. Students must discuss research project areas prior to enrolment in this course to select both a suitable project and a project supervisor(s) prior to entry (or as soon as possible thereafter). While the School of Life Sciences has a wide range of research project areas available, it may not always be possible for students to conduct a research project exactly in the area they desire. Part-time students may also elect to do a research project at their place of work, with both a workplace supervisor and a QUT supervisor. Alternative options are available. For students not undertaking a research project, additional coursework must be completed. Students will need to consult with the course coordinator in selecting additional coursework units. The LS96 Master of Biotechnology (Advanced) program not only offers students opportunities to pursue study in several relevant focus areas including the theoretical and practical aspects of biotechnology, but also the business of biotechnology, marketing, commercialisation, as well as the legal and ethical aspects of biotechnological applications. Advanced standing may be given for the suite of units offered in the foundation program, LS66 Graduate Certificate in Biotechnology, if the student has a bachelor degree or equivalent with a recent and appropriate undergraduate-level knowledge and practical experience in the key areas of molecular biology, cell biology, biochemistry and/or microbiology at an advanced level. If advanced standing is granted, students can enrol directly in LS96 in their first semester.

### Overview

LS96 Master of Biotechnology (Advanced) is one of four nested postgraduate coursework programs in biotechnology offered by the School of Life Sciences. The LS96 Master of Biotechnology (Advanced) program offers students a complete and comprehensive training in biotechnology by extending the suite of units offered within the LS86 Master of Biotechnology program or by giving students the opportunity in their final semester of study to pursue a research project. The Master of Biotechnology (Advanced) is a two year full-time program of study commencing with the foundation suite of core units, where appropriate. The LS96 Master of Biotechnology (Advanced) program will suit anyone who has a recent undergraduate degree (preferably, but not necessarily in science) and who wishes to gain training and advanced specialisation in general, medical and/or plant biotechnology. The program also caters for working scientists, support staff, or students involved in commercial aspects of biotechnology, who wish to update their theoretical and practical biotechnology skills for a current or future position. Science-based biotechnology

units emphasise laboratory skills and hands-on laboratory experimentation feature prominently in the program, which covers contemporary techniques in biotechnology. New technology is incorporated as it becomes available. The program also offers students opportunities to pursue studies related to the business of biotechnology, marketing, commercialisation, as well as the legal and ethical aspects of biotechnological applications.

**Contact Details**

**Course Coordinator**

Dr Mark O'Brien  
 Phone: +61 7 3138 2568  
 Email: m.obrien@qut.edu.au

**Course structure - Full-time**

**Year 1, Semester 2 (MODULE 1)**

- LSN101 Molecular Biosciences
- LSN102 Cellular Biosciences
- LSN103 Postgraduate Learning and Research Skills
- LSB468 Molecular Biology

**Year 2, Semester 1 (MODULE 2)**

- LSP127 Business Aspects of Biotechnology  
Either
- LSB509 Medical Biotechnology 1  
Or
- LSB577 Plant Biotechnology 1  
null  
In consultation with the course coordinator, choose 24 credit points from the following units:
- LSB509 Medical Biotechnology 1
- LSB527 Biomedical Research Technologies
- LSB537 Genetic Engineering
- LSB577 Plant Biotechnology 1
- LSN103 Postgraduate Learning and Research Skills
- GSN408 Fundamentals of Marketing Management
- GSN418 Marketing Strategy Development
- HHB270 Gene Technology And Ethics
- IBN408 Global Business Operations
- LWN135 Law, Justice and New Genetic Technologies
- MAB523 Introduction to Quality Management

**Year 2, Semester 2 (MODULE 3)**

- BSB311 Research, Development and Commercialisation Strategies  
Either
- LSB609 Medical Biotechnology 2  
Or
- LSB677 Plant Biotechnology 2  
null

In consultation with the course coordinator, choose 24 credit points from the following units:

- LSB605 Protein Engineering and Bioprocessing
- LSB607 Protein Purification
- LSB608 Protein Science
- LSB609 Medical Biotechnology 2
- LSB619 Genomics and Bioinformatics
- LSB677 Plant Biotechnology 2
- LSN103 Postgraduate Learning and Research Skills
- GSN408 Fundamentals of Marketing Management
- GSN418 Marketing Strategy Development
- MGN409 Introduction to Management
- MGN428 Creating New Businesses

**Year 3, Semester 1 (MODULE 4)**

- LSN710 Project  
null  
For those students NOT undertaking LSN710 Project, in consultation with the course coordinator, choose 48 credit points from the following units:
- LSB509 Medical Biotechnology 1
- LSB527 Biomedical Research Technologies
- LSB537 Genetic Engineering
- LSB577 Plant Biotechnology 1
- LSN103 Postgraduate Learning and Research Skills
- GSN408 Fundamentals of Marketing Management
- GSN418 Marketing Strategy Development
- HHB270 Gene Technology And Ethics
- IBN408 Global Business Operations
- LWN135 Law, Justice and New Genetic Technologies
- MAB523 Introduction to Quality Management

**Course structure - Part-time**

**Year 1, Semester 2 (MODULE 1)**

- LSN101 Molecular Biosciences
- LSN102 Cellular Biosciences

**Year 2, Semester 1 (MODULE 1)**

- LSN103 Postgraduate Learning and Research Skills
- LSB468 Molecular Biology

**Year 2, Semester 2 (MODULE 3)**

- In consultation with the course coordinator, choose 12 credit points from the following units:
- LSB605 Protein Engineering and Bioprocessing
- LSB607 Protein Purification
- LSB608 Protein Science
- LSN103 Postgraduate Learning and Research Skills

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GSN408	Fundamentals of Marketing Management
GSN418	Marketing Strategy Development
MGN409	Introduction to Management
MGN428	Creating New Businesses

### Year 3, Semester 1 (MODULE 2)

LSP127	Business Aspects of Biotechnology
	Either
LSB509	Medical Biotechnology 1
	Or
LSB577	Plant Biotechnology 1

### Year 3, Semester 2 (MODULE 3)

BSB311	Research, Development and Commercialisation Strategies
	Either
LSB609	Medical Biotechnology 2
	Or
LSB677	Plant Biotechnology 2

### Year 4, Semester 1 (MODULE 2)

In consultation with the course coordinator, choose 24 credit points from the following units:

LSB509	Medical Biotechnology 1
LSB527	Biomedical Research Technologies
LSB537	Genetic Engineering
LSB577	Plant Biotechnology 1
LSN103	Postgraduate Learning and Research Skills
GSN408	Fundamentals of Marketing Management
GSN418	Marketing Strategy Development
HHB270	Gene Technology And Ethics
IBN408	Global Business Operations
LWN135	Law, Justice and New Genetic Technologies
MAB523	Introduction to Quality Management

### Year 4, Semester 2 (MODULE 4)

LSN711	Project 1
	For those students NOT undertaking LSN711 Project 1, in consultation with the course coordinator, choose 24 credit points from the following units:
LSB605	Protein Engineering and Bioprocessing
LSB607	Protein Purification
LSB608	Protein Science
LSB609	Medical Biotechnology 2
LSB619	Genomics and Bioinformatics
LSB677	Plant Biotechnology 2
LSN103	Postgraduate Learning and Research Skills
GSN408	Fundamentals of Marketing Management
GSN418	Marketing Strategy Development

MGN409	Introduction to Management
MGN428	Creating New Businesses

### Year 5, Semester 1 (MODULE 4)

LSN712	Project 2
	For those students NOT undertaking LSN712 Project 2, in consultation with the course coordinator, choose 48 credit points from the following units:
LSB509	Medical Biotechnology 1
LSB527	Biomedical Research Technologies
LSB537	Genetic Engineering
LSB577	Plant Biotechnology 1
LSN103	Postgraduate Learning and Research Skills
GSN408	Fundamentals of Marketing Management
GSN418	Marketing Strategy Development
HHB270	Gene Technology And Ethics
IBN408	Global Business Operations
LWN135	Law, Justice and New Genetic Technologies
MAB523	Introduction to Quality Management

### Potential Careers:

Biochemist, Biotechnologist, Medical Biotechnologist, Microbiologist, Molecular Biologist, Plant Biotechnologist, Research Assistant, Scientist, Virologist.

## Bachelor of Mathematics (MA54)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** 049433D

**Course duration (full-time):** 3 Years

**Course duration (part-time):** 6 Years

**Domestic fees (per credit point):** Commonwealth Supported Place; Full fee tuition 2007: \$210 per credit point (*subject to annual review*)

**Domestic fees (indicative):** 2007: Full fee tuition \$20,160; CSP \$7,114

**International Fees (per semester):** 2007:\$9,000 per semester (*subject to annual review*)

**Domestic Entry:** February

**International Entry:** February and July

**QTAC code:** 418701; Dfee: 418706

**Past rank cut-off:** 75; Dfee: 70

**Past OP cut-off:** 12; Dfee: 14

**OP Guarantee:** Yes

**Assumed knowledge:** English (4, SA) and Maths B (4, SA)

**Preparatory studies:** MATHS: QUT unit Preparatory Mathematics as a visiting student or QUT Continuing Professional Education course Mathematics Bridging. ENGLISH: Successful completion of a year of full-time vocational or tertiary study. For further information contact 07 3138 2000 or email [study@qut.com](mailto:study@qut.com)

**Total credit points:** 288

**Standard credit points per full-time semester:** 48

**Standard credit points per part-time semester:** 24

**Course coordinator:** Professor Ian Turner

**Campus:** Gardens Point

### Career Opportunities

Mathematics graduates are employed across a wide range of areas. These include, but are not limited to, finance, investment, information technology, environmental management, health, marketing, logistics, defence, media, education and research. In addition to their knowledge and skills in mathematics, graduates are also highly valued for their analytical and problem-solving skills. Development of skills in communication, problem-solving, critical thinking and teamwork form an integral part of the course.

Favourable career outcomes for Bachelor of Mathematics graduates are likely due to the current demand for qualified statisticians and mathematicians.

### Recommended Study

Maths C is recommended.

### Course Design

The course structure is flexible in nature so that you can choose to study only mathematics units or include some units from another area of interest, such as science, business or information technology.

In the first year you will study core units in mathematics and statistics. These core units include studies in calculus, algebra, vectors and matrices, computational mathematics, data analysis and statistical modelling.

You will be able to design your program to suit your

interests and career aspirations by combining advanced units from a number of the following areas of specialisation:

#### *Applied Mathematics*

Mathematical techniques that can be used to solve real-world problems.

#### *Computational Mathematics*

Computers and numerical techniques used to find solutions to complex problems which cannot be solved analytically.

#### *Discrete Mathematics*

The mathematics of numbers, including study of sets, fields, ring and groups.

#### *Financial Mathematics*

A wide variety of mathematical techniques used in applications within the financial area.

#### *Mathematical Modelling*

The utilisation of mathematical techniques to develop a model or explanation of a real-world problem which can then be tested.

#### *Operations Research*

Optimising complex systems including queuing, scheduling or allocation of resources.

#### *Scientific Computation and Visualisation*

Supercomputing, large-scale scientific modelling and creating graphical representations using visualisation techniques.

#### *Statistics*

Collecting data in an appropriate format, experimental design, analysis of data and using data to make predictions.

#### *Statistical Modelling*

Building and analysing models of systems involving probability and variables.

### Professional Recognition

Membership of the Australian Mathematical Society, the Statistical Society of Australia Inc and the Australian Society for Operations Research is available.

### Mathematics Bursaries

Students enrolled in this course can apply for industry-sponsored bursaries. These bursaries are awarded to Australian citizens or permanent residents on a competitive basis. Applications should be submitted by 1 December of the year preceding entry to the course. For further information see [www.maths.qut.edu.au](http://www.maths.qut.edu.au)

### Contact Details

#### **Course Coordinator**

Professor Ian Turner

Phone: +61 7 3138 2259

Email: [i.turner@qut.edu.au](mailto:i.turner@qut.edu.au)

### Deferment

QUT allows current Year 12 school leavers to defer their undergraduate admission offer for one year, or for six months if offered mid-year admission, except in courses using specific admission requirements such as questionnaires, folios, auditions, prior study or work experience.

Non-year 12 students may also request to defer their QTAC offer on the basis of demonstrated special circumstances.

Find out more on deferment.

**Course structure - Bachelor of Mathematics**

Students complete at least 192 credit points (16 twelve credit point units) of Mathematics units according to the following requirements:

**Level 1 Mathematics Units**

Students must complete the following Level 1 Mathematics units:

- MAB100 Mathematical Sciences 1A
- MAB101 Statistical Data Analysis 1
- MAB111 Mathematical Sciences 1B
- MAB112 Mathematical Sciences 1C
- MAB210 Statistical Modelling 1
- MAB220 Computational Mathematics 1

Note: MAB100 is for students who do not have an exit assessment of at least Sound Achievement in four semesters of both Senior Mathematics B and Senior Mathematics C

**Level 2 and 3 Mathematics Units**

At least 120 credit points (10 twelve credit point units) must be taken from Level 2 and Level 3 Mathematics units with at least 48 credit points (4 twelve credit point units) from Level 3 mathematics units

Students must complete:

- MAB311 Advanced Calculus
  - MAB312 Linear Algebra
- And at least ONE of:
- MAB315 Operations Research 2
  - MAB413 Differential Equations
  - MAB414 Applied Statistics 2
  - MAB422 Mathematical Modelling

**Other Units**

Up to a maximum of 96 credit points may be taken as electives with not more than 48 credit points from first level units.

Note: A first level unit is classified as a unit that is normally taken in the first year of a single degree. Examples of first level units are BSB1xx, ITB001-ITB008, LSB118, PCB101, PCB250 and PCB260. Please check with your Course Coordinator if you would like to make language units or units from faculties other than Business, Information Technology or

Science so that you can be advised on the correct unit(s) to enrol in and their level.

The balance of credit points needed to complete the minimum requirement of 288 credit points will be Mathematics units.

**Suggested Program for February Entry**

STUDENTS WITH AN EXIT ASSESSMENT OF AT LEAST SOUND ACHIEVEMENT IN BOTH SENIOR MATHEMATICS B AND SENIOR MATHEMATICS C (OR EQUIVALENT)

**Year 1, Semester 1**

- MAB101 Statistical Data Analysis 1
  - MAB111 Mathematical Sciences 1B
  - MAB112 Mathematical Sciences 1C
- ONE additional unit from:
- MAB313 Mathematics of Finance
  - BSB110 Accounting
  - ITB001 Problem Solving and Programming
  - PCB001 Introductory Physics
- Other first level unit (see Course Coordinator)

**Year 1, Semester 2**

- MAB210 Statistical Modelling 1
  - MAB220 Computational Mathematics 1
- TWO additional units from:
- MAB422 Mathematical Modelling
  - MAB480 Introduction to Scientific Computation
  - BSB110 Accounting
  - BSB113 Economics
  - ITB003 Object Oriented Programming
  - PCB250 Physics 1
- Other first level unit(s) (see Course Coordinator)

**Year 2, Semester 1**

- MAB311 Advanced Calculus
  - MAB312 Linear Algebra
- TWO additional units from mathematics units or other units

**Year 2, Semester 2**

- At least ONE of:
- MAB315 Operations Research 2
  - MAB413 Differential Equations
  - MAB414 Applied Statistics 2
  - MAB422 Mathematical Modelling
- Additional units from mathematics units or other units as required

**Year 3, Semester 1**

FOUR units from mathematics units or other units (see course structure)

FOUR units from mathematics units or other units (see course structure)

**Year 3, Semester 2**

FOUR units from mathematics units or other units (see course structure)

STUDENTS WITH AN EXIT ASSESSMENT OF AT LEAST SOUND ACHIEVEMENT IN SENIOR MATHEMATICS B ONLY (OR EQUIVALENT)

**Year 1, Semester 1**

- MAB100 Mathematical Sciences 1A
- MAB101 Statistical Data Analysis 1
- TWO additional units from:
  - BSB110 Accounting
  - BSB113 Economics
  - ITB001 Problem Solving and Programming
  - LSB118 Life Science
  - PCB101 Physical Science
  - Other first level unit (see Course Coordinator)

**Year 1, Semester 2**

- MAB111 Mathematical Sciences 1B
- MAB112 Mathematical Sciences 1C
- MAB210 Statistical Modelling 1
- MAB220 Computational Mathematics 1
- OR
- ONE additional unit from:
  - ITB003 Object Oriented Programming
  - PCB250 Physics 1
  - Other first level unit (see Course Coordinator)

**Year 2, Semester 1**

- MAB311 Advanced Calculus
- MAB312 Linear Algebra
- TWO additional units from mathematics units or other units

**Year 2, Semester 2**

- At least ONE of:
  - MAB315 Operations Research 2
  - MAB413 Differential Equations
  - MAB414 Applied Statistics 2
  - MAB422 Mathematical Modelling
- Additional units from mathematics units or other units as required

**Year 3, Semester 1**

FOUR units from mathematics units or other units (see course structure)

**Year 3, Semester 2**

**Mathematics Units**

**Mathematics Units**

Students should not enrol in Mathematics units other than those listed below:

**Level 1 Mathematics Units**

- MAB100 Mathematical Sciences 1A
- MAB101 Statistical Data Analysis 1
- MAB111 Mathematical Sciences 1B
- MAB112 Mathematical Sciences 1C
- MAB210 Statistical Modelling 1
- MAB220 Computational Mathematics 1

**Level 2 Mathematics Units**

- MAB311 Advanced Calculus
  - MAB312 Linear Algebra
  - MAB313 Mathematics of Finance
  - MAB314 Statistical Modelling 2
  - MAB315 Operations Research 2
  - MAB413 Differential Equations
  - MAB414 Applied Statistics 2
  - MAB420 Computational Mathematics 2
  - MAB422 Mathematical Modelling
  - MAB480 Introduction to Scientific Computation
  - MAB481 Visualisation and Data Analysis
- In 2008, MAB315 Operations Research 2 will be offered in Semester 1 and MAB313 Mathematics of Finance will be offered in Semester 2.

**Other Mathematics Units (count as Level 2 Mathematics units in this course)**

- MAB281 Mathematics for Computer Graphics
- MAB523 Introduction to Quality Management
- MAB621 Discrete Mathematics

**Non-Mathematics Units**

Up to a maximum of 96 credit points (8 twelve credit point units) can be taken from units other than mathematics units, with not more than 48 credit points (4 twelve credit point units) from first level units. A first level unit is classified as a unit that is normally taken in the first year of a single degree.

**Level 3 Mathematics Units**

- MAB521 Applied Mathematics 3
- MAB522 Computational Mathematics 3
- MAB524 Statistical Inference
- MAB525 Operations Research 3A
- MAB526 Statistical Science 3



## SCIENCE

MAB613	Partial Differential Equations
MAB623	Financial Mathematics
MAB624	Applied Statistics 3
MAB625	Operations Research 3B
MAB640	Industry Project
MAB672	Advanced Mathematical Modelling
MAB681	Advanced Visualisation and Data Analysis

### First Level Information Technology Units

These units are all 12 credit points and available Semester 1 and Semester 2 and may also be available in the summer (tuition fee payable). No more than four first level units can be included in the course.

ITB001	Problem Solving and Programming
ITB002	IT Professional Studies
ITB003	Object Oriented Programming
ITB004	Database Systems
ITB005	Systems Architecture
ITB006	Networks
ITB007	Web Development
ITB008	Modelling Analysis and Design

Refer to IT22 Bachelor of Information Technology or your Course Coordinator for more information on information technology units. Note: if you have already completed any information technology units you will need to check for incompatibility or equivalence with the new units

null

### First Level Business Units

These units are all 12 credit points and available Semester 1 and Semester 2. No more than four first level units can be included in the course.

BSB110	Accounting
BSB111	Business Law and Ethics
BSB113	Economics
BSB114	Government, Business and Society
BSB115	Management, People and Organisations
BSB119	International and Electronic Business
BSB122	Quantitative Analysis and Finance
BSB126	Marketing

null

FINANCE: Select a maximum of 8 units from the list below:

BSB110	Accounting
BSB113	Economics
Advanced level units:	
EFB102	Economics 2
EFB201	Financial Markets
EFB210	Finance 1

EFB307	Finance 2
EFB308	Finance 3
EFB309	Financial Derivatives
EFB312	International Finance
EFB318	Portfolio and Security Analysis
ECONOMICS: Select a maximum of 8 units from the list below:	
BSB113	Economics
EFB102	Economics 2
EFB200	Applied Regression Analysis
EFB202	Business Cycles and Economic Growth
EFB211	Firms, Markets and Resources
EFB323	Financial and Monetary Economics
EFB324	Macroeconomics and Global Financial Markets
EFB325	Financial Microeconomics
EFB329	Contemporary Applications of Economics Theory
Refer to BS56 Bachelor of Business or your Course Coordinator for more information on the units available for the various areas of business.	

### First Level Physics Units

These units are all 12 credit points:

PCB101	Physical Science
PCB107	Physics and Quantitative Techniques
PCB250	Physics 1
PCB260	Physics 1A

Refer to SC01 Bachelor of Applied Science for information on higher level Physics units

### Potential Careers:

Actuary, Computer Game Programmer, Market Research Manager, Mathematician, Quantitative Analyst, Statistician.

## Graduate Certificate in Mathematical Science (MA65)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** 046044G

**Course duration (full-time):** 1 semester (0.5 year)

**Course duration (part-time):** 2 semesters (1 year)

**Domestic fees (per credit point):** 2007: \$130 per credit point (*subject to annual review*)

**Domestic fees (indicative):** 2007: \$12480

**International Fees (per semester):** 2007: \$9,000 per semester (*subject to annual review*)

**Domestic Entry:** February, July or Summer Program

**International Entry:** February and July

**Total credit points:** 48

**Standard credit points per full-time semester:** 48

**Standard credit points per part-time semester:** 24

**Course coordinator:** Dr Troy Farrell

**Campus:** Gardens Point

### Entry Requirements

To be eligible to enrol an applicant will normally have completed an undergraduate degree in any discipline. Applicants who do not meet the normal entry requirement may be permitted to enrol subject to the approval of the Head of the School of Mathematical Sciences. Applicants should provide details of their relevant industry experience and prior learning.

### Career Outcomes

Knowledge and skills in mathematics and/or statistical techniques are increasingly in demand in many different areas. For example, quantitative analysis in the finance area; statistical and mathematical modelling in natural resources and health management; operations research in transport management.

### Course Design

The program of study for an individual student will be decided in consultation with the course coordinator and will take into account the student's background and area of interest within the mathematical sciences.

In the Graduate Certificate, at least 36 credit points must be taken from mathematics units and up to 12 credit points can be taken from units other than mathematics units.

### Overview

This course enables graduates from any discipline to develop their knowledge and skills in one or more areas of the mathematical sciences. Strands available include mathematical modelling/applied mathematics, computational mathematics, statistics/statistical modelling, quantitative analysis/financial mathematics, operations research and scientific computation and visualisation. It recognises that students may not have studied mathematics for some time.

### Contact Details

#### Course Coordinator

Dr Troy Farrell

Phone: +61 7 3138 2364

Email: t.farrell@qut.edu.au

### Course structure

- At least 36 credit points must be taken from mathematics units.
- Up to 12 credit points can be taken from units other than mathematics units.

The program of study for an individual student will be decided in consultation with the Course Coordinator and will take into account the student's background and area of interest within the mathematical sciences.

Students must contact the course Coordinator prior to commencing.

#### The units selected may include:

MAB100	Mathematical Sciences 1A
MAB101	Statistical Data Analysis 1
MAB111	Mathematical Sciences 1B
MAB112	Mathematical Sciences 1C

These units listed are units suitable for students who have not studied mathematics at university but who have achieved a background equivalent to having successfully studied Senior Mathematics B (or B and C). The actual units recommended for an individual student will depend upon their secondary mathematics background, length of time since they have studied mathematics, any tertiary mathematics studies and their area of interest. For other available units please see the list of Undergraduate and Postgraduate Mathematics Units which is obtainable from the School of Mathematical Sciences or go to Unit Outlines under Course Information on the QUT website and enter MA for unit code. Your Course Coordinator can assist with non-mathematics units.

### Potential Careers:

Actuary, Mathematician, Quantitative Analyst, Statistician.

## Graduate Diploma in Mathematical Science (MA75)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** 046041M

**Course duration (full-time):** 2 semesters (1 year)

**Course duration (part-time):** 4 semesters (2 years)

**Domestic fees (per credit point):** 2007: \$130 per credit point (*subject to annual review*)

**Domestic fees (indicative):** 2007: \$12480

**International Fees (per semester):** 2007:\$9,000 per semester (*subject to annual review*)

**Domestic Entry:** February, July or Summer Program

**International Entry:** February and July

**Total credit points:** 96

**Standard credit points per full-time semester:** 48

**Standard credit points per part-time semester:** 24

**Course coordinator:** Dr Troy Farrell

**Campus:** Gardens Point

### Entry Requirements

To be eligible to enrol an applicant will normally have completed an undergraduate degree in any discipline. Students who do not have sufficient background in introductory calculus may be advised to enrol in MA65 Graduate Certificate in Mathematical Sciences first.

### Prior to Enrolment

Potential applicants for this course are advised to contact the Course Coordinator prior to submitting their application to discuss their plans. International students in particular, should be aware that full-time enrolment of at least 36 credit points per semester may not be possible. This is due to the need to meet unit prerequisites. Units are not offered externally although units do have varying amounts of on-line material available. Lectures, tutorials and computer-based practicals may be timetabled during the day or early evening.

### Career Outcomes

Knowledge and skills in mathematics and/or statistical techniques are increasingly in demand in many different areas. For example, quantitative analysis in the finance area; statistical and mathematical modelling in natural resources and health management; operations research in transport management.

### Course Design

The program of study for an individual student will be decided in consultation with the course coordinator and will take into account the student's background and area of interest within the mathematical sciences.

In the Graduate Diploma, at least 24 credit points must be taken from postgraduate mathematics units other than Mathematical Foundations and/or Mathematics. Up to 24 credit points can be taken from units other than mathematics units and there is a limit of 36 credit points from project units.

### Overview

This course enables graduates from any discipline to develop their knowledge and skills in one or more areas of the mathematical sciences. Strands available include mathematical modelling/applied mathematics, computational mathematics, statistics/statistical modelling, quantitative analysis/financial mathematics, operations research and scientific computation and visualisation. It recognises that students may not have studied mathematics for some time.

### Contact Details

#### Course Coordinator

Dr Troy Farrell

Phone: +61 7 3138 2364

Email: t.farrell@qut.edu.au

### Course structure

- At least 24 credit points must be taken from postgraduate mathematics units other than MAN200 Mathematical Foundations and/or MAN201 Mathematics.
  - Up to 24 credit points can be taken from units other than mathematics units.
  - Limit of 36 credit points from project units.
- A planned program of study should be decided in consultation with the Course Coordinator. It will take into account the student's background and area of interest within the mathematical sciences. Strands represent areas of the mathematical sciences which may be of interest to students and the units listed under each strand can guide students in developing their planned program. Students will usually select units from one or two strands only. The unit MAN700 project can be used to satisfy the rule requiring at least 24 credit points from postgraduate mathematics units other than MAN200 and/or MAN201.
- The following postgraduate mathematics units are available in all strands (subject to the limit on credit points from project units):
- |          |                          |
|----------|--------------------------|
| MAN200   | Mathematical Foundations |
| MAN201   | Mathematics              |
| MAN700   | Project                  |
| MAN717   | Minor Project            |
| MAN787-1 | Project                  |
| MAN787-2 | Project                  |
| MAN787-3 | Project                  |
- To undertake any of the project units, permission from the Course Coordinator is required. If students wish to take any of the above units they will need to discuss their plans and the proposed content with the Course Coordinator.

### Strand Information

The following strand information is to assist students with unit selection. Students do not have to enrol in all units listed for a strand. The

prerequisite units are given as a guide. Depending on a student's background, they may have already covered some of the units listed (or equivalent units) in their undergraduate studies. If students have not studied any mathematics for some time, they may need to undertake one or two units prior to commencing those listed in the strand information.

**Mathematical Modelling/Applied Mathematics**

Postgraduate Mathematics Units:

- MAN761 Analysis
- MAN764 Applied Mathematical Modelling
- MAN774 Perturbation Methods
- MAN777 Mathematics of Fluid Flow
- Prerequisite Units:
- MAB111 Mathematical Sciences 1B
- MAB112 Mathematical Sciences 1C
- MAB220 Computational Mathematics 1
- MAB311 Advanced Calculus
- MAB312 Linear Algebra
- MAB413 Differential Equations
- MAB422 Mathematical Modelling
- MAB521 Applied Mathematics 3
- MAB613 Partial Differential Equations
- MAB672 Advanced Mathematical Modelling

**Computational Mathematics**

Postgraduate Mathematics Unit:

- MAN771 Computational Mathematics 4
- Prerequisite Units:
- MAB111 Mathematical Sciences 1B
- MAB112 Mathematical Sciences 1C
- MAB220 Computational Mathematics 1
- MAB311 Advanced Calculus
- MAB312 Linear Algebra
- MAB420 Computational Mathematics 2
- MAB522 Computational Mathematics 3

**Discrete Mathematics**

Postgraduate Mathematics Unit:

- MAN778 Applications of Discrete Mathematics
- Prerequisite Units:
- MAB111 Mathematical Sciences 1B
- MAB112 Mathematical Sciences 1C
- MAB621 Discrete Mathematics

**Statistics/Statistical Modelling**

Postgraduate Mathematics Units:

- MAN526 Time Series Analysis
- MAN624 Applied Statistics

- MAN765 Bayesian Data Analysis
- MAN766 Applied Time Series Analysis
- MAN775 Statistical Modelling of Financial Processes
- Prerequisite Units:
- MAB101 Statistical Data Analysis 1
- MAB111 Mathematical Sciences 1B
- MAB112 Mathematical Sciences 1C
- MAB210 Statistical Modelling 1
- MAB314 Statistical Modelling 2
- MAB414 Applied Statistics 2
- MAB524 Statistical Inference

**Quantitative Analysis/Financial Mathematics**

Postgraduate Mathematics Units:

- MAN526 Time Series Analysis
- MAN624 Applied Statistics
- MAN765 Bayesian Data Analysis
- MAN766 Applied Time Series Analysis
- MAN769 Mathematics of Finance
- MAN775 Statistical Modelling of Financial Processes
- Prerequisite Units:
- MAB101 Statistical Data Analysis 1
- MAB111 Mathematical Sciences 1B
- MAB112 Mathematical Sciences 1C
- MAB210 Statistical Modelling 1
- MAB312 Linear Algebra
- MAB313 Mathematics of Finance
- MAB314 Statistical Modelling 2
- MAB413 Differential Equations
- MAB414 Applied Statistics 2
- MAB524 Statistical Inference
- MAB623 Financial Mathematics

**Operations Research**

Postgraduate Mathematics Units:

- MAN768 Advanced Techniques in Operations Research
- Prerequisite Units:
- MAB111 Mathematical Sciences 1B
- MAB112 Mathematical Sciences 1C
- MAB210 Statistical Modelling 1
- MAB315 Operations Research 2
- MAB525 Operations Research 3A
- MAB625 Operations Research 3B

**Scientific Computation and Visualisation**

- MAN681 Advanced Visualisation and Data Analysis
- Prerequisite Mathematics Units:
- MAB101 Statistical Data Analysis 1
- MAB111 Mathematical Sciences 1B

- MAB112 Mathematical Sciences 1C
- MAB281 Mathematics for Computer Graphics
- MAB480 Introduction to Scientific Computation
- MAB481 Visualisation and Data Analysis

**Mathematics for Secondary Teaching**

Postgraduate mathematics units:

- MAN700 Project

Or other postgraduate mathematics units totalling 24 credit points.

null

Other mathematics units:

Students would usually select across a range of areas of mathematics and statistics.

null

Non-mathematics units:

Students could select up to 24 credit points from units offered by the Faculty of Education related to the teaching of mathematics.

**Potential Careers:**

Actuary, Mathematician, Quantitative Analyst, Statistician.

## Master of Mathematical Science (MA85)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** 046042K

**Course duration (full-time):** 3 semesters (1.5 years)

**Course duration (part-time):** 6 semesters (3 years)

**Domestic fees (per credit point):** 2007: \$130 per credit point (*subject to annual review*)

**Domestic fees (indicative):** 2007: \$12480

**International Fees (per semester):** 2007:\$9,000 per semester (*subject to annual review*)

**Domestic Entry:** February, July or Summer Program

**International Entry:** February and July

**Total credit points:** 144

**Standard credit points per full-time semester:** 48

**Standard credit points per part-time semester:** 24

**Course coordinator:** Dr Troy Farrell

**Campus:** Gardens Point

### Entry Requirements

To be eligible to enrol an applicant will normally have completed an undergraduate degree in any discipline. Students who do not have sufficient background in introductory calculus may be advised to enrol in MA65 Graduate Certificate in Mathematical Sciences first.

### Prior to Enrolment

Potential applicants for this course are advised to contact the Course Coordinator prior to submitting their application to discuss their plans. International students in particular, should be aware that full-time enrolment of at least 36 credit points per semester may not be possible. This is due to the need to meet unit prerequisites. Units are not offered externally although units do have varying amounts of on-line material available. Lectures, tutorials and computer-based practicals may be timetabled during the day or early evening.

### Career Outcomes

Knowledge and skills in mathematics and/or statistical techniques are increasingly in demand in many different areas. For example, quantitative analysis in the finance area; statistical and mathematical modelling in natural resources and health management; operations research in transport management.

### Course Design

The program of study for an individual student will be decided in consultation with the course coordinator and will take into account the student's background and area of interest within the mathematical sciences.

For the Masters program, at least 36 credit points must be taken from postgraduate mathematics units other than Mathematical Foundations and/or Mathematics. Up to 24 credit points can be taken from units other than mathematics units and there is a limit of 48 credit points from project units.

### Overview

This course enables graduates from any discipline to develop their knowledge and skills in one or more areas of the mathematical sciences. Strands available include mathematical modelling/applied mathematics, computational mathematics, statistics/statistical modelling, quantitative analysis/financial mathematics, operations research and scientific computation and visualisation. It recognises that students may not have studied mathematics for some time.

### Contact Details

#### Course Coordinator

Dr Troy Farrell

Phone: +61 7 3138 2364

Email: t.farrell@qut.edu.au

### Course structure

- At least 36 credit points must be taken from postgraduate mathematics units other than MAN200 Mathematical Foundations and/or MAN201 Mathematics.
- Up to 24 credit points can be taken from other than mathematics units.
- Limit of 48 credit points can be taken from project units.

A planned program of study should be decided in consultation with the Course Coordinator. It will take into account the student's background and area of interest within the mathematical sciences. Strands represent areas of the mathematical sciences which may be of interest to students and the units listed under each strand can guide students in developing their planned program. Students will usually select units from one or two strands only.

The following postgraduate mathematics units are available in all strands (subject to the limit on credit points from project units):

MAN200	Mathematical Foundations
MAN201	Mathematics
MAN700	Project
MAN717	Minor Project
MAN787-1	Project
MAN787-2	Project
MAN787-3	Project

To undertake any of the project units, permission from the Course Coordinator is required. If students wish to take any of the above units they will need to discuss their plans and the proposed content with the Course Coordinator.

### Strand Information

The following strand information is to assist students with unit selection. Students do not have to enrol in all units listed for a strand. The prerequisite units are given as a guide. Depending on a student's background, they may have already covered some of the units listed (or equivalent units) in their

undergraduate studies. If students have not studied any mathematics for some time, they may need to undertake one or two units prior to commencing those listed in the strand information.

**Mathematical Modelling/Applied Mathematics**

Postgraduate Mathematics Units:

- MAN761 Analysis
  - MAN764 Applied Mathematical Modelling
  - MAN774 Perturbation Methods
  - MAN777 Mathematics of Fluid Flow
- Prerequisite Units:
- MAB111 Mathematical Sciences 1B
  - MAB112 Mathematical Sciences 1C
  - MAB220 Computational Mathematics 1
  - MAB311 Advanced Calculus
  - MAB312 Linear Algebra
  - MAB413 Differential Equations
  - MAB422 Mathematical Modelling
  - MAB521 Applied Mathematics 3
  - MAB613 Partial Differential Equations
  - MAB672 Advanced Mathematical Modelling

**Computational Mathematics**

Postgraduate Mathematics Unit:

- MAN771 Computational Mathematics 4
- Prerequisite Units:
- MAB111 Mathematical Sciences 1B
  - MAB112 Mathematical Sciences 1C
  - MAB220 Computational Mathematics 1
  - MAB311 Advanced Calculus
  - MAB312 Linear Algebra
  - MAB420 Computational Mathematics 2
  - MAB522 Computational Mathematics 3

**Discrete Mathematics**

Postgraduate Mathematics Unit:

- MAN778 Applications of Discrete Mathematics
- Prerequisite Units:
- MAB111 Mathematical Sciences 1B
  - MAB112 Mathematical Sciences 1C
  - MAB621 Discrete Mathematics

**Statistics/Statistical Modelling**

Postgraduate Mathematics Units:

- MAN526 Time Series Analysis
- MAN624 Applied Statistics
- MAN765 Bayesian Data Analysis
- MAN766 Applied Time Series Analysis
- MAN775 Statistical Modelling of Financial Processes

Prerequisite Units:

- MAB101 Statistical Data Analysis 1
- MAB111 Mathematical Sciences 1B
- MAB112 Mathematical Sciences 1C
- MAB210 Statistical Modelling 1
- MAB314 Statistical Modelling 2
- MAB414 Applied Statistics 2
- MAB524 Statistical Inference

**Quantitative Analysis/Financial Mathematics**

Postgraduate Mathematics Units:

- MAN526 Time Series Analysis
- MAN624 Applied Statistics
- MAN765 Bayesian Data Analysis
- MAN766 Applied Time Series Analysis
- MAN769 Mathematics of Finance
- MAN775 Statistical Modelling of Financial Processes

Prerequisite Units:

- MAB101 Statistical Data Analysis 1
- MAB111 Mathematical Sciences 1B
- MAB112 Mathematical Sciences 1C
- MAB210 Statistical Modelling 1
- MAB312 Linear Algebra
- MAB313 Mathematics of Finance
- MAB314 Statistical Modelling 2
- MAB413 Differential Equations
- MAB414 Applied Statistics 2
- MAB524 Statistical Inference
- MAB623 Financial Mathematics

**Operations Research**

Postgraduate Mathematics Units:

- MAN768 Advanced Techniques in Operations Research
- Prerequisite Units:
- MAB111 Mathematical Sciences 1B
  - MAB112 Mathematical Sciences 1C
  - MAB210 Statistical Modelling 1
  - MAB315 Operations Research 2
  - MAB525 Operations Research 3A
  - MAB625 Operations Research 3B

**Scientific Computation and Visualisation**

- MAN681 Advanced Visualisation and Data Analysis
- Prerequisite Mathematics Units:
- MAB101 Statistical Data Analysis 1
  - MAB111 Mathematical Sciences 1B
  - MAB112 Mathematical Sciences 1C
  - MAB281 Mathematics for Computer Graphics
  - MAB480 Introduction to Scientific Computation

MAB481 Visualisation and Data Analysis

### **Mathematics for Secondary Teaching**

Postgraduate mathematics units:

MAN700 Project

Plus at least one other postgraduate mathematics unit (or other combination to give at least 36 credit points from appropriate postgraduate mathematics units)

null

Other mathematics units:

Students would usually select across a range of areas of mathematics and statistics

null

Non-mathematics units:

Students can select up to 24 credit points from units offered by the Faculty of Education related to the teaching of mathematics

### **Potential Careers:**

Actuary, Mathematician, Quantitative Analyst, Statistician.



## International Visiting Students (NA05)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** Holders of valid visas

**International Fees (per semester):** 2007:\$2,500 per unit  
(*subject to annual review*)

**International Entry:** February, July and November

**Campus:** Gardens Point, Kelvin Grove, Carseldine and External

## International Visiting Students (NA06)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** Holders of valid visas only

**International Fees (per semester):** 2007 AUD\$2500 per unit (*subject to annual review*)

**International Entry:** February July and November

**Campus:** Gardens Point, Kelvin Grove and Carseldine

## Bachelor of Applied Science - Medical Radiation Technology (Medical Imaging Technology) (PH38)

Year offered: 2007

Admissions: Yes

CRICOS code: 037588F

Course duration (full-time): 3 Years

Domestic fees (per credit point): Commonwealth Supported Place; Full fee tuition 2007: \$210 per credit point (subject to annual review)

Domestic fees (indicative): 2007: Full fee tuition \$20,160; CSP \$6,715

International Fees (per semester): 2007:\$9,000 per semester (subject to annual review)

Domestic Entry: February

International Entry: February

QTAC code: 418182

Past rank cut-off: 96

Past OP cut-off: 3

Assumed knowledge: English (4, SA), Maths B (4, SA) and Physics (4, SA)

Preparatory studies: MATHS: QUT unit Preparatory Mathematics as a visiting student or QUT Continuing Professional Education course Mathematics Bridging. PHYSICS: QUT unit Introductory Physics 1H as a visiting student or QUT Continuing Professional Education course Physics Bridging. ENGLISH: Successful completion of a year of full-time vocational or tertiary study. For further information contact 07 3138 2000 or email [study@qut.com](mailto:study@qut.com)

Total credit points: 288

Standard credit points per full-time semester: 48

Course coordinator: Associate Professor Pam Rowntree

Campus: Gardens Point

### Career Opportunities

After graduating from the Medical Imaging Technology major, you may be employed as a medical imaging technologist or diagnostic radiographer. As a radiographer you will play a key role within the health care industry by providing referring medical practitioners with additional diagnostic information to assist in patient management and treatment. You may become a team member in a radiology department in a hospital, private radiology practice or health department, or you may be employed in medical equipment sales.

### OP Guarantee

The OP Guarantee does not apply to this program.

### Other Majors

See also the separate entry for the following major in this course: Bachelor of Applied Science - Medical Radiation Technology (Radiotherapy Technology).

### Special Requirements

Students are required to undertake clinical experience in hospital departments and private practices during the course and, as a result, will have direct patient contact during their clinical placement, and may be exposed to blood and body fluids of patients. Students must be

vaccinated for Hepatitis B and must provide a post-vaccination pathological report or similar certification showing proof of immunity, prior to undertaking their first clinical placement. CPR certification is also required to undertake clinical placements.

### Other Course Requirements

Students in this course should satisfy criteria related to health status. Students must declare height, physical disabilities, treatment of nervous condition and/or drug/alcohol disorder, and a current immunisation status (specifically Hepatitis B) as part of the online enrolment process.

### Professional Recognition

On graduation, students will be eligible for provisional accreditation by the Australian Institute of Radiography. Full membership requires the completion of an additional professional development year of clinical experience.

### Why Choose this Course?

QUT is the only university to offer a Medical Imaging Technology degree in Queensland. Excellent employment prospects can be expected as QUT works closely with the health industry to ensure that the number of graduates is in line with industry demand. In recent years, over 95 per cent of graduates have been employed within four months of graduation.

This course is designed in consultation with clinical staff from radiology departments, so you'll gain advanced knowledge of new diagnostic techniques and equipment used in the workplace. QUT's well equipped X-ray laboratories allow you to graduate with experience using equipment and techniques similar to those used in industry. Clinical placements in hospitals and private practices provide an opportunity to use your skills in a real workplace.

### Deferment

QUT allows current Year 12 school leavers to defer their undergraduate admission offer for one year, or for six months if offered mid-year admission, except in courses using specific admission requirements such as questionnaires, portfolios, auditions, prior study or work experience.

Non-year 12 students may also request to defer their QTAC offer on the basis of demonstrated special circumstances.

Find out more on deferment.

### Contact Details

#### Course Coordinator

Associate Professor Pam Rowntree

Phone: +61 7 3138 2346

Email: [p.rowntree@qut.edu.au](mailto:p.rowntree@qut.edu.au)

### Domestic student tuition fee (Dfee) places

**Undergraduate domestic full fee places (Dfee) are not available in this course.** Tuition fees are only applicable to currently enrolled students who were unable to comply

regulations regarding their original Commonwealth Supported place (i.e. failure to lodge an eCAF, has consumed of other their Student Learning Entitlement etc.) and who have been invited and accepted to continue as a fee-paying student.

**Course structure - Medical Imaging Technology****Year 1, Semester 1**

LSB145 Anatomy 1  
PCB007 Patient Care in Professional Practice  
PCB107 Physics and Quantitative Techniques  
PCB178 Principles of Medical Radiations

**Year 1, Semester 2**

LSB245 Anatomy 2 and Introductory Pathology  
PCB272 Radiation Physics  
PCB276 General Radiography 1  
PCB277 Radiographic Practice

**Year 2, Semester 1**

LSB321 Systematic Pathology  
LSB345 Regional & Imaging Anatomy 1  
PCB375-1 Radiographic Equipment  
PCB377 General Radiography 2  
PCB379 Clinical Radiography 1

**Year 2, Semester 2**

LSB445 Regional and Imaging Anatomy 2  
PCB375-2 Radiographic Equipment  
PCB476 Special Procedures  
PCB477 Complementary Imaging Techniques  
PCB479 Clinical Radiography 2

**Year 3, Semester 1**

PCB567 Advanced Radiographic Technique 1  
PCB580-1 Clinical Radiography 3  
PCB593 Digital Image Processing  
PCB672-1 Project  
PCB681 Computed Tomography Imaging

**Year 3, Semester 2**

PCB580-2 Clinical Radiography 3  
PCB667 Advanced Radiographic Technique 2  
PCB672-2 Project  
PCB675 Radiation Safety and Biology  
PCB682 Magnetic Resonance Imaging

**Potential Careers:**

Medical Imaging Technologist, Radiographer.

## Bachelor of Applied Science - Medical Radiation Technology (Radiotherapy Technology) (PH38)

Year offered: 2007

Admissions: Yes

CRICOS code: 037588F

Course duration (full-time): 3 Years

Domestic fees (per credit point): Commonwealth Supported Place; Full fee tuition 2007: \$210 per credit point (subject to annual review)

Domestic fees (indicative): 2007: Full fee tuition \$20,160; CSP \$6,715

International Fees (per semester): 2004: A\$9000; 2005: A\$9000 (subject to annual review)

Domestic Entry: February: Fixed Closing Date- 30 November 2006.

QTAC code: 418192

Past rank cut-off: 94 and a successful questionnaire (see Additional Entry Requirements)

Past OP cut-off: 4 and a successful questionnaire (see Additional Entry Requirements)

Assumed knowledge: English (4, SA), Maths B (4, SA) and Physics (4, SA)

Preparatory studies: MATHS: QUT unit Preparatory Mathematics as a visiting student or QUT Continuing Professional Education course Mathematics Bridging. PHYSICS: QUT unit Introductory Physics 1H as a visiting student or QUT Continuing Professional Education course Physics Bridging. ENGLISH: Successful completion of a year of full-time vocational or tertiary study. For further information contact 07 3138 2000 or email study@qut.com

Total credit points: 288

Standard credit points per full-time semester: 48

Course coordinator: Associate Professor Pam Rowntree

Discipline coordinator: Cathy Hargrave

Campus: Gardens Point

### Career Opportunities

As a graduate, you may be employed as a radiation therapist in a radiotherapy department of a major hospital or private institution. You may become a member of a team which treats cancer and is responsible for planning and delivering prescribed radiation doses.

### Additional Entry Requirement

Radiotherapy Technology applicants are required to lodge a questionnaire. The final date to lodge the questionnaire was **30 November**. Late submissions will not be accepted and applications for this course have closed.

### Fixed Closing Date

Applications for this program closed on **30 November**.

### OP Guarantee

The OP Guarantee does not apply to this course.

### Other Course Requirements

Students in this course should satisfy criteria related to health status. Students must declare height, physical disabilities, treatment of nervous condition and/or

drug/alcohol disorder, and a current immunisation status (specifically Hepatitis B) as part of the online enrolment process.

### Special Course Requirements

Students are required to undertake clinical experience in hospital departments and private practices during the course and, as a result, will have direct patient contact during their placement, and may be exposed to blood and body fluids of patients. Students must be vaccinated for Hepatitis B and must provide a post-vaccination pathological report or similar certification showing proof of immunity, prior to undertaking their first clinical placement. CPR certification is also required to undertake clinical placements.

### Professional Recognition

On graduation, students will be eligible for provisional accreditation by the Australian Institute of Radiography. Full membership requires the completion of an additional professional development year of clinical experience.

### Why Choose this Course?

QUT is the only university to offer a Radiotherapy Technology degree in Queensland. Excellent employment prospects can be expected as QUT works closely with the health industry to ensure that the number of graduates is in line with industry demand. In recent years, over 95 per cent of graduates have been employed within four months of graduation.

This course is designed in consultation with clinical staff from radiation oncology departments, so you'll gain advanced knowledge of new treatment techniques and equipment used in the workplace. QUT's well equipped laboratories allow you to graduate with experience using equipment and techniques similar to those used in industry. Close links with local oncology departments allow students to complete practical work and clinical placements using specialised, state-of-the-art radiotherapy equipment.

### Contact Details

#### Course Coordinator

Associate Professor Pam Rowntree

Phone: +61 7 3138 2346

Email: p.rowntree@qut.edu.au

#### Discipline Coordinator

Cathy Hargrave

Phone: +61 7 3138 8367

Email: c.hargrave@qut.edu.au

### Deferment

QUT's deferment policy does not apply to this course.

### Domestic student tuition fee (Dfee) places

**Undergraduate domestic full fee places (Dfee) are not available in this course.** Tuition fees are only applicable to currently enrolled students who were unable to comply regulations regarding their original Commonwealth Supported place (i.e. failure to lodge an eCAF, has

consumed of other their Student Learning Entitlement etc.) and who have been invited and accepted to continue as a fee-paying student.

**Course structure - Major in Radiotherapy Technology****Year 1, Semester 1**

LSB145 Anatomy 1  
PCB007 Patient Care in Professional Practice  
PCB107 Physics and Quantitative Techniques  
PCB178 Principles of Medical Radiations

**Year 1, Semester 2**

LSB245 Anatomy 2 and Introductory Pathology  
PCB272 Radiation Physics  
PCB286 Treatment Planning 1  
PCB287 Megavoltage Therapy 1

**Year 2, Semester 1**

LSB321 Systematic Pathology  
LSB345 Regional & Imaging Anatomy 1  
PCB389 Clinical Radiotherapy 1  
PCB396 Radiotherapy Planning and Physics  
PCB397-1 Megavoltage Therapy 2

**Year 2, Semester 2**

LSB445 Regional and Imaging Anatomy 2  
PCB397-2 Megavoltage Therapy 2  
PCB489 Clinical Radiotherapy 2  
PCB495 Computer Assisted Treatment Planning 1  
PCB496 Radiotherapy Equipment

**Year 3, Semester 1**

PCB587 Specialised Radiotherapy Technique 1  
PCB590-1 Clinical Radiotherapy 3  
PCB593 Digital Image Processing  
PCB595 Computer Assisted Treatment Planning 2  
PCB672-1 Project

**Year 3, Semester 2**

PCB590-2 Clinical Radiotherapy 3  
PCB672-2 Project  
PCB675 Radiation Safety and Biology  
PCB687 Specialised Radiotherapy Technique 2  
PCB695 Advanced Treatment Planning Topics

**Potential Careers:**

Radiation Therapist.

## Graduate Certificate in Applied Science (Breast Ultrasound) (PH60)

Year offered: 2007

Admissions: Yes

Course duration (part-time): 2 semesters (1 year)

Domestic fees (per credit point): 2007: \$110 per credit point (subject to annual review)

Domestic fees (indicative): 2007: \$10560

Domestic Entry: February

Total credit points: 48

Standard credit points per part-time semester: 24

Course coordinator: Associate Professor Pam Rowntree

Discipline coordinator: Natasha Kazich

Campus: Gardens Point

### Entry requirements

To be eligible to enrol, an applicant will normally be qualified as a medical imaging technologist (diagnostic radiographer) at degree or diploma level and have a minimum of two years experience in a clinical medical imaging practice. Students must give written proof of access to suitable clinical experience for the duration of the course.

Applicants with other qualifications and appropriate experience may be permitted to enrol subject to the approval of the Head of School of Physical and Chemical Sciences.

### Professional Recognition

This course is accredited with the Australasian Sonographer Accreditation Registry (ASAR).

### Course Design

Students must be employed in a suitable clinical practice with adequate access to clinical experience for the duration of the course. Formal lectures are conducted in an intensive one-week block of classes at the beginning of each semester. Further academic requirements can be met without requiring on-campus attendance. If students are not based in Brisbane, this structure allows attendance by offering the formal classroom component in an intensive one-week block in each semester.

### Overview

The Graduate Certificate in Applied Science (Breast Ultrasound) course offers studies specifically in breast ultrasound techniques. Students are given the scientific basis for understanding, using and evaluating relevant equipment and techniques. The course particularly suits radiographers, medical imaging technologists and sonographers who are interested in an in-depth study of this rapidly developing speciality area of ultrasound.

### Contact Details

#### Course Coordinator

Associate Professor Pam Rowntree

Phone: +61 7 3138 2346

Email: p.rowntree@qut.edu.au

#### Discipline Coordinator

Natasha Kazich

Phone: +61 7 3138 2490

Email: n.kazich@qut.edu.au

### Course structure

To complete the Graduate Certificate in Applied Science (Breast Ultrasound) students must complete the units listed below (total 48 credit points)

#### Semester 1

PCN162 Principles of Medical Ultrasound

PCN187 Specialist Studies

PCN397-1 Clinical Attachment

#### Semester 2

PCN184 Breast Imaging

PCN397-2 Clinical Attachment

NOTE: The PCN397 clinical attachment unit is a 2 semester unit

### Potential Careers:

Sonographer.

## Graduate Certificate in Lighting (on-shore) (PH62)

**Year offered:** 2007

**Admissions:** Yes

**Course duration (part-time):** 2 semesters (1 year) (Internal and External)

**Domestic fees (per credit point):** 2007: \$130 per credit point (*subject to annual review*)

**Domestic fees (indicative):** 2007: \$12480

**International Fees (per semester):** 2007: \$9,000 per semester (*subject to annual review*)

**Domestic Entry:** July

**Total credit points:** 48

**Standard credit points per part-time semester:** 24

**Course coordinator:** Dr Ian Cowling

**Campus:** Gardens Point

### Overview

The Graduate Certificate in Lighting (PH62) is designed primarily for people working in all areas of the lighting industry and engineers or architects whose work includes some aspects of lighting.

The Graduate Certificate in Lighting (PH62) provides an overview of all aspects of lighting, including light measurement, lamp properties and luminaire design, design of lighting installations, daylighting and the human factors associated with lighting.

The Graduate Diploma (PH72) then provides, through electives, the opportunity for some degree of specialisation appropriate to the student's needs and interests.

Finally the Master of Lighting (PH82) provides the opportunity for graduates of the above programs to undertake a Masters in the form of a project with some coursework.

### Entry Requirements

(a) Bachelor level degree in an appropriate field

### OR

(b) Demonstrated minimum of 3 years of relevant experience in the lighting industry and successful completion of one or more recognised Introductory Courses in Lighting as determined by the Course Coordinator.

*Note:* Students with relevant experience in the lighting industry or recognised educational qualifications in lighting may be granted credit in PH62/PH63 to a maximum of 24 credit points.

### Course Design

Graduate Certificate students will undertake four units (12 credit points each) covering the perception, specification and measurement of light, lamp and luminaire design, lighting design, sustainability issues and human factors.

### Contact Details

### Course Coordinator

Dr Ian Cowling

Phone: +61 7 3138 2592

Email: i.cowling@qut.edu.au

### Course structure - Part-time

#### Year 1, Semester 2 (July to October)

PCN121 Vision Colour and Photometry

PCN124 Lamps and Luminaires

#### Year 2, Semester 1 (February to June)

PCN122 Lighting Design

PCN123 Sustainability and Human Factors

**NOTES:** PH62 is offered part-time comprising a lecture/tutorial format, and where appropriate practical and field work. Some units will have a significant computer-design type component and all units will incorporate learning through assignment work, all of which will be incorporated into the assessment program. Most units in the internal mode will be offered in block format on weekends.

Domestic students in the Graduate Certificate in Lighting (PH62) will be invited, on successful completion of 48 credit points, to continue with studies in the Graduate Diploma in Lighting (PH72).

International students wishing to change courses should consult International Student Business Services.

### Potential Careers:

Architect, Electrical Contractor, Electrical Engineer, Energy Consultant, Industrial Designer, Landscape Architect, Lighting Designer, Lighting Technician, Luminaire Designer, Physicist, Sales Person, Scientist, Theatre Lighting.



## Graduate Certificate in Lighting (off-shore) (PH63)

**Year offered:** 2007

**Admissions:** Yes

**Course duration (external):** 2 semesters part-time (Hong Kong)

**Domestic fees (per credit point):** Off-shore Course (subject to annual review)

**International Entry:** September

**Total credit points:** 48

**Standard credit points per part-time semester:** 24

**Course coordinator:** Dr Ian Cowling

**Campus:** City University of Hong Kong

### Overview

The Graduate Certificate in Lighting (PH63) is designed primarily for people working in any area of lighting, whether it be design or application, sales or installation, purpose directed or just entertainment.

The Graduate Certificate in Lighting (PH63) is designed to provide an overview of all aspects of lighting, including light measurement, luminaire design, design of lighting installations, sustainability, daylighting and the human aspects associated with providing good lighting.

The Graduate Diploma (PH73) then provides, through electives, the opportunity for some degree of specialisation appropriate to the student's needs and interests.

Finally the Master of Lighting (PH83) provides the opportunity for graduates of the above programs to undertake a Masters in the form of a project with some coursework.

### Entry Requirements

(a) Bachelor level degree in an appropriate field

**OR**

(b) Demonstrated minimum of 3 years of relevant experience in the lighting industry and successful completion of one or more recognised Introductory Courses in Lighting as determined by the Course Coordinator.

*Note:* Students with relevant experience in the lighting industry or recognised educational qualifications in lighting may be granted credit in PH62/PH63 to a maximum of 24 credit points.

### Course Design

Graduate Certificate students will undertake four units (12 credit points each) covering the perception, specification and measurement of light, lamp and luminaire design, lighting design, daylighting and the human factors of lighting.

### Course Details

#### Course Coordinator

Dr Ian Cowling

Phone: +61 7 3138 2592

Email: i.cowling@qut.edu.au

### Course structure - Part-time

#### Year 1, Semester 2 (September to December)

PCZ121 Vision Colour and Photometry

PCZ124 Lamps and Luminaires

#### Year 2, Semester 1 (January to April)

PCZ122 Lighting Design

PCZ123 Sustainability and Human Factors

**NOTES:** PH63 is offered part-time in a combination of face-to-face lecture/tutorial/practical format, and on-line. Some units will have a computer-design type component and all units will incorporate learning through assignment work, all of which will be incorporated into the assessment program. The two units offered each semester will be presented sequentially. The face-to-face teaching component will be offered in block form over a weekend, usually on the first weekend of the teaching period assigned to that unit. There will then be a follow-up face-to-face session about three weekends later.

Students in the Graduate Certificate in Lighting (PH63) wishing to continue their studies in the Graduate Diploma of Lighting (PH73), on successful completion of 48 credit points, are required to seek admission using an International Student Degree Program Application (F) Form.

### Potential Careers:

Architect, Electrical Contractor, Electrical Engineer, Energy Consultant, Industrial Designer, Landscape Architect, Lighting Designer, Lighting Technician, Luminaire Designer, Physicist, Sales Person, Scientist, Theatre Lighting.

## Graduate Diploma in Applied Science (Medical Physics) (PH71)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** 020315D

**Course duration (full-time):** 2 semesters (1 year)

**Course duration (part-time):** 4 semesters (2 years)

**Domestic fees (per credit point):** 2007: \$130 per credit point (limited CSP places available) Tuition Fee applies after CSP have been filled (*subject to annual review*)

**Domestic fees (indicative):** 2007: Full fee tuition \$12,480; CSP \$7,114

**International Fees (per semester):** 2007:\$9,000 per semester (*subject to annual review*)

**Domestic Entry:** February and July

**International Entry:** February and July

**Total credit points:** 96

**Standard credit points per full-time semester:** 48

**Standard credit points per part-time semester:** 24

**Course coordinator:** Dr Andrew Fielding

**Campus:** Gardens Point

### Entry Requirements

Applicants must possess an acceptable tertiary course with a major in physics. Applicants with other qualifications (eg engineering) may enrol with the approval of the Head of the School of Physical and Chemical Sciences. In some instances, a modified program may be necessary.

### Course Design

This degree comprises assessed coursework such as advanced lectures, seminars, reading courses or independent study. If undertaken full-time, students will need an average of 14 hours a week of formal contact.

Students who have completed the Graduate Diploma may enter Stage 2 of the Master of Applied Science - PH80 where they undertake a program of supervised research and investigation that can be completed at QUT, or in a suitable external institution.

### Professional Recognition

On graduation, students will be eligible for provisional accreditation by the Australian College of Physical Scientists and Engineers in Medicine (ACPSEM).

### Overview

The Graduate Diploma/Master of Applied Science (Medical Physics) deals with well-established and emerging areas of medical and health physics and includes the following topics: clinical measurement, computing, health physics, instrumentation, medical electronics, medical imaging, physiological monitoring, physics of radiotherapy, radiobiology, radiological imaging sciences.

The coursework also contains an introduction to the clinical sciences. From this, prospective medical physicists learn to appreciate the clinical nature of medical situations and how to communicate better with other clinical staff.

Graduates can seek employment in hospitals, health

departments, mining companies, tertiary institutions and medical instrumentation companies. Depending on the field of employment, graduates may be known as a medical physicist, health physicist or bio-engineer. Duties as a professional medical physicist include:

- applying electronics, ultrasonics, radiation and computers to clinical and environmental problems
- monitoring the environment to maintain acceptable standards in the workplace and the community
- applying fundamental physical research in development programs
- responsibility for calibration, care and maintenance of instruments and apparatus.

### Contact Details

#### Course Coordinator

Dr Andrew Fielding

Phone: +61 7 3138 5325

Email: a.fielding@qut.edu.au

### Course structure - First Semester Entry

#### First Semester (February to June)

LSB142	Human Anatomy and Physiology
PCN113	Radiation Physics
PCN114	Microprocessors and Instrumentation
PCN211	Physics of Medical Imaging

#### Second Semester (July to October)

PCN112	Medical Imaging Science
PCN212	Radiotherapy
PCN214	Health and Occupational Physics
PCN218	Research Methodology and Professional Studies

### Course structure - Mid-Year Entry

#### First Semester (July to October)

LSB258	Principles of Human Physiology
PCN112	Medical Imaging Science
PCN212	Radiotherapy
PCN214	Health and Occupational Physics

#### Second Semester (February to June)

PCN113	Radiation Physics
PCN114	Microprocessors and Instrumentation
PCN218	Research Methodology and Professional Studies
PCN211	Physics of Medical Imaging

### Potential Careers:

Health Physicist, Medical Equipment Sales, Medical Physicist.

## Graduate Diploma in Applied Science (Medical Ultrasound) (PH71)

**Year offered:** 2007

**Admissions:** Yes

**Course duration (part-time):** 4 semesters (2 years)

**Domestic fees (per credit point):** 2007: \$130 per credit point (limited CSP places available) Tuition Fee applies after CSP places have been filled (*subject to annual review*)

**Domestic fees (indicative):** 2007: Full fee tuition \$12,480; CSP \$7,114

**Domestic Entry:** February. Applications are to be made by 1 December in the preceding year.

**Total credit points:** 96

**Standard credit points per part-time semester:** 24

**Course coordinator:** Dr Andrew Fielding

**Discipline coordinator:** Natasha Kazich

**Campus:** Gardens Point

### Entry Requirements

Students will normally be qualified diagnostic radiographers (or medical imaging technologists) at degree or diploma level, and have at least two years experience in clinical practice. Students must give written proof of access to suitable clinical experience for the duration of the course.

### Overview

The Graduate Diploma and Master of Applied Science courses offer studies in medical ultrasound. Students are given the scientific basis for understanding, using and evaluating relevant equipment and techniques. The course particularly suits radiographers, medical imaging technologists and nuclear medicine technologists who are interested in an in-depth study of this rapidly developing area.

### Professional Recognition

This course is accredited with the Australasian Sonographer Accreditation Registry (ASAR).

### Course Design

This degree consists of two stages. Stage 1 (Graduate Diploma - PH71) takes four semesters of part-time study to complete. Students must show that they have access to suitable clinical experience for the duration of Stage 1 before beginning the degree. Lectures are conducted in intensive 4-5 week blocks in each semester. Students undertake clinical experience throughout the semester.

Stage 2 (Master of Applied Science - PH80) involves completion of a research project and submission of a thesis. Students can undertake this project externally under QUT staff supervision on appointment of a suitable external supervisor. This stage takes two semesters part-time to complete after successful completion of Stage 1.

### Contact Details

#### Course Coordinator

Dr Andrew Fielding

Phone: +61 7 3138 5325

Email: a.fielding@qut.edu.au

#### Discipline Coordinator

Natasha Kazich

Phone: +61 7 3138 2490

Email: n.kazich@qut.edu.au

#### Course structure - Part-time

Students must complete the units listed below (total 96 credit points)

##### Year 1, Semester 1

PCN159 Ultrasonic Examination 1

PCN162 Principles of Medical Ultrasound

PCN197-1 Clinical Attachment 1

##### Year 1, Semester 2

PCN197-2 Clinical Attachment 1

PCN356 Ultrasonic Examinations 2

##### Year 2, Semester 1

PCN297-1 Clinical Attachment 2

PCN355 Vascular Ultrasound

PCN357 Advanced Ultrasound Topics

##### Year 2, Semester 2

PCN218 Research Methodology and Professional Studies

PCN297-2 Clinical Attachment 2

NOTES The PCN197 and PCN297 clinical attachment units are 2 semester units

Each clinical attachment unit (ie PCN197 and PCN297) involves clinical experience in the order of 3 days per week or equivalent.

#### Potential Careers:

Sonographer.

## Graduate Diploma in Lighting (on-shore) (PH72)

**Year offered:** 2007

**Admissions:** Yes

**Course duration (part-time):** 4 semesters (2 years) (Internal and External)

**Domestic fees (per credit point):** Full fee tuition 2007: \$130 per credit point (*subject to annual review*)

**Domestic fees (indicative):** 2007: Full fee tuition \$12,480; CSP \$7,044

**International Fees (per semester):** 2007: \$9,000 per semester (*subject to annual review*)

**Domestic Entry:** July

**Total credit points:** 96

**Standard credit points per part-time semester:** 24

**Course coordinator:** Dr Ian Cowling

**Campus:** Gardens Point

### Overview

The Graduate Diploma in Lighting (PH72) is designed primarily for people working in all areas of the lighting industry and engineers or architects whose work includes some aspects of lighting.

The Graduate Certificate in Lighting (PH62) provides an overview of all aspects of lighting, including light measurement, lamp properties and luminaire design, design of lighting installations, daylighting and the human factors associated with lighting.

The Graduate Diploma (PH72) then provides, through electives, the opportunity for some degree of specialisation appropriate to the student's needs and interests.

Finally the Master of Lighting (PH82) provides the opportunity for graduates of the above programs to undertake a Masters in the form of a project with some coursework.

### Entry Requirements

(a) Bachelor level degree in an appropriate field

**OR**

(b) Successful completion of PH62/PH63 Graduate Certificate in Lighting or equivalent.

*Note:* Students with relevant experience in the lighting industry or recognised educational qualifications in lighting may be granted credit to a maximum of 36 credit points.

### Course Design

Graduate Diploma students will undertake 24 credit points (two units) of advanced lighting design and applications studies and two other units (24 credit points) which could include at least one unit in Project Management, Project Cost and Risk Management or Quality Management.

### Contact Details

#### Course Coordinator

Dr Ian Cowling

Phone: +61 7 3138 2592

Email: i.cowling@qut.edu.au

### Course structure - Part-time

#### Year 1, Semester 2 (July to October)

PCN121 Vision Colour and Photometry

PCN124 Lamps and Luminaires

#### Year 2, Semester 1 (February to June)

PCN122 Lighting Design

PCN123 Sustainability and Human Factors

#### Year 2, Semester 2 (July to October)

PCN223 Lighting Applications

Elective - One unit from:

MEN272 Enterprise Resources Planning

PCN222 Advanced Lighting Design

PCN224 Applied Lighting

#### Year 3, Semester 1 (February to June)

PCN221 Best Practices in Lighting

Elective - One unit from:

CNP520 Project Management

CNP521 Project Cost and Risk Management

MEN177 Total Quality Management

PCN224 Applied Lighting

**NOTES:** PH72 is offered part-time internally and externally. The course comprises a lecture/tutorial format, and where appropriate practical and field work. Some units will have a significant computer-design type component and all units will incorporate learning through assignment work, all of which will be incorporated into the assessment program. Most units in the internal mode will be offered in block format on weekends. Students enrolling in the external mode will be required to attend QUT for 4 to 5 days per semester for intensive practical and tutorial work

Domestic students in the Graduate Diploma in Lighting (PH72) will be invited, on successful completion of 96 credit points, to continue with studies in the Master of Lighting (PH82).

Students in the Graduate Diploma in Lighting (PH72) wishing to exit with the Graduate Certificate in Lighting (PH62) are required to submit an Application to Graduate Early with an Approved Exit Course (SRX) Form in their final semester of study.

International students wishing to change courses should consult International Student Business Services.

### Potential Careers:

Architect, Electrical Contractor, Electrical Engineer, Energy Consultant, Industrial Designer, Landscape Architect, Lighting Designer, Lighting Technician, Luminaire Designer,

Physicist, Sales Person, Scientist, Theatre Lighting.

## Graduate Diploma in Lighting (off-shore) (PH73)

**Year offered:** 2007

**Admissions:** Yes

**Course duration (external):** 4 semesters part-time (Hong Kong)

**Domestic fees (per credit point):** Off-shore Course (subject to annual review)

**International Entry:** September

**Total credit points:** 96

**Standard credit points per part-time semester:** 24

**Course coordinator:** Dr Ian Cowling

**Campus:** City University of Hong Kong

### Overview

The Graduate Diploma in Lighting (PH73) is designed primarily for people working in all areas of the lighting industry and engineers or architects whose work includes some aspects of lighting.

All students in the Graduate Diploma (PH73) will have undertaken the 4 units of the Graduate Certificate in Lighting (PH63), providing an overview of all aspects of lighting, including light measurement, luminaire design, design of lighting installations, sustainability, daylighting and the human aspects associated with providing good lighting.

The Graduate Diploma (PH73) then provides, through electives, the opportunity for some degree of specialisation appropriate to the student's needs and interests.

Finally the Master of Lighting (PH83) provides the opportunity for graduates of the above programs to undertake a Masters in the form of a project with some coursework.

### Entry Requirements

(a) Bachelor level degree in an appropriate field

### OR

(b) Successful completion of PH62/PH63 Graduate Certificate in Lighting or equivalent.

*Note:* Students with relevant experience in the lighting industry or recognised educational qualifications in lighting may be granted credit to a maximum of 36 credit points.

### Course Design

Graduate Diploma students will undertake 24 credit points (two units) of advanced lighting design and applications studies and two other units (24 credit points) which could include at least one unit in Project Management, Project Cost and Risk Management or Quality.

### Contact Details

#### Course Coordinator

Dr Ian Cowling

Phone: +61 7 3138 2592

Email: i.cowling@qut.edu.au

### Course structure - Part-time

#### First Semester (September to December)

PCZ121 Vision Colour and Photometry

PCZ124 Lamps and Luminaires

#### Second Semester (January to April)

PCZ122 Lighting Design

PCZ123 Sustainability and Human Factors

#### Third Semester (May to August)

PCZ222 Advanced Lighting Design

PCZ223 Lighting Applications

#### Fourth Semester (September to December)

PCZ221 Best Practices in Lighting

PCZ224 Applied Lighting

**NOTES:** PH73 is offered part-time in a combination of face-to-face lecture/tutorial/practical format, and on-line. Some units will have a computer-design type component and all units will incorporate learning through assignment work, all of which will be incorporated into the assessment program. Except for the fourth semester, the two units offered each semester will be presented sequentially. The face-to-face teaching component will be offered in block form over a weekend, usually on the first weekend of the teaching period assigned to that unit. There will then be a follow-up face-to-face session about three weekends later. In the fourth semester both units will commence at the start of the semester.

Students in the Graduate Diploma in Lighting (PH73) wishing to continue their studies in the Master of Lighting (PH83), on successful completion of 96 credit points, are required to seek admission using an International Student Degree Program Application (F) Form.

Students in the Graduate Diploma in Lighting (PH73) wishing to exit with the Graduate Certificate in Lighting (PH63) are required to submit an Application to Graduate Early with an Approved Exit Course (SRX) Form in their final semester of study.

### Potential Careers:

Architect, Electrical Contractor, Electrical Engineer, Energy Consultant, Industrial Designer, Landscape Architect, Lighting Designer, Lighting Technician, Luminaire Designer, Physicist, Sales Person, Scientist, Theatre Lighting.

## Graduate Diploma in Cardiac Ultrasound (PH75)

**Year offered:** 2007

**Admissions:** Yes

**Course duration (part-time):** 4 semesters (2 years )

**Domestic fees (per credit point):** 2007: \$110 per credit point (*subject to annual review*)

**Domestic fees (indicative):** 2007: \$10560

**Domestic Entry:** February

**Total credit points:** 96

**Standard credit points per full-time semester:** 48

**Standard credit points per part-time semester:** 24

**Course coordinator:** Bonita Anderson

**Campus:** Gardens Point

### Entry Requirements

To be eligible to enrol an applicant will normally have a degree or diploma level qualification in a relevant science or allied health field, and access to suitable clinical experience for the duration of the course.

Students who do not meet the normal entry requirements may be permitted to enrol subject to the approval of the Head of the School of Physical and Chemical Sciences. Applicants should submit as much detail as possible about previous studies and prior learning experiences that may be relevant. In some cases a bridging program may be required.

### Professional Recognition

This course is accredited with the Australasian Sonographer Accreditation Registry (ASAR).

### Course Design

This course consists of two stages. Stage 1 (Graduate Diploma in Cardiac Ultrasound - PH75) takes two years of part-time study to complete. Students must be employed in a suitable clinical practice with adequate access to clinical cardiac ultrasound experience for the duration of the course. If students are not based in Brisbane, this structure allows attendance by offering the formal classroom component in an intensive one-week block in each semester.

Stage 2 (Master of Cardiac Ultrasound - PH85) involves the completion of a research project and submission of a thesis. Students can undertake this project internally at QUT, or externally under QUT staff supervision and the guidance of a suitable external supervisor. This stage would normally take one year part-time to complete.

### Overview

The Graduate Diploma in Cardiac Ultrasound program offers studies for practicing Cardiac Sonographers. The course is conducted using a combination of block classes of approximately one week's duration in each semester, web-based modules and clinical practice modules.

### Contact Details

#### Course Coordinator

Bonita Anderson

Phone: +61 7 3138 2585

Email: b.anderson@qut.edu.au

### Course structure

#### Year 1, Semester 1

LSN259	Cardiac Anatomy, Embryology and Pathology
PCN162	Principles of Medical Ultrasound
PCN497-1	Clinical Attachment 4

#### Year 1, Semester 2

PCN259	Cardiac Ultrasound 1
PCN497-2	Clinical Attachment 4

#### Year 2, Semester 1

PCN218	Research Methodology and Professional Studies
PCN359	Cardiac Ultrasound 2
PCN597-1	Clinical Attachment 5

#### Year 2, Semester 2

PCN459	Advanced Cardiac Ultrasound
PCN597-2	Clinical Attachment 5

**NOTES:** The PCN497 and PCN597 clinical attachment units are 2 semester units.

Domestic students in the Graduate Diploma in Cardiac Ultrasound (PH75) will be invited, on successful completion of 96 credit points, to continue with studies in the Master of Cardiac Ultrasound (PH85).

### Potential Careers:

Sonographer.

## Master of Applied Science (Medical Physics) (PH80)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** 043548G

**Course duration (full-time):** 3 semesters (1.5 years)

**Course duration (part-time):** 6 semesters (3 years)

**Domestic fees (per credit point):** 2007: \$130 per credit point (limited CSP places available) Tuition Fees apply after CSP places have been filled (*subject to annual review*)

**Domestic fees (indicative):** 2007: Full fee tuition \$12,480; CSP \$7,114

**International Fees (per semester):** 2007:\$9,000 per semester (*subject to annual review*)

**Domestic Entry:** February and July

**International Entry:** February and July

**Total credit points:** 144

**Standard credit points per full-time semester:** 48

**Standard credit points per part-time semester:** 24

**Course coordinator:** Dr Andrew Fielding

**Campus:** Gardens Point

### Other Majors

See also the separate entry for the following major in this course: Master of Applied Science (Medical Ultrasound).

### Entry Requirements

Applicants must possess an acceptable tertiary course with a major in physics. Applicants with other qualifications (eg engineering may enrol with the approval of the Head of the School of Physical and Chemical Sciences. In some instances, a modified program may be necessary.

### Course Design

This degree consists of two stages. Stage 1 (which is equivalent to the Graduate Diploma - PH71) comprises assessed coursework such as advanced lectures, seminars, reading courses or independent study. If undertaken full-time, students will need an average of 14 hours a week of formal contact.

In Stage 2 (Master of Applied Science - PH80) students undertake a program of supervised research and investigation that can be completed at QUT, or in a suitable external institution. Students can graduate with a Graduate Diploma in Medical Physics after satisfactory completion of Stage 1.

### Professional Recognition

On graduation, students will be eligible for provisional accreditation by the Australian College of Physical Scientists and Engineers in Medicine (ACPSEM).

### Overview

The Graduate Diploma/Master of Applied Science (Medical Physics) deals with well-established and emerging areas of medical and health physics and includes the following topics: clinical measurement, computing, health physics, instrumentation, medical electronics, medical imaging, physiological monitoring, physics of radiotherapy, radiobiology, radiological imaging sciences.

The coursework also contains an introduction to the clinical sciences. From this, prospective medical physicists learn to appreciate the clinical nature of medical situations and how to communicate better with other clinical staff.

Graduates can seek employment in hospitals, health departments, mining companies, tertiary institutions and medical instrumentation companies. Depending on the field of employment, graduates may be known as a medical physicist, health physicist or bio-engineer. Duties as a professional medical physicist include:

- applying electronics, ultrasonics, radiation and computers to clinical and environmental problems
- monitoring the environment to maintain acceptable standards in the workplace and the community
- applying fundamental physical research in development programs
- responsibility for calibration, care and maintenance of instruments and apparatus.

### Contact Details

#### Course Coordinator

Dr Andrew Fielding

Phone: +61 7 3138 5325

Email: a.fielding@qut.edu.au

### Course structure - First Semester Entry

STAGE 1: Students must complete units from the list below, totalling 96 credit points:

#### Year 1, Semester 1 (February to June)

LSB142	Human Anatomy and Physiology
PCN113	Radiation Physics
PCN114	Microprocessors and Instrumentation
PCN211	Physics of Medical Imaging

#### Year 1, Semester 2 (July to October)

PCN112	Medical Imaging Science
PCN212	Radiotherapy
PCN214	Health and Occupational Physics
PCN218	Research Methodology and Professional Studies

: STAGE 2: (Project units in Stage 2 are offered in all semesters)

#### Project Over One Semester or Summer Program

PCN520	Project (Full-time)
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#### Project Over Two Semesters

PCN540-1	Project (Part-time)
PCN540-2	Project (Part-time)

NOTE: A student may request an extension of time in which to submit the project report for assessment. A request for an extension of time up to a maximum of six months shall be made



in writing through the Head of School to the Dean. Any request for a further extension, or any request for an extension to a date later than six months after the original due date, should be made in writing to the Academic Board. The Academic Board may grant the extension under such conditions as it may consider appropriate, or may award the student a "Fail" result in the project unit. A student who has received a "Fail" result in the project unit may re-enrol in the unit only in exceptional circumstances and with the express permission of the Academic Board.

**Course structure - Mid-Year Entry**

: STAGE 1: Students must complete units from the list below, totalling 96 credit points:

**First Semester (July to October)**

- LSB258 Principles of Human Physiology
- PCN112 Medical Imaging Science
- PCN212 Radiotherapy
- PCN214 Health and Occupational Physics

**Second Semester (February to June)**

- PCN113 Radiation Physics
- PCN114 Microprocessors and Instrumentation
- PCN211 Physics of Medical Imaging
- PCN218 Research Methodology and Professional Studies

STAGE 2: (Project units in Stage 2 are offered in all semesters)

**Project Over One Semester or Summer Program**

- PCN520 Project (Full-time)

**Project Over Two Semesters**

- PCN540-1 Project (Part-time)
- PCN540-2 Project (Part-time)

A student may request an extension of time in which to submit the project report for assessment. A request for an extension of time up to a maximum of six months shall be made in writing through the Head of School to the Dean. Any request for a further extension, or any request for an extension to a date later than six months after the original due date, should be made in writing to the Academic Board. The Academic Board may grant the extension under such conditions as it may consider appropriate, or may award the student a "Fail" result in the project unit. A student who has received a "Fail" result in the project unit may re-enrol in the unit only in exceptional circumstances and with the express permission of the Academic Board.

**Potential Careers:**

Health Physicist, Medical Equipment Sales, Medical Physicist, Medical Scientist.

## Master of Applied Science (Medical Ultrasound) (PH80)

**Year offered:** 2007

**Admissions:** Yes

**Course duration (part-time):** 6 semesters (3 years)

**Domestic fees (per credit point):** 2007: \$130 per credit point (limited CSP places available) Tuition Fees apply after CSP places have been filled (*subject to annual review*)

**Domestic fees (indicative):** 2007: Full fee tuition \$12,480; CSP \$7,114

**Domestic Entry:** February. Applications are to be made by 1 December in the preceding year.

**Total credit points:** 144

**Standard credit points per full-time semester:** 48

**Standard credit points per part-time semester:** 24

**Course coordinator:** Dr Andrew Fielding

**Discipline coordinator:** Natasha Kazich

**Campus:** Gardens Point

### Other Majors

See also the separate entry for the following major in this course: Master of Applied Science (Medical Physics).

### Entry requirements

Students will normally be qualified diagnostic radiographers (or medical imaging technologists) at degree or diploma level, and have at least two years experience in clinical practice. Students must give written proof of access to suitable clinical experience for the duration of the course.

### Professional Recognition

This course is accredited with the Australasian Sonographer Accreditation Registry (ASAR).

### Course Design

This degree consists of two stages. Stage 1 (Graduate Diploma - PH71) takes four semesters of part-time study to complete. Students must show that they have access to suitable clinical experience for the duration of Stage 1 before beginning the degree. Lectures are conducted in intensive four to five week blocks in each semester. Students undertake clinical experience throughout the semester.

Stage 2 (Master of Applied Science - PH80) involves completion of a research project and submission of a thesis. Students can undertake this project externally under QUT staff supervision on appointment of a suitable external supervisor. This stage takes two semesters part-time to complete after successful completion of Stage 1.

### Overview

The Master of Applied Science (PH80) course offers studies in medical ultrasound. Students are given the scientific basis for understanding, using and evaluating relevant equipment and techniques. The course particularly suits radiographers, medical imaging technologists and nuclear medicine technologists who are interested in an in-depth study of this rapidly developing area.

### Contact Details

#### Course Coordinator

Dr Andrew Fielding

Phone: +61 7 3138 5325

Email: a.fielding@qut.edu.au

#### Discipline Coordinator

Natasha Kazich

Phone: +61 7 3138 2490

Email: n.kazich@qut.edu.au

### Course structure

STAGE 1: Students must complete the units listed below (total 96 credit points)

#### Semester 1

PCN159 Ultrasonic Examination 1

PCN162 Principles of Medical Ultrasound

PCN197-1 Clinical Attachment 1

#### Semester 2

PCN197-2 Clinical Attachment 1

PCN356 Ultrasonic Examinations 2

#### Semester 3

PCN297-1 Clinical Attachment 2

PCN355 Vascular Ultrasound

PCN357 Advanced Ultrasound Topics

#### Semester 4

PCN218 Research Methodology and Professional Studies

PCN297-2 Clinical Attachment 2

NOTES - The PCN197 and PCN297 clinical attachment units are 2 semester units

- Each clinical attachment unit (ie PCN197 and PCN297) involves clinical experience in the order of 3 days per week or equivalent.

STAGE 2: null

#### Project Over One Semester or Summer Program

PCN520 Project (Full-time)

#### Project Over Two Semesters

PCN540-1 Project (Part-time)

PCN540-2 Project (Part-time)

NOTE A student may request an extension of time in which to submit the project report for assessment. A request for an extension of time up to a maximum of six months shall be made in writing through the Head of School to the Dean. Any request for a further extension, or any request for an extension to a date later than six months after the original due date, shall be made in writing to the Academic Board. The Academic Board may grant the

extension under such conditions as it may consider appropriate, or may award the student a "Fail" result in the project unit. A student who has received a "Fail" result in the project unit may re-enrol in the unit only in exceptional circumstances and with the express permission of the Academic Board.

**Potential Careers:**

Sonographer.

## Master of Lighting (on-shore) (PH82)

Year offered: 2007

Admissions: Yes

CRICOS code: 058287A

Course duration (full-time): 3 semesters (1.5 years)  
(Internal only)

Course duration (part-time): 6 semesters (3 years)  
(Internal and External)

Domestic fees (per credit point): 2007: \$130 per credit point  
(subject to annual review)

Domestic fees (indicative): 2007: \$12480

International Fees (per semester): 2007: \$9,000 per semester  
(subject to annual review)

Domestic Entry: July

International Entry: July

Total credit points: 144

Standard credit points per part-time semester: 24

Course coordinator: Dr Ian Cowling

Campus: Gardens Point

### Overview

The Master of Lighting (PH82) is designed primarily for people working in all areas of the lighting industry and engineers or architects whose work includes some aspects of lighting. It provides the opportunity for graduates of the Graduate Certificate in Lighting (PH62) and the Graduate Diploma in Lighting (PH72) to undertake a Masters in the form of a project with some coursework.

### Entry Requirements

(a) Bachelor level degree in an appropriate field

### OR

(b) Successful completion of the PH72/PH73 Graduate Diploma in Lighting or equivalent.

Note: Students with relevant experience in the lighting industry or recognised educational qualifications in lighting may be granted credit to a maximum of 36 credit points.

### Course Design

Masters students will undertake a 24 credit point research project, which may be based within their place of employment and two units (24 credit points) of coursework which may be reading topics associated with their project or other electives taken from any relevant units within the University, on approval of the Course Coordinator.

### Contact Details

#### Course Coordinator

Dr Ian Cowling

Phone: +61 7 3138 2592

Email: i.cowling@qut.edu.au

### Course structure - Full-time

#### Year 1, Semester 2 (July to October)

PCN121 Vision Colour and Photometry

PCN123 Sustainability and Human Factors

PCN124 Lamps and Luminaires

Elective - One unit from:

CNP521 Project Cost and Risk Management

MEN177 Total Quality Management

PCN224 Applied Lighting

#### Year 2, Semester 1 (February to June)

PCN122 Lighting Design

PCN221 Best Practices in Lighting

Electives - Two units from:

CNP520 Project Management

MEN272 Enterprise Resources Planning

PCN321 Reading Topic 1

PCN322 Reading Topic 2

#### Year 2, Semester 2 (July to October)

PCN223 Lighting Applications

PCN320 Lighting Project

Elective - One unit from:

CNP521 Project Cost and Risk Management

MEN177 Total Quality Management

PCN222 Advanced Lighting Design

### Course structure - Part-time

#### Year 1, Semester 2 (July to October)

PCN121 Vision Colour and Photometry

PCN124 Lamps and Luminaires

#### Year 2, Semester 1 (February to June)

PCN122 Lighting Design

PCN123 Sustainability and Human Factors

#### Year 2, Semester 2 (July to October)

PCN223 Lighting Applications

Elective - One unit from:

MEN272 Enterprise Resources Planning

PCN222 Advanced Lighting Design

PCN224 Applied Lighting

#### Year 3, Semester 1 (February to June)

PCN221 Best Practices in Lighting

Elective - One unit from:

CNP520 Project Management

CNP521 Project Cost and Risk Management

MEN177 Total Quality Management

PCN224 Applied Lighting

#### Year 3, Semester 2\* (July to October)

PCN321 Reading Topic 1

or approved elective

PCN322 Reading Topic 2

or approved elective

**Year 4, Semester 1\* (February to June)**

PCN320 Lighting Project

\* The Fifth and Sixth semesters can be taken concurrently in full-time mode.

PH82 is offered full-time internally and part-time internally and externally. The course comprises a lecture/tutorial format, and where appropriate practical and field work. Some units will have a significant computer-design type component and all units will incorporate learning through assignment work, all of which will be incorporated into the assessment program. Most units in the internal mode will be offered in block format on weekends. Students enrolling in the external mode will be required to attend QUT for 4 to 5 days per semester for intensive practical and tutorial work.

Students in the Master of Lighting (PH82) wishing to exit with the Graduate Certificate in Lighting (PH62) or Graduate Diploma in Lighting (PH72) are required to submit an Application to Graduate Early with an Approved Exit Course (SRX) Form in their final semester of study.

International students wishing to change courses should consult International Student Business Services.

**Potential Careers:**

Architect, Electrical Contractor, Electrical Engineer, Energy Consultant, Industrial Designer, Landscape Architect, Lighting Designer, Lighting Technician, Luminaire Designer, Physicist, Sales Person, Scientist, Theatre Lighting.

**Master of Lighting (off-shore) (PH83)**

Year offered: 2007

Admissions: Yes

Course duration (external): 3 semesters (1 year) full-time and 6 semesters (2 years) part-time (Hong Kong)

Domestic fees (per credit point): Off-shore course (subject to annual review)

International Entry: September

Total credit points: 144

Standard credit points per part-time semester: 24

Course coordinator: Dr Ian Cowling

Campus: City University of Hong Kong

**Overview**

The Master of Lighting (PH83) is designed primarily for people working in all areas of the lighting industry and engineers or architects whose work includes some aspects of lighting. It provides the opportunity for graduates of the Graduate Certificate in Lighting (PH63) and the Graduate Diploma in Lighting (PH73) to undertake a Masters in the form of a project with some coursework.

**Entry Requirements**

(a) Bachelor level degree in an appropriate field

**OR**

(b) Successful completion of the PH72/PH73 Graduate Diploma in Lighting or equivalent.

*Note:* Students with relevant experience in the lighting industry or recognised educational qualifications in lighting may be granted credit to a maximum of 36 credit points.

**Course Design**

Masters students will undertake a 24 credit point research project, which may be based within their place of employment and two units (24 credit points) of coursework which may be reading topics associated with their project or other electives taken from any relevant units within the University, on approval of the Course Coordinator.

**Contact Details****Course Coordinator**

Dr Ian Cowling

Phone: +61 7 3138 2592

Email: i.cowling@qut.edu.au

**Course structure - Full-time****First Semester (September to December)**

PCZ121	Vision Colour and Photometry
PCZ123	Sustainability and Human Factors
PCZ124	Lamps and Luminaires
PCZ224	Applied Lighting

**Second Semester (January to April)**

PCZ122	Lighting Design
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PCZ221	Best Practices in Lighting
PCZ321	Reading Topic 1
PCZ322	Reading Topic 2

**Third Semester (May to August)**

PCZ222	Advanced Lighting Design
PCZ223	Lighting Applications
PCZ320	Lighting Project

**Course structure - Part-time****First Semester (September to December)**

PCZ121	Vision Colour and Photometry
PCZ124	Lamps and Luminaires

**Second Semester (January to April)**

PCZ122	Lighting Design
PCZ123	Sustainability and Human Factors

**Third Semester (May to August)**

PCZ222	Advanced Lighting Design
PCZ223	Lighting Applications

**Fourth Semester (September to December)**

PCZ221	Best Practices in Lighting
PCZ224	Applied Lighting

**Fifth Semester (January to April)**

PCZ321	Reading Topic 1 Or approved elective
PCZ322	Reading Topic 2 Or approved elective

**Sixth Semester (May to August)**

PCZ320	Lighting Project
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**NOTE:** PH83 will be offered full-time and part-time in a combination of face-to-face lecture/tutorial/practical format, and on-line. Some units will have a computer-design type component and all units will incorporate learning through assignment work, all of which will be incorporated into the assessment program. For the first three semesters the two units offered each semester will be presented sequentially. The face-to-face teaching component will be offered in block form over a weekend, usually on the first weekend of the teaching period assigned to that unit. There will then be a follow-up face-to-face session about three weekends later. For the fourth and fifth semesters both units will commence together at the start of the semester.

Students in the Master of Lighting (PH83) wishing to exit with the Graduate Certificate in Lighting (PH63) or Graduate Diploma in Lighting (PH73) are required to submit an Application to Graduate Early with an Approved Exit Course (SRX) Form in their final semester of study.

**Potential Careers:**

Architect , Electrical Contractor, Electrical Engineer, Energy Consultant, Industrial Designer, Landscape Architect, Lighting Designer, Lighting Technician, Luminaire Designer, Physicist, Sales Person, Scientist, Theatre Lighting.

## Master of Cardiac Ultrasound (PH85)

**Year offered:** 2007

**Admissions:** Yes

**Course duration (part-time):** 6 semesters (3 years)

**Domestic fees (per credit point):** 2007: \$110 per credit point (*subject to annual review*)

**Domestic fees (indicative):** 2007: \$10560

**Domestic Entry:** Stage 1 of this course commences in February and July (students with advanced standing). Stage 2 commences in February and July.

**Total credit points:** 144

**Standard credit points per full-time semester:** 48

**Standard credit points per part-time semester:** 24

**Course coordinator:** Bonita Anderson

**Campus:** Gardens Point

### Entry Requirements

To be eligible to enrol an applicant will normally have a degree or diploma level qualification in a relevant science or allied health field, and access to suitable clinical experience for the duration of the course.

Students who do not meet the normal entry requirements may be permitted to enrol subject to the approval of the Head of the School of Physical and Chemical Sciences. Applicants should submit as much detail as possible about previous studies and prior learning experiences that may be relevant. In some cases a bridging program may be required.

Second semester enrolments for PH85 will only be accepted under the following circumstances:

1. Students who have successfully completed PH75 Graduate Diploma in Cardiac Ultrasound may enrol into the Masters project (PCN640-1) in second semester.

2. Students who have completed the Cardiac DMU and who are eligible to apply for advanced standing may enrol into PH85 in second semester\*.

\* Under university rules and regulations, these students are required to undertake 50% of the coursework for PH85. Therefore, in addition to the Masters project, students will be required to complete two other units (PCN218 Research Methodology and Professional Studies and PCN459 Advanced Cardiac Ultrasound).

### Professional Recognition

This course is accredited with the Australasian Sonographer Accreditation Registry (ASAR).

### Course Design

This course consists of two stages. Stage 1 (Graduate Diploma in Cardiac Ultrasound - PH75) takes two years of part-time study to complete. Students must be employed in a suitable clinical practice with adequate access to clinical cardiac ultrasound experience for the duration of the course. If students are not based in Brisbane, this structure allows attendance by offering the formal classroom component in an intensive one-week block in each semester.

Stage 2 (Master of Cardiac Ultrasound - PH85) involves the completion of a research project and submission of a thesis. Students can undertake this project internally at QUT, or externally under QUT staff supervision and the guidance of a suitable external supervisor. This stage would normally take one year part-time to complete.

### Overview

The Master of Cardiac Ultrasound program offers studies for practicing Cardiac Sonographers. The course is conducted using a combination of block classes of approximately one week's duration in each semester, web-based modules and clinical practice modules.

### Contact Details

#### Course Coordinator

Bonita Anderson

Phone: +61 7 3138 2585

Email: b.anderson@qut.edu.au

### Course structure

STAGE 1: To complete Stage 1, students must complete the units listed below (total 96 credit points):

#### Year 1, Semester 1

LSN259	Cardiac Anatomy, Embryology and Pathology
PCN162	Principles of Medical Ultrasound
PCN497-1	Clinical Attachment 4

#### Year 1, Semester 2

PCN259	Cardiac Ultrasound 1
PCN497-2	Clinical Attachment 4

#### Year 2, Semester 1

PCN218	Research Methodology and Professional Studies
PCN359	Cardiac Ultrasound 2
PCN597-1	Clinical Attachment 5

#### Semester 2, Semester 2

PCN459	Advanced Cardiac Ultrasound
PCN597-2	Clinical Attachment 5

NOTE: The PCN497 and PCN597 clinical attachment units are 2 semester units.

STAGE 2:\* To complete Stage 2, students must complete the units listed below (48 credit points):

#### First Semester \*\* (Project Over Two Semesters)

PCN640-1	Project
PCN640-2	Project

Notes: A student may request an extension of time in which to submit the project report for assessment. A request for an extension of time



up to a maximum of six months should be made in writing through the Head of School to the Dean. Any request for a further extension, or any request for an extension to a date later than six months after the original due date, should be made to the Academic Board. The Academic Board may grant the extension under such conditions as it may consider appropriate, or may award the student a "Fail" result in the project unit.

A student who has received a 'Fail' result in the project unit may re-enrol in the unit only in exceptional circumstances and with the express permission of the Academic Board.

\* Masters project units are offered in both semesters.

\*\* Second Semester enrolments for PH85 will only be accepted under the following circumstances:

1. Students who have successfully completed PH75 Graduate Diploma in Cardiac Ultrasound may enrol into the Masters project (PCN640-1) in second semester.

2. Students who have completed the Cardiac DMU and who are eligible to apply for advanced standing may enrol into PH85 in second semester#

# Under university rules and regulations, these students are required to undertake 50% of the coursework for PH85. Therefore, in addition to the Masters project, students will be required to complete two other units (PCN218 Research Methodology and Professional Studies and PCN459 Advanced Cardiac Ultrasound).

Students in the Master of Cardiac Ultrasound (PH85) wishing to exit with the Graduate Diploma in Cardiac Ultrasound (PH75) are required to submit an Application to Graduate Early with an Approved Exit Course (SRX) Form in their final semester of study.

**Potential Careers:**

Sonographer.

## Foundation Program (1 Semester) (QC01)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** 003287M

**Course duration (full-time):** 1 semester

**International Fees (per semester):** 2007:\$6,750 per semester (*subject to annual review*)

**International Entry:** February, June and October

**Total credit points:** 60

**Course coordinator:** Scott Leisemann

**Campus:** Kelvin Grove

### Entry Requirements- Academic

Successful completion of senior high school with the required grades.

Students who have attempted further schooling studies, eg GCE A-levels or equivalent may be considered for entry. Applications will be reviewed individually and applicants will need to meet subject prerequisites. Students can find more country specific entry requirements at the following web site. <http://www.international.qut.edu.au/apply/howtoapply/entryreqs/academic.jsp>

### Entry Requirements - English Language

IELTS 6.0 with no sub-score less than 5.5 or TOEFL 550 (paper) or TOEFL 213 (CBT) or equivalent, or successful completion of the EAP program (N.B. Students should also check visa requirements).

### Description

The Foundation Program, which has intakes in February, June and October, provides pathways to QUT award programs (Diploma or Degree). Graduates enjoy a high placement rate in undergraduate courses at QUT and other Australian universities. Successful completion guarantees a place in the first year of the relevant program in all QUT faculties. Small classes and dedicated staff provide an excellent learning environment while additional support is provided by Language and Welfare Advisers. Some students may need intensive English language preparation at the College's English Language Programs prior to entering a Foundation Program.

### Progression

Conditions of progressing to a guaranteed place in first year of a QUT degree:

- i) fulfil the Foundation course requirements,
- ii) obtain a grade of 5 (Credit) in Communication 2 or an IELTS 6.5 or equivalent,
- iii) achieve the relevant faculty Grade Point Average (GPA) - this is calculated on final semester Level 2 units only.

### Course completion

Students are required to gain **at least** a grade of 4 (Pass) in four units and a grade of 3 (Low Pass) in the remaining unit.

### Required Foundation Grade Point Average by Faculty

Built Environment - Required GPA 4.6  
 Business - Required GPA 4.8  
 Creative Industries - Required GPA 4.4  
 Education - Required GPA 4.6  
 Engineering (except Aerospace Avionics) - Required GPA 4.6  
 Engineering - Aerospace Avionics - Required GPA 5.8  
 Health (except Nutrition & Dietetics, Optometry, Psychology & Podiatry) - Required GPA 4.6  
 Health - Nutrition & Dietetics - Required GPA 5.8  
 Health - Optometry & Podiatry - Required GPA 5.8  
 Health - Psychology - Required GPA 5.0  
 Humanities and Human Services - Required GPA 4.2  
 Information Technology - Required GPA 4.8  
 Law (except Justice Studies) - Required GPA 4.8  
 Law - Justice Studies - Required GPA 4.2  
 Science (except Pharmacy) - Required GPA 4.6  
 Science - Pharmacy - Required GPA 5.8

N.B. Grades in each unit are awarded on a scale from 1 to 7, with 7 being the highest.

### QC01 - Foundation Program (Full Time course structure)

#### Semester One

QCF212	Communication 2
QCF211	Tertiary Preparation Studies 2
QCF256	Mathematics A2
	OR
QCF257	Mathematics B2
	OR
QCF260	Professional Studies + TWO ELECTIVES from the following list
QCF122	Organisations And Management
QCF160	Introduction to Creativity
QCF220	Accounting 2
QCF221	Economics 2
QCF254	Physics
QCF255	Chemistry
QCF210	Applied Psychology
QCF230	Information Processing
QCF252	Life Science
QCF240	Legal Studies
	Note: QCF240 is offered subject to demand and may be offered in alternate semesters only.
	Note: QCF252 is only offered in ALTERNATE semesters.
	Note: In some semesters some elective units may not be offered if there is insufficient demand.

### Potential Careers:

Academic, Account Executive, Accountant, Actor, Actuary, Administrator, Adult/Workplace Educator, Advertising

Professional, Aerospace Avionics Engineer, Aged Services Worker, Analytical Chemist, Animator, Architect, Art Project Manager, Art Writer, Artist, Arts Administrator, Astrophysicist, Band Leader, Banker, Banking and Finance Professional, Barrister, Biochemist, Bioengineer, Bioinformatician, Biologist, Biomechanical Engineer, Biomedical Engineer, Biotechnologist, Business Analyst, Certified Practising Accountant, Chemical Technologist, Chemist, Chemist Industrial, Child Care Professional, Child Protection Officer, Choreographer, Civil Engineer, Clinical Laboratory Scientist, Coastal Scientist, Community Corrections Officer, Community Education Officer, Community Health Officer, Community Worker, Composer, Computer Games Developer, Computer Salesperson/Marketer, Computer Systems Engineer, Conductor, Conservation Biologist, Construction Manager, Contract Administrator, Corporate Secretary, Corrective Services Officer, Counsellor, Creative Writer, Crown Law Officer, Curator, Customs Officer, D.J, Dance Teacher, Dancer, Data Communications Specialist, Database Manager, Digital Composer, Diplomat, Disability Services Worker, Drama Teacher, Early Childhood Teacher, Ecologist, Economist, Educator, Electrical and Computer Engineer, Electrical Engineer, Electronic Commerce Developer, Engineering Technologist, English Teacher, Environmental Engineer, Environmental Health Officer, Environmental Scientist, Estimator, Exchange Student, Exercise Physiologist, Facilities Manager, Family Services Officer, Fashion Designer, Fashion Professional, Film Composer, Film/Television Producer, Financial Advisor/Analyst, Financial Project Manager, Fitness Assessor/Personal Trainer, Forensic Scientist, Funds Manager, Geologist, Geophysicist, Geoscientist, Government Officer, Guidance Officer, Health Information Manager, Health Physicist, Health Services Manager, Higher Education Worker, Home Economist, Human Resource Developer, Human Resource Manager, Human Services Practitioner, Hydrogeologist, Immunologist, In-House Lawyer, Industrial Chemist, Industrial Designer, Information Officer, Information Security Specialist, Instrument Maker, Interior Designer, International Business Specialist, Internet Professional, Investigator, Investment Manager, Journalist, Kindergarten Teacher, Laboratory Technician (Chemistry), Landscape Architect, Librarian, Manager, Manufacturer, Mapping Scientist/Photogrammetrist, Marine Scientist, Marketing Officer/Manager, Mastering Engineer, Mathematician, Mechanical Engineer, Media Industry Specialist, Medical Biotechnologist, Medical Engineer, Medical Equipment Sales, Medical Imaging Technologist, Medical Physicist, Medical Scientist, Microbiologist, Molecular Biologist, Multimedia Designer, Music Agent/Manager, Music Publisher, Music Sampler, Music Teacher, Music Technologist, Musical Director, Musician, Natural Resource Scientist, Network Administrator, Network Manager, Nurse, Nutritionist/Dietitian, Occupational Health and Safety Officer, Optometrist, Organisational Communication Specialist, Pathology Scientist, Physicist, Plant Biotechnologist, Podiatrist, Police Officer (Australian Federal), Police Officer (State), Policy Officer, Population Ecologist, Preschool Teacher, Primary School Teacher, Programmer, Project Developer, Project Manager, Property Economist, Psychologist, Public Health Officer, Public

Relations Officer/Consultant, Public Servant, Publishing Professional, Quantitative Analyst, Quantity Surveyor, Radiation Therapist, Radiographer, Recording Engineer, Rehabilitation Engineer, Rehabilitation Professionals, Risk Manager, School Counsellor, Secondary School Teacher, Social Scientist, Sociologist, Software Engineer, Solicitor, Song Writer, Sonographer, Sound and Music Producer, Sound Designer, Sound/Audio Engineer, Sports Scientist, Stage Manager, Statistician, Stockbroker, Surveyor, Systems Analyst, Systems Manager, Systems Programmer, Systems Trainer, TAFE Teacher, Teacher, Technical Officer, TESOL Teacher, Theatre Professionals, Trainer, Translator, Urban and Regional Planner, Urban Designer, Virologist, Visual Artist, Visual Arts Teacher, Web Designer, Youth Worker.

## Foundation Program (2 Semesters) (QC02)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** 003287M

**Course duration (full-time):** 2 semesters

**International Fees (per semester):** 2007:\$6,750 per semester (*subject to annual review*)

**International Entry:** February, June and October

**Total credit points:** 120

**Standard credit points per full-time semester:** 60

**Course coordinator:** Scott Leisemann

**Campus:** Kelvin Grove

### Entry Requirements-Academic

Successful completion of senior high school with the required grades or successful completion of year 11 high school with very good grades. Students can find country specific entry requirements at the following web site. <http://www.international.qut.edu.au/apply/howtoapply/entryreqs/academic.jsp>

### Entry Requirements - English Language

IELTS 5.5 with no sub-score less than 5.0 or TOEFL 525 (paper) or TOEFL 193 (CBT) or equivalent, or successful completion of the EAP program. (N.B. Students should also check visa requirements).

### Description

The Foundation Program, which has intakes in February, June and October, provides pathways to QUT award programs (Diploma or Degree). Graduates enjoy a high placement rate in undergraduate courses at QUT and other Australian universities. Successful completion guarantees a place in the first year of the relevant program in all QUT faculties. Small classes and dedicated staff provide an excellent learning environment while additional support is provided by Language and Welfare Advisers. Some students may need intensive English language preparation at the College's English Language Programs prior to entering a Foundation Program.

Students who achieve excellent results in the first semester may have the opportunity to study up to two University Diploma units in their final semester for possible credit towards their degree course.

### Course Completion

In order to complete course requirements, students must gain **at least** a grade of 4 (Pass) in nine units and one grade of 3 (Low Pass) in the remaining unit.

### Required Foundation Grade Point Average by Faculty

Built Environment - Required GPA 4.6

Business - Required GPA 4.8

Creative Industries - Required GPA 4.4

Education - Required GPA 4.6

Engineering (except Aerospace Avionics) - Required GPA 4.6

Engineering - Aerospace Avionics - Required GPA 5.8

Health (except Nutrition & Dietetics, Optometry, Psychology

& Podiatry) - Required GPA 4.6

Health - Nutrition & Dietetics - Required GPA 5.8

Health - Optometry & Podiatry - Required GPA 5.8

Health - Psychology - Required GPA 5.0

Humanities and Human Services - Required GPA 4.2

Information Technology - Required GPA 4.8

Law (except Justice Studies) - Required GPA 4.8

Law - Justice Studies - Required GPA 4.2

Science (except Pharmacy) - Required GPA 4.6

Science - Pharmacy - Required GPA 5.8

N.B. Grades in each unit are awarded on a scale from 1 to 7, with 7 being the highest.

### Progression

Conditions of progressing to a guaranteed place in first year of a QUT degree :

- i) fulfil the Foundation course requirements,
- ii) obtain a grade of 5 in Communication 2 or an IELTS 6.5 or equivalent,
- iii) achieve the relevant faculty Grade Point Average (GPA) - this is calculated on final semester Level 2 units only.

Students who do not meet requirements for a guaranteed place in either a QUT degree or University Diploma Program, may still be considered for entry by the relevant faculty.

### New heading

New text

### QC02 - Foundation Program

#### Semester One

QCF112	Communication 1
QCF111	Tertiary Preparation Studies 1
QCF156	Mathematics A1
	OR
QCF157	Mathematics B1
	+ TWO ELECTIVES from the following list
QCF115	Foundation English
QCF120	Accounting 1
QCF121	Economics 1
QCF122	Organisations And Management
QCF153	Physical Sciences 1
QCF160	Introduction to Creativity
QCF240	Legal Studies
QCF252	Life Science

Note: QCF240 is offered subject to demand and may be offered in alternate semesters only. Students should seek advice from the Course Coordinator.

Note: QCF252 is only offered in ALTERNATE semesters. Students should seek advice from the Course Coordinator.

Note: QCF115 is taught 4 hours / week in

13TP1 and only 3 hours / week in 13TP2 & 13TP3. There is no computing component in 13TP2 & 13TP3.

Note: In some semesters some elective units may not be offered if there is insufficient demand.

**Semester Two**

- QCF212 Communication 2
- QCF211 Tertiary Preparation Studies 2
- QCF256 Mathematics A2  
OR
- QCF257 Mathematics B2  
OR
- QCF260 Professional Studies  
+TWO ELECTIVES from the following list
- QCF122 Organisations And Management
- QCF160 Introduction to Creativity
- QCF220 Accounting 2
- QCF221 Economics 2
- QCF254 Physics
- QCF255 Chemistry
- QCF210 Applied Psychology
- QCF230 Information Processing
- QCF240 Legal Studies
- QCF252 Life Science

Approved diploma units (Business, IT or Professional Communication students only). Diploma units can only be taken under special circumstances and with the approval of the Course Coordinator.

Note: QCF240 is offered subject to demand and may be offered in alternate semesters only. Students should seek advice from the Course Coordinator.

Note: QCF252 is only offered in ALTERNATE semesters. Students should seek advice from the Course Coordinator.

Note: In some semesters some elective units may not be offered if there is insufficient demand.

**Potential Careers:**

Academic, Account Executive, Accountant, Actor, Actuary, Administrator, Adult/Workplace Educator, Advertising Professional, Aerospace Avionics Engineer, Aged Services Worker, Analytical Chemist, Animator, Architect, Art Project Manager, Art Writer, Artist, Arts Administrator, Astrophysicist, Band Leader, Banker, Banking and Finance Professional, Barrister, Biochemist, Bioengineer, Bioinformatician, Biologist, Biomechanical Engineer, Biomedical Engineer, Biotechnologist, Biotechnologist, Business Analyst, Cell Biologist, Certified Practising Accountant, Chemical Technologist, Chemist, Chemist Industrial, Child Care Professional, Child Protection Officer, Choreographer, Civil Engineer, Clinical Laboratory Scientist, Coastal Scientist, Community Corrections Officer, Community Education Officer, Community Health Officer,

Community Worker, Composer, Computer Game Programmer, Computer Games Developer, Computer Salesperson/Marketer, Computer Systems Engineer, Conductor, Conservation Biologist, Construction Manager, Contract Administrator, Corporate Secretary, Corrective Services Officer, Counsellor, Creative Writer, Crown Law Officer, Curator, Customs Officer, D.J, Dance Teacher, Dancer, Data Communications Specialist, Database Manager, Digital Composer, Diplomat, Disability Services Worker, Drama Teacher, Early Childhood Teacher, Ecologist, Economist, Educator, Electrical and Computer Engineer, Electrical Contractor, Electrical Engineer, Electronic Commerce Developer, Engineering Technologist, English Teacher, Environmental Engineer, Environmental Health Officer, Environmental Scientist, Estimator, Exchange Student, Exercise Physiologist, Exploration Geologist, Facilities Manager, Family Services Officer, Fashion Designer, Fashion Professional, Film Composer, Film/Television Producer, Financial Advisor/Analyst, Financial Project Manager, Fitness Assessor/Personal Trainer, Forensic Biologist, Forensic Chemist, Forensic Scientist, Funds Manager, Geologist, Geophysicist, Geoscientist, Government Officer, Guidance Officer, Health Information Manager, Health Physicist, Health Services Manager, Higher Education Worker, Home Economist, Human Resource Developer, Human Resource Manager, Human Services Practitioner, Hydrogeologist, Immunologist, In-House Lawyer, Industrial Chemist, Industrial Designer, Information Officer, Information Security Specialist, Instrument Maker, Interior Designer, International Business Specialist, Internet Professional, Investigator, Investment Manager, Journalist, Kindergarten Teacher, Laboratory Technician (Chemistry), Landscape Architect, Librarian, Lighting Designer, Lighting Technician, Luminaire Designer, Manager, Manufacturer, Mapping Scientist/Photogrammetrist, Marine Scientist, Market Research Manager, Marketing Officer/Manager, Mastering Engineer, Mathematician, Mechanical Engineer, Media Industry Specialist, Medical Biotechnologist, Medical Engineer, Medical Equipment Sales, Medical Imaging Technologist, Medical Physicist, Medical Scientist, Microbiologist, Mine Geologist, Molecular Biologist, Multimedia Designer, Music Agent/Manager, Music Publisher, Music Sampler, Music Teacher, Music Technologist, Musical Director, Musician, Natural Resource Scientist, Network Administrator, Network Manager, Nurse, Nutritionist/Dietitian, Occupational Health and Safety Officer, Operations Manager, Optometrist, Organisational Communication Specialist, Pathology Scientist, Pharmaceutical Research Scientist, Physicist, Plant Biotechnologist, Podiatrist, Police Officer (Australian Federal), Police Officer (State), Policy Officer, Population Ecologist, Post-production specialist, Preschool Teacher, Primary School Teacher, Programmer, Project Developer, Project Manager, Property Development, Property Economist, Property Management, Psychologist, Public Health Officer, Public Relations Officer/Consultant, Public Servant, Publishing Professional, Quantitative Analyst, Quantity Surveyor, Radiation Therapist, Radiographer, Recording Engineer, Rehabilitation Engineer, Rehabilitation Professionals, Research and Development Chemist, Risk Manager, Sales Person, School Counsellor, Secondary School Teacher, Social Scientist, Sociologist, Software

Engineer, Solicitor, Song Writer, Sonographer, Sound and Music Producer, Sound Designer, Sound/Audio Engineer, Sports Scientist, Stage Manager, Statistician, Stockbroker, Surveyor, Systems Analyst, Systems Manager, Systems Programmer, Systems Trainer, TAFE Teacher, Teacher, Technical Officer, TESOL Teacher, Theatre Lighting, Theatre Professionals, Trainer, Translator, Urban and Regional Planner, Urban Designer, Virologist, Visual Artist, Visual Arts Teacher, Web Designer, Youth Worker.

## Bridging Program (QC03)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** 003518A

**Course duration (full-time):** 1 semester

**International Fees (per semester):** 2007:\$6,750 per semester (*subject to annual review*)

**International Entry:** February, July and October

**Total credit points:** 48

**Standard credit points per full-time semester:** 48

**Course coordinator:** Scott Leisemann

**Campus:** Kelvin Grove

### Entry Requirements - Academic

Students must have met the academic entry requirements for their proposed postgraduate or undergraduate course.

### Entry Requirements- English Language

IELTS 6.0 with no sub-score less than 5.0 or TOEFL 550 (paper) or TOEFL 213 (CBT) or equivalent, or successful completion of the EAP program (N.B. Students should also check visa requirements).

### Description

This program provides two alternative streams. Stream A is designed for students who have not met English and/or prerequisite requirements for their chosen undergraduate or postgraduate course. Most students may undertake one degree unit (for credit) whilst enrolled in a Bridging program. Those with advanced standing may be able to undertake two degree units. Stream B is for students who have met English requirements but not prerequisite requirement for their degree, or who may wish to improve the standard of their academic English. These students may take one or two degree units (for credit) whilst enrolled in the Bridging Program. Both streams include intensive preparation for academic language, lateral thinking, research and presentation skills required for successful tertiary study. Small classes and dedicated staff ensure an excellent learning environment. Additional support is provided by Language and Welfare Advisers.

### Course Completion

Students undertaking three Bridging units must obtain at least a grade of 4 (Pass) in two units and a grade of 3 (Low Pass) in the remaining unit.

Students undertaking two Bridging units must obtain at least a grade of 4 (Pass) in one unit and a grade of 3 (Low Pass) in the remaining unit.

### Progression

In order to progress to an award course, students must:

- i) fulfil the Bridging course requirements
- ii) gain a minimum grade of 4 (Pass) in Communication 2 or an IELTS 6.5 or equivalent,
- iii) meet any other conditions detailed in the 'letter of offer' from International Student Business Services.

### QC03 - Bridging Program (Full Time course structure)

#### Stream A # ( for those with IELTS 6.0)

QCD111 Communication 1

QCD211 Communication 2

QCS230 Computing

DEGREE UNIT

Undergraduate students will need to enrol in the units QCD110 and QCD210

#### Stream B ( for those with IELTS 6.5)

QCD111 Communication 1

QCD211 Communication 2

DEGREE UNIT One

DEGREE UNIT Two

Undergraduate students will need to enrol in the units QCD110 and QCD210

#### Note

#If you have advanced standing, you may be able

to undertake two degree units during your Bridging Program

### Potential Careers:

Academic, Account Executive, Accountant, Actor, Actuary, Administrator, Adult/Workplace Educator, Advertising Professional, Aerospace Avionics Engineer, Aged Services Worker, Analytical Chemist, Animator, Architect, Art Project Manager, Art Writer, Artist, Arts Administrator, Astrophysicist, Band Leader, Banker, Banking and Finance Professional, Barrister, Biochemist, Bioengineer, Bioinformatician, Biologist, Biomechanical Engineer, Biomedical Engineer, Biotechnologist, Business Analyst, Certified Practising Accountant, Chemical Technologist, Chemist, Chemist Industrial, Child Care Professional, Child Protection Officer, Choreographer, Civil Engineer, Clinical Laboratory Scientist, Coastal Scientist, Community Corrections Officer, Community Education Officer, Community Health Officer, Community Worker, Composer, Computer Games Developer, Computer Salesperson/Marketer, Computer Systems Engineer, Conductor, Conservation Biologist, Construction Manager, Contract Administrator, Corporate Secretary, Corrective Services Officer, Counsellor, Creative Writer, Crown Law Officer, Curator, Customs Officer, D.J, Dance Teacher, Dancer, Data Communications Specialist, Database Manager, Digital Composer, Diplomat, Disability Services Worker, Drama Teacher, Early Childhood Teacher, Ecologist, Economist, Educator, Electrical and Computer Engineer, Electrical Engineer, Electronic Commerce Developer, Engineering Technologist, English Teacher, Environmental Engineer, Environmental Health Officer, Environmental Scientist, Estimator, Exchange Student, Exercise Physiologist, Facilities Manager, Family Services Officer, Fashion Designer, Fashion Professional, Film Composer, Film/Television Producer, Financial Advisor/Analyst, Financial Project Manager, Fitness Assessor/Personal Trainer, Forensic Scientist, Funds Manager, Geologist, Geophysicist, Geoscientist,

Government Officer, Guidance Officer, Health Information Manager, Health Physicist, Health Services Manager, Higher Education Worker, Home Economist, Human Resource Developer, Human Resource Manager, Human Services Practitioner, Hydrogeologist, Immunologist, In-House Lawyer, Industrial Chemist, Industrial Designer, Information Officer, Information Security Specialist, Instrument Maker, Interior Designer, International Business Specialist, Internet Professional, Investigator, Investment Manager, Journalist, Kindergarten Teacher, Laboratory Technician (Chemistry), Landscape Architect, Librarian, Manager, Manufacturer, Mapping Scientist/Photogrammetrist, Marine Scientist, Marketing Officer/Manager, Mastering Engineer, Mathematician, Mechanical Engineer, Media Industry Specialist, Medical Biotechnologist, Medical Engineer, Medical Imaging Technologist, Medical Physicist, Medical Scientist, Microbiologist, Molecular Biologist, Multimedia Designer, Music Agent/Manager, Music Publisher, Music Sampler, Music Teacher, Music Technologist, Musical Director, Musician, Natural Resource Scientist, Network Administrator, Network Manager, Nurse, Nutritionist/Dietitian, Occupational Health and Safety Officer, Optometrist, Organisational Communication Specialist, Pathology Scientist, Physicist, Plant Biotechnologist, Podiatrist, Police Officer (Australian Federal), Police Officer (State), Policy Officer, Population Ecologist, Preschool Teacher, Primary School Teacher, Programmer, Project Developer, Project Manager, Property Economist, Psychologist, Public Health Officer, Public Relations Officer/Consultant, Public Servant, Publishing Professional, Quantitative Analyst, Quantity Surveyor, Radiation Therapist, Radiographer, Recording Engineer, Rehabilitation Engineer, Rehabilitation Professionals, Risk Manager, School Counsellor, Secondary School Teacher, Social Scientist, Sociologist, Software Engineer, Solicitor, Song Writer, Sonographer, Sound and Music Producer, Sound Designer, Sound/Audio Engineer, Sports Scientist, Stage Manager, Statistician, Stockbroker, Surveyor, Systems Analyst, Systems Manager, Systems Programmer, Systems Trainer, TAFE Teacher, Teacher, Technical Officer, TESOL Teacher, Theatre Professionals, Trainer, Translator, Urban and Regional Planner, Urban Designer, Virologist, Visual Artist, Visual Arts Teacher, Web Designer, Youth Worker.



## Extended Foundation Program (3 Semesters) (QC04)

Year offered: 2007

Admissions: Yes

CRICOS code: 050167G

Course duration (full-time): 3 Semesters

International Fees (per semester): 2007:\$14,850 (full course fee) (subject to annual review)

International Entry: February

Total credit points: 132

Standard credit points per full-time semester: 13TP1 - 48CP, 13TP2 - 60CP, 13TP3 - 24CP

Course coordinator: Scott Leisemann

Campus: Kelvin Grove

### Entry Requirements - Academic

Successful completion of senior high school with the required grades or successful completion of year 11 high school with very good grades. Students can find country specific entry requirements at the following web site. <http://www.international.qut.edu.au/apply/howtoapply/entryreqs/academic.jsp>

### Entry Requirements - English Language

IELTS 5.5 with no sub-score less than 5.0 or TOEFL 525 (paper) or TOEFL 193 (CBT) or equivalent, or successful completion of the EAP program. (N.B. Students should also check visa requirements).

### Description

The Extended Foundation Program (QC04), which has an intake in February, provides pathways to QUT award programs (Diploma or Degree). This pathway is designed for students who require additional support with language and adjustment to the Australian educational environment. Successful completion guarantees a place in the first year of the relevant program in all QUT faculties. Small classes and dedicated staff provide an excellent learning environment while additional support is provided by Language and Welfare Advisers.

Students who achieve excellent results in the first semester may have the opportunity to study up to two University Diploma units in their second semester for credit towards their degree course.

### Course Completion

In order to complete the course requirements, students must gain **at least** a grade of 4 (Pass) in ten units, one grade of 3 (Low Pass), and a S (Satisfactory) in Foundation English.

### Progression

Conditions of progressing to a guaranteed place in the first year of a QUT degree:

- i) fulfil the Foundation course requirements,
- ii) obtain a grade of 5 in Communication 2 or an IELTS 6.5 or equivalent,
- iii) obtain a Grade Point Average (GPA) as indicated in the table of Faculty Requirements below - calculated on five (5)

Level 2 units:

Students who do not meet requirements for a guaranteed place in either a QUT degree or University Diploma Program, may still be considered for entry by the relevant faculty.

### Required Foundation Grade Point Average by Faculty

Built Environment - Required GPA 4.6  
 Business - Required GPA 4.8  
 Creative Industries - Required GPA 4.4  
 Education - Required GPA 4.6  
 Engineering (except Aerospace Avionics) - Required GPA 4.6  
 Engineering - Aerospace Avionics - Required GPA 5.8  
 Health (except Nutrition & Dietetics, Optometry, Psychology & Podiatry) - Required GPA 4.6  
 Health - Nutrition & Dietetics - Required GPA 5.8  
 Health - Optometry & Podiatry - Required GPA 5.8  
 Health - Psychology - Required GPA 5.0  
 Humanities and Human Services - Required GPA 4.2  
 Information Technology - Required GPA 4.8  
 Law (except Justice Studies) - Required GPA 4.8  
 Law - Justice Studies - Required GPA 4.2  
 Science (except Pharmacy) - Required GPA 4.6  
 Science - Pharmacy - Required GPA 5.8

N.B. Grades in each unit are awarded on a scale from 1 to 7, with 7 being the highest.

### QC04 - Extended Foundation Program

#### Semester One

QCF115	Foundation English
QCF156	Mathematics A1
	OR
QCF157	Mathematics B1
	+ TWO ELECTIVES from the following list
QCF120	Accounting 1
QCF121	Economics 1
QCF153	Physical Sciences 1
QCF122	Organisations And Management
QCF252	Life Science
QCF240	Legal Studies
	Note: QCF240 is offered subject to demand and may be offered in alternate semesters. Students should seek advice from the Course Coordinator.
	Note: QCF252 is only offered in ALTERNATE semesters. Students should seek advice from the Course Coordinator.
	Note: QCF115 is taught 4 hours / week in 13TP1 and only 3 hours / week in 13TP2 & 13TP3. There is no computing component in 13TP2 & 13TP3.
	Note: In some semesters some elective units may not be offered if there is insufficient demand.

**Semester Two**

- QCF111 Tertiary Preparation Studies 1
- QCF112 Communication 1
- QCF256 Mathematics A2  
OR
- QCF257 Mathematics B2  
OR
- QCF260 Professional Studies  
+ TWO ELECTIVES from the following list
- QCF122 Organisations And Management
- QCF160 Introduction to Creativity
- QCF220 Accounting 2
- QCF221 Economics 2
- QCF254 Physics
- QCF255 Chemistry
- QCF210 Applied Psychology
- QCF230 Information Processing
- QCF240 Legal Studies
- QCF252 Life Science

Approved diploma units (Business, IT or Professional Communication students only). Diploma units can only be taken under special circumstances and with the approval of the Course Coordinator.

Note: QCF240 is offered subject to demand and may be offered in alternate semesters. Students should seek advice from the Course Coordinator.

Note: QCF252 is only offered in ALTERNATE semesters. Students should seek advice from the Course Coordinator.

Note: In some semesters some elective units may not be offered if there is insufficient demand.

**Semester Three (8 Week Teaching Period)**

- QCF211 Tertiary Preparation Studies 2
  - QCF212 Communication 2
- Note: In this semester students focus on the higher level tertiary preparation and communication skills and attend 18 hours of study per week in their classes over a 8 week teaching period.

**Potential Careers:**

Academic, Account Executive, Accountant, Actor, Actuary, Administrator, Adult/Workplace Educator, Advertising Professional, Aerospace Avionics Engineer, Aged Services Worker, Analytical Chemist, Animator, Architect, Art Project Manager, Art Writer, Artist, Arts Administrator, Astrophysicist, Band Leader, Banker, Banking and Finance Professional, Barrister, Biochemist, Bioengineer, Bioinformatician, Biologist, Biomechanical Engineer, Biomedical Engineer, Biotechnologist, Biotechnologist, Business Analyst, Cell Biologist, Certified Practising Accountant, Chemical Technologist, Chemist, Chemist Industrial, Child Care Professional, Child Protection Officer,

Choreographer, Civil Engineer, Clinical Laboratory Scientist, Coastal Scientist, Community Corrections Officer, Community Education Officer, Community Health Officer, Community Worker, Composer, Computer Game Programmer, Computer Games Developer, Computer Salesperson/Marketer, Computer Systems Engineer, Conductor, Conservation Biologist, Construction Manager, Contract Administrator, Corporate Secretary, Corrective Services Officer, Counsellor, Creative Writer, Crown Law Officer, Curator, Customs Officer, D.J, Dance Teacher, Dancer, Data Communications Specialist, Database Manager, Digital Composer, Diplomat, Disability Services Worker, Drama Teacher, Early Childhood Teacher, Ecologist, Economist, Educator, Electrical and Computer Engineer, Electrical Contractor, Electrical Engineer, Electronic Commerce Developer, Engineering Technologist, English Teacher, Environmental Engineer, Environmental Health Officer, Environmental Scientist, Estimator, Exchange Student, Exercise Physiologist, Exploration Geologist, Facilities Manager, Family Services Officer, Fashion Designer, Fashion Professional, Film Composer, Film/Television Producer, Financial Advisor/Analyst, Financial Project Manager, Fitness Assessor/Personal Trainer, Forensic Biologist, Forensic Chemist, Forensic Scientist, Funds Manager, Geologist, Geophysicist, Geoscientist, Government Officer, Guidance Officer, Health Information Manager, Health Physicist, Health Services Manager, Higher Education Worker, Home Economist, Human Resource Developer, Human Resource Manager, Human Services Practitioner, Hydrogeologist, Immunologist, In-House Lawyer, Industrial Chemist, Industrial Designer, Information Officer, Information Security Specialist, Instrument Maker, Interior Designer, International Business Specialist, Internet Professional, Investigator, Investment Manager, Journalist, Kindergarten Teacher, Laboratory Technician (Chemistry), Landscape Architect, Librarian, Manager, Manufacturer, Mapping Scientist/Photogrammetrist, Marine Scientist, Market Research Manager, Marketing Officer/Manager, Mastering Engineer, Mathematician, Mechanical Engineer, Media Industry Specialist, Medical Biotechnologist, Medical Engineer, Medical Equipment Sales, Medical Imaging Technologist, Medical Physicist, Medical Scientist, Microbiologist, Molecular Biologist, Multimedia Designer, Music Agent/Manager, Music Publisher, Music Sampler, Music Teacher, Music Technologist, Musical Director, Musician, Natural Resource Scientist, Network Administrator, Network Manager, Nurse, Nutritionist/Dietitian, Occupational Health and Safety Officer, Optometrist, Organisational Communication Specialist, Pathology Scientist, Pharmaceutical Research Scientist, Physicist, Plant Biotechnologist, Podiatrist, Police Officer (Australian Federal), Police Officer (State), Policy Officer, Population Ecologist, Post-production specialist, Preschool Teacher, Primary School Teacher, Programmer, Project Manager, Property Development, Property Economist, Psychologist, Public Health Officer, Public Relations Officer/Consultant, Public Servant, Publishing Professional, Quantitative Analyst, Quantity Surveyor, Radiation Therapist, Radiographer, Recording Engineer, Rehabilitation Engineer, Rehabilitation Professionals, Research and Development Chemist, Risk Manager, Sales Person, School Counsellor, Scientist, Secondary School

Teacher, Social Scientist, Sociologist, Software Engineer, Solicitor, Song Writer, Sonographer, Sound and Music Producer, Sound Designer, Sound/Audio Engineer, Sports Scientist, Stage Manager, Statistician, Stockbroker, Surveyor, Systems Analyst, Systems Manager, Systems Programmer, Systems Trainer, TAFE Teacher, Teacher, Technical Officer, TESOL Teacher, Theatre Lighting, Theatre Professionals, Trainer, Translator, Urban and Regional Planner, Urban Designer, Virologist, Visual Artist, Visual Arts Teacher, Web Designer, Youth Worker.

## English for Academic Purposes for degree programs (QC10)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** 011424G

**Course duration (full-time):** 12 weeks

**International Fees (per semester):** 2007:\$3,720 per 12 week session + \$100 non-refundable enrolment fee (*subject to annual review*)

**International Entry:** March, July and October (dates are designed to allow entry to selected semester of next course)

**Total credit points:** 48

**Course coordinator:** Judith Douse

**Campus:** Kelvin Grove

Academic Writing

Listening and Note-taking from Lectures

Speaking in Academic Settings

Academic Study Skills

Computer Word-processing and Internet research skills

Library research skills

### Entry Requirements - Academic

To be eligible for entry, applicants must either:

1. Have an offer of a place in a QUT degree program and successfully complete the relevant EAP entry test; or
2. Produce original documentary evidence of an IELTS score of a minimum 5.5 with no sub-score less than 5.0 (or approved equivalent).

\* You should check the English language requirements for a Student Visa from your country of origin.

### Description

The aim of the EAP course is to assist international students to upgrade their English proficiency level to meet university entry requirements. The course is designed to prepare students for independent study and to familiarise them with an Australian academic setting in terms of study techniques and student/lecturer relations and expectations.

### Course Completion

To be eligible to receive EAP certification at the end of the course, students must complete all course requirements.

On successful completion of the course, students will receive a Completion & Attendance Certificate and a Statement of Results.

### Progression

Successful completion of an EAP course is a pathway into QUT International College Foundation, Diploma, Certificate or Bridging programs; or QUT undergraduate or postgraduate award programs. The course is recognised by all QUT faculties.

### Course structure

#### Modules

QCE003 English for Academic Purposes for Direct Entry to QUT

The EAP course consists of the following integrated modules:

Seminars and Presentations

Academic Reading and Note-taking

**General English (QC20)****Year offered:** 2007**Admissions:** Yes**CRICOS code:** 011426E**Course duration (full-time):** 5 weeks**International Fees (per semester):** 2007:\$1,550 per 5 week session + \$100 non-refundable enrolment fee (*subject to annual review*)**International Entry:** 9 entry dates per year.**Total credit points:** 20**Course coordinator:** Ian Davies (ip.davies@qut.edu.au)**Campus:** Kelvin Grove

excursions (which may incur some additional, minimal cost)

Electives Activities Program

Computer-based language learning

Independent learning skills

**Entry Requirements - English Language**

Students should check visa requirements in relation to English entry levels.

**Description**

This course offers English language and study skills for students preparing for entry to EAP, Foundation, Certificate and Diploma programs and QUT undergraduate and postgraduate award programs.

There are also non-academic English language courses at all levels from elementary to advanced. These courses include excursions and activities (which may incur some additional, minimal cost).

All English language courses include 25 hours of classes per week and there are new intakes approximately every five weeks.

**Course Completion**

On completion of the course, students will receive a Completion/Proficiency Certificate and an Attendance Certificate.

**Progression**

Progress is monitored on a student profile which is created for each student over the length of the course. All assessment results (formative/summative/diagnostic) are recorded.

Students can progress from General English into the EAP course or other programs. Progression is subject to entry requirements.

**QC20 - General English****General English**

QCE001 General English (Full-time)

While specific content varies according to level, broadly the course consists of:

English Language Structures &amp; Systems

Grammar

Vocabulary

Integrated Skills Development (reading, writing, speaking, listening)

Cultural Studies, including field trips and

## General English Extension (QC21)

**Year offered:** 2007

**Admissions:** Yes

**Course duration (full-time):** 5 weeks

**International Fees (per semester):** 2007:\$1,550 per 5 week session + \$100 non-refundable enrolment fee (*subject to annual review*)

**International Entry:** Every 5 weeks

**Total credit points:** 20

**Course coordinator:** Ian Davies (ip.davies@qut.edu.au)

**Campus:** Kelvin Grove

speaking, listening)

Cultural Studies, including field trips and excursions (which may incur some additional, minimal cost)

Electives Activities Program

Computer-based language learning

Independent learning skills

### Entry Requirements - English Language

Students should check visa requirements in relation to English entry levels.

This course is for students enrolled in QC20 General English and wishes to continue their enrolment in General English.

### Description

This course offers English language and study skills for students preparing for entry to EAP, Foundation, Certificate and Diploma programs and QUT undergraduate and postgraduate award programs.

There are also non-academic English language courses at all levels from beginners to advanced. These courses include excursions and activities (which may incur some additional, minimal cost).

All English language courses include 25 hours of classes per week and there are new intakes every five weeks.

### Course Completion

On completion of the course, students will receive a Completion/Proficiency Certificate and an Attendance Certificate.

### Progression

Progress is monitored on a student profile which is created for each student over the length of the course. All assessment results (formative/summative/diagnostic) are recorded.

Students can progress from General English into the EAP course or other programs. Progression is subject to entry requirements.

## QC21 - General English Extension

### General English Extension

QCE001 General English (Full-time)

While specific content varies according to level, broadly the course consists of:

English Language Structures & Systems

Grammar

Vocabulary

Integrated Skills Development (reading, writing,

## English for Tertiary Preparation (QC22)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** 045062C

**Course duration (full-time):** 2 weeks

**International Fees (per semester):** 2007: \$620 + \$100 non-refundable enrolment fee (*subject to annual review*)

**International Entry:** February, June and October

**Total credit points:** 8

**Course coordinator:** Michael Miller (mj.miller@qut.edu.au)

**Campus:** Kelvin Grove

### Entry Requirements

Academic requirements:

An offer of acceptance for a QUT Foundation or University Diploma course.

English requirements:

An IELTS score of at least 5.5 (with sub-scores of at least 5.0) or approved equivalent.

### Description

The course aims to enhance the English language proficiency of students who already meet the IELTS requirements for their Foundation or University Diploma Program. ETP teaches and practices academic writing, reading, listening and speaking.

The course assists students with the adjustment to studying at an Australian university.

### Course Completion

On completion of the course, students will receive a Completion and Attendance Certificate.

### QC22 - English for Tertiary Preparation

English for Tertiary Preparation

QCE005 English for Tertiary Preparation Studies

## Bachelor of Applied Science (SC01)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** 003502J

**Course duration (full-time):** 3 Years

**Course duration (part-time):** 6 Years

**Domestic fees (per credit point):** Commonwealth supported place; Full fee tuition 2007: \$210 per credit point (*subject to annual review*)

**Domestic fees (indicative):** 2007: Full fee tuition \$20,160; CSP \$7,053

**International Fees (per semester):** 2007:\$9,000 per semester (*subject to annual review*)

**Domestic Entry:** February and July\* (\*Gardens Point campus only)

**International Entry:** February and July

**QTAC code:** Gardens Point campus: 418011; Dfee: 418016. Carseldine campus: 448021; Dfee: 448026

**Past rank cut-off:** 72; Dfee: 68

**Past OP cut-off:** 13; Dfee: 15

**OP Guarantee:** Yes

**Assumed knowledge:** English (4, SA) and Maths B (4, SA)

**Preparatory studies:** MATHS: QUT unit Preparatory Mathematics as a visiting student or QUT Continuing Professional Education course Mathematics Bridging. ENGLISH: Successful completion of a year of full-time vocational or tertiary study. For further information contact 07 3138 2000 or email [study@qut.com](mailto:study@qut.com)

**Total credit points:** 288 (minimum)

**Standard credit points per full-time semester:** 48

**Standard credit points per part-time semester:** 24

**Course coordinator:** Dr Megan Hargreaves

**Discipline coordinator:** Dr Perry Hartfield (Biochemistry); Dr Marion Bateson (Biotechnology); A/Prof Dennis Arnold (Chemistry); Dr Ian Williamson (Ecology); Dr Robin Thwaites (Environmental Science); Dr Serge Kokot (Forensic Science); Dr Gregg Webb (Geoscience); Dr Glenn Fulford (Mathematics); Dr Christine Knox (Microbiology); Dr Greg Michael (Physics)

**Campus:** Gardens Point and Carseldine

### Campus

This course is offered at Gardens Point and Carseldine campuses. At Carseldine students study the first year and then complete remaining two years at Gardens Point. (Note: the mathematics and physics majors are only available at Gardens Point Campus.)

### Recommended Study

At least one of the sciences. For the majors in biochemistry, biotechnology, forensic science, and microbiology - Biological Science and Chemistry are recommended; for the majors in mathematics and physics - Maths C is recommended.

### Course Design

The flexibility of QUT's Bachelor of Applied Science allows you to tailor the qualification to your needs and career aspirations. Can you see yourself as a forensic scientist, geologist, chemist, physicist, microbiologist or environmental scientist? Perhaps you would like to be at the

forefront of the latest discoveries in genetic engineering, or improve the lives of others by researching new diagnostic techniques and treatments for diseases, or monitor a community's water supply ensuring it is safe to drink. You could even help save an endangered species, investigate renewable energy sources, advise world leaders on the causes and effects of global warming, or discover a new star in a far away galaxy.

You will graduate with specialised knowledge of cutting-edge technologies and extensive practical experience using the latest techniques. You choose your career direction and QUT's Bachelor of Applied Science will set you on the right path by ensuring you are employment-ready when you graduate.

You have a broad range of options to choose from and the flexibility to create your own personal science degree program. If you are not sure of your career direction, don't worry because this decision can be delayed until after you have sampled a range of science disciplines during your first semester of study. QUT staff are available to advise on how best to structure your degree to suit your personal and career aspirations. When you have decided on a preferred career direction, you can be sure that you will graduate with the necessary specialist theoretical knowledge and well-developed practical skills. As QUT courses are designed in close consultation with industry you will receive the relevant professional accreditation when you graduate.

You will choose an area of specialisation (major) from the list below and this will form the basis for your qualification, for example Bachelor of Applied Science (Forensic Science). You will also choose a secondary specialisation (co-major) to complement your major studies. This secondary specialisation may be one of the other majors, a science co-major, or an area outside the science disciplines. Several elective units allow you to broaden your knowledge and skills.

### Science Majors, Science Co-majors and Non-Science Co-majors:

#### Science Majors:

Biochemistry  
Biotechnology  
Chemistry  
Ecology  
Environmental Science  
Forensic Science\*  
Geoscience  
Mathematics  
Microbiology  
Physics

\* The Forensic Science major must be taken as a double major with another science area eg Chemistry or Biotechnology.

#### Science Co-majors:

One of the majors listed above or:  
Applied Geology  
Applied Physics



Astrophysics  
 Biodiversity  
 Biomolecular Sciences  
 Industrial Chemistry  
 Scientific Computation and Visualisation  
 Statistics  
 Or a non-science co-major

*Examples of Non-Science Co-majors:*

Accountancy  
 Aviation  
 Banking and Finance  
 Communication  
 Economics  
 Environmental Studies  
 Human Resource Management  
 Marketing  
 Psychology

**Major Areas of Study**

**Biochemistry:**

Biochemistry is the study of the chemical processes that occur in living organisms including the chemical structure, function and properties and energy flows. Biochemistry is an essential and very successful area of study for many practitioners in the life sciences industry. Biochemistry students at QUT gain both the theoretical knowledge to understand biochemical problems and formulate solutions, and the practical skills to carry out the necessary laboratory investigations that test these solutions for real-world application. Students gain hands-on practical laboratory experience from their first year of study.

*Career Opportunities*

Strong employment opportunities exist around the world in both the private and government sectors of industry for biochemists. QUT graduates skilled in biochemistry can find career opportunities in research, diagnostic and analytical laboratories, universities, hospitals and health departments, pharmaceutical companies, primary and agricultural industries and departments, food industry laboratories, environmental agencies, veterinary pathology laboratories and in the area of marketing, sales, commercialisation and management of biological products and processes.

*Professional Recognition*

Graduates are eligible for membership of the Australian Society for Biochemistry and Molecular Biology, and possibly the Australasian Association of Clinical Biochemists.

**Biotechnology:**

Biotechnology is the application of molecular biology and biochemical principles to create a new generation of products and processes for the benefit of society. Biotechnology is one of the fastest growing areas of science and business in the world today. Modern biotechnology uses the techniques of genetic engineering to enable faster, cheaper and more reliable production of an ever-increasing range of engineered products. The integration of biotechnology research into QUT Biotechnology courses ensures that you will receive access to the latest information

and hands-on laboratory experience in contemporary molecular technologies. All students receive hands-on practical laboratory experience from your first year of study in Queensland's newest biotechnology teaching laboratories.

*Career Opportunities*

Globally and locally the developing biotechnology industry demands highly skilled graduates. As a biotechnology graduate you will have a wide range of exciting career opportunities available to you across a number of existing and emerging global industries. New career opportunities include nanotechnology, proteomics, materials science, molecular farming and bioinformatics; while existing career opportunities in hospitals and diagnostic laboratories continue to expand.

*Professional Recognition*

Graduates are eligible for membership of AusBiotech Ltd, Australian Society for Biochemistry and Molecular Biology, and possibly the Australian Society for Medical Research, and the Australian Society for Microbiology.

**Chemistry:**

Chemistry is the study of the structure, properties, synthesis and reactions of materials. Chemistry is one of the central sciences since its results are used in almost all areas of science - including life sciences, the environment, geosciences, biology, and food science. The Chemistry major at QUT allows you to gain an appreciation of the fundamental discipline - covering physical, organic and inorganic chemistry - but with an additional focus on modern applications such as drug discovery, analytical and environmental chemistry, polymer science and surface science. All theory is complemented with a comprehensive laboratory program, particularly with hands-on experience with modern computer-based analytical instruments.

*Career Opportunities*

Chemists are key professionals in industries that manufacture goods such as paints, paper, textiles, glass, plastics and rubber, metals and alloys, gases and fuels, foodstuffs and chemicals. Government agencies depend on chemists to develop and monitor standards for meat research, animal health pest control, preservation of timber, environmental chemistry, forensic analysis and coal chemistry. You can expect to find employment as an industrial chemist, material scientist, environmental chemist, quality control analyst, production supervisor, food chemist, organic chemist and inorganic chemist.

*Professional Recognition*

Students completing the Chemistry major with the Industrial Chemistry or Forensic Science co-major are eligible for membership of the Royal Australian Chemical Institute.

**Ecology**

Ecology is the study of relationships between organisms and their environment. Ecology helps us to understand the distribution and abundance of organisms. As an applied science it is used to design strategies for the management

of populations of organisms (both natural and commercial). The Ecology major at QUT will allow you to gain a broad range of scientific skills including the specialist techniques required for conserving and managing endangered animals, controlling pests, managing exploited populations and evaluating issues associated with the management of our natural resources.

*Career Opportunities*

Ecologists find rewarding careers in research science for government departments responsible for pest management, national park and wildlife, primary industries, fisheries, forestry and museums. They also find work in private firms engaged in research and consultancy work. Positions include fisheries biologist, wildlife manager, scientific or technical officer, teacher or lecturer and research scientist. Employment in more specialised areas is available, usually requiring study beyond the first degree.

*Professional Recognition*

Professional recognition is achieved through a scientific society (ie Ecological Society of Australia) and participation in its meetings.

**Environmental Science:**

Environmental Science at QUT is the application of fundamental, core science disciplines to problems encountered in the management and understanding of our environment. Studies will allow you to gain both the strong scientific base and the generic skills to apply your scientific knowledge to a wide range of environmental problems. Rather than learning simply to describe the different environmental systems, you will gain an understanding of the mechanisms that control these systems, and the interaction between the various components. All environmental science units include laboratory and fieldwork with an emphasis on problem-solving through project work. You will be introduced to standardised methods and principles for environmental modelling and monitoring that can be applied across all disciplines.

*Career Opportunities*

Environmental scientists are needed in a wide variety of government departments and agencies, in consultancy and in manufacturing and mining companies. Graduates are equipped to assess resources, design and implement environmental impact programs, analyse and interpret environmental data and formulate contingency plans in a wide variety of areas including strategic land-use planning, waste disposal, pollution measurement and control, coastal protection, environmental impact of mining, tourism and development, rehabilitation and reforestation of contaminated land sites, groundwater assessment and modelling, waterway and floodplain drainage planning, erosion control in waterways, and marine science.

*Professional Recognition*

Graduates are eligible for membership of the Environment Institute of Australia and New Zealand.

**Forensic Science**

Forensic Science involves the application of chemical and biological principles and laboratory processes to identify and quantify matter within a legal context. Areas that are relevant to forensic science are wide ranging, and include: the detection and identification of illicit drugs, explosive and gunshot residues, accelerants used in arson cases, and trace evidence (eg paint, glass, fibres, soil); DNA profiling, where it is possible to distinguish between individuals on the basis of samples involving blood, saliva, hair or semen; toxicology studies to identify illicit and pharmaceutical drugs and poisons and interpret toxicity levels and their effect on the human body; and fingerprinting.

*Career Opportunities*

Employment opportunities exist for trained forensic scientists who work in laboratories handling criminal casework in areas including forensic biology, forensic chemistry, and forensic toxicology. QUT graduates in Forensic Science not only receive a strong grounding in core areas of both forensic biology and forensic chemistry but complement their major in Forensic Science with a full major in Biotechnology or Chemistry. This course structure gives QUT Forensic Science graduates an enhanced qualification for careers in either Forensic Biology or Forensic Chemistry. In addition, the second major adds flexibility to future career paths by enabling Forensic Science graduates to gain employment either as a chemist or a biotechnologist if they prefer.

*Professional Recognition*

Graduates who complete the Forensic Science major in conjunction with the Biotechnology major are eligible for membership of the Australian and New Zealand Forensic Science Society, AusBiotech Ltd, and the Australian Society for Biochemistry and Molecular Biology.

Graduates who complete the Forensic Science major in conjunction with the Chemistry major are eligible for membership of the Australian and New Zealand Forensic Science Society and the Royal Australian Chemical Institute.

**Geoscience:**

Geoscience is the systematic study of the earth and the dynamic interactions of its systems. Geoscience incorporates a study of the materials of the earth, the natural processes acting in and upon the earth, and its history. The Geoscience major at QUT allows you to gain the skills needed to become a professional geologist and emphasises hands-on experience through laboratory work and field studies. It provides a broad range of geological skills as well as training in the specialist techniques required for field mapping and geological interpretation.

*Career Opportunities*

Geoscientists work in a range of areas including environmental geology, hydrogeology, hazard and pollution control, and coastal zone management. Employment opportunities exist within mining and exploration companies which may involve underground geological mapping, evaluation of ore reserves, production control, or exploration for new mineral deposits; petroleum companies working on offshore drilling rigs; and a variety of government

organisations working as field geologists or research scientists. Other graduates work in computing, data modelling, and remote sensing. An honours degree is required by many employers, including the larger mining and exploration companies.

#### *Professional Recognition*

Graduates are eligible for membership of the Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists, and the Geological Society of Australia.

#### **Mathematics:**

This major covers a broad range of mathematics, including computational mathematics, mathematical modelling, statistical modelling, statistics, operations research and financial mathematics. The course focuses on applied mathematics and includes an emphasis on developing communication skills, which are necessary in many workplace situations.

#### *Career Opportunities*

Mathematicians enjoy a wide range of career options, working for major corporations including banks and insurance companies, industry, information technology companies, consultancy groups, research organisations, universities, schools and various government departments. You will be able to use your mathematical and statistical techniques in analysis, modelling, experimental design and operations research. Employers value the generic skills also gained throughout the degree in problem-solving, analytical thinking, team and independent work, oral and written communication.

#### *Professional Recognition*

Graduates are eligible for membership of the Australian Mathematical Society, Australian Society for Operations Research and the Statistical Society of Australia.

#### **Microbiology:**

Microbiology is the study of living organisms of microscopic size. The principal components are bacteriology, virology and mycology, and areas of fundamental importance in the applied sciences of pathology and immunology. You will develop skills and knowledge in the handling and study of micro-organisms and investigation of their properties. Advanced studies allow you to expand your knowledge and expertise in your specialised area such as human pathology, animal and plant diseases, food technologies, environmental testing (soil, air and water) and bioremediation, and molecular applications of microbiological principles.

#### *Career Opportunities*

Microbiologists are employed in a variety of careers including human pathology testing in bacteriology, immunology, mycology, parasitology and virology, animal and plant disease, treatment of inorganic waste, food fermentations and microbiological testing of goods for pathogens or spoilage organisms, water and soil microbiology and research. Employment opportunities exist in private and government research and analytical

laboratories, such as the CSIRO, universities, hospitals, health departments, primary industry departments, food industry laboratories, environmental agencies, and in the marketing of biological products.

#### *Professional Recognition*

Graduates are eligible for membership of the Australian Society for Microbiology.

#### **Physics:**

Physics is the science discipline dealing with the natural laws and processes, with the states and properties of matter and energy. Physics also underlies many of the recent advances in information technology, medicine and biotechnology. Areas of specialisation include mechanics, electromagnetism, lasers and modern optics, computational physics, nuclear and radiation physics, quantum mechanics and relativity.

#### *Career Opportunities*

Physicists are an asset to almost every industry. They are broadly-educated professionals who are trained in applied and experimental physics, instrumentation and a range of other specific methods required for traditional and newly-developed avenues of scientific employment. QUT Physics graduates work in large manufacturing companies, often as members of research and development teams, supervising the testing and production of raw materials and finished articles. Increasing opportunities for graduates with appropriate studies exist in noise measurement and control, environmental monitoring, meteorology, lasers, computing, technical equipment sales, teaching and research. Graduates work in large hospitals and medical institutions such as the Queensland Radium Institute. Broad training in data analysis and problem-solving skills also makes physicists well suited to management roles in a range of technology-based industries.

#### *Professional Recognition*

Graduates are eligible for membership of the Australian Institute of Physics.

#### **Co-Major Areas of Study**

##### **Applied Geology:**

The Applied Geology co-major is designed to complement the Geoscience major. The skills learned through core units in the major are applied to activities related to the petroleum, mineral, hydrogeological and environmental professions. You will learn the specialist techniques required to understand the genesis of ore deposits, set up mineral exploration programs, produce groundwater models, understand the fluid flow in petroleum reservoirs or manage the effects of human activity on the environment.

##### **Applied Physics:**

The Applied Physics co-major provides an introduction to a number of cutting edge technologies as well as an introduction to some aspects of environmental physics. Topics include nanotechnology, lasers and photonics, digital image processing, mathematical modelling and global energy balance and climate change. Nanotechnology is an emerging field of science in which useful materials, devices

and systems are created by manipulating matter on the very fine scale of atoms and molecules. Photonics is another emerging field; it combines optics and electronics and has spawned such advances as lasers, fibre optics, advanced telecommunications, night-vision equipment, digital cameras and DVDs.

#### **Astrophysics:**

The Astrophysics co-major is an exciting blend of astrophysics, geophysics, cosmology, digital image processing and remote sensing units, designed to be taken with a major in Physics, Mathematics or Geoscience. The co-major is relevant to many real-world problems, for example, satellite technology, telecommunications, minerals exploration and global warming. By taking this co-major you will develop interdisciplinary skills in computing, instrumentation, image processing, geodesy and materials science that will be useful for a wide variety of careers in industry and the public sector.

#### **Biodiversity:**

Biodiversity has evolved over the last few years as a discipline concerned with the conservation and sustainable use of the earth's biological diversity. It deals with the components of biological diversity, genes to biomes, and seeks to describe and quantify this diversity, and determine how it is produced and maintained. The Biodiversity co-major is designed to complement both the Ecology and Environmental Science majors. The theme of the co-major is Australian biodiversity. Common threads are the basic biology of the species in Australian ecosystems, the systems they are a part of, and the evolution of these species and ecosystems.

#### **Biomolecular Sciences:**

The many and varied disciplines which are characteristic of research and development activities in the life sciences are reflected in employer demand for a broad range of graduates with different specialisations. To accommodate this demand a Biomolecular Sciences co-major is available in the Bachelor of Applied Science. In this co-major, students may compose a combination of six approved units from the Biotechnology, Biochemistry and Microbiology majors. You will benefit from a broad range of biomolecular theory and skills, closely aligned to personal interests, for application in an ever-increasing variety of niche employment opportunities.

#### **Industrial Chemistry:**

The Industrial Chemistry co-major is designed to partner the Chemistry major. The emphasis is on analytical chemistry and chemical technology. It aims to familiarise students with state-of-the-art equipment and modern laboratory information systems as well as online monitoring and control of industrial processes. The co-major is well recognised by employers in industrial, hospital and sports laboratories, by food and pharmaceutical producers and by instrument manufacturers as well as research organisations. Graduates from this program can look forward to a rewarding career commencing employment as a chemist and then moving through an organisation in supervisory and managerial capacities. A number of industry-sponsored bursaries are available each year for students enrolled in the Chemistry

major/Industrial Chemistry co-major.

#### **Scientific Computation and Visualisation:**

Scientific Computation and Visualisation techniques involving high performance computing are increasingly being used for research and innovation. Examples include the creation of new pharmaceuticals, exploration for minerals, virtual mining, stress analysis of proposed designs for new plants or vessels, and improved image recognition or analysis. Within this co-major, students bring together skills and knowledge from programming, mathematics and statistics into a practical, problem-solving approach to applications within science and other areas.

#### **Statistics:**

Statistics is multidisciplinary and involves data collection in an appropriate format, analysis of data and using data to make predictions. Biostatistics involves decision making in health and clinical situations, for example, improving health care by applying statistical quality control or assisting farmers to maximise yield using GPS technology.

#### **Professional Recognition**

For graduates with approved study: Australian Society for Biochemistry and Molecular Biology, Australasian Association of Clinical Biochemists, AusBiotech Ltd, Australian Society for Biochemistry and Molecular Biology, Australian Society for Medical Research, Australian Society for Microbiology, Royal Australian Chemical Institute, Ecological Society of Australia, Environment Institute of Australia and New Zealand, Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists, Geological Society of Australia, Australian Mathematical Society, Australian Society for Operations Research, Statistical Society of Australia, Australian Society for Microbiology, Australian Institute of Physics.

#### **Industrial Internship Program**

A registered student who has successfully completed the equivalent of the first and second year of the standard full-time course, normally with a grade point average (GPA) of not less than 4.5 overall, may, at the discretion of the Industrial Internship Coordinator, apply to undertake the Industrial Internship Program.

This program involves 10-12 months of paid full-time employment in an approved industrial/commercial environment during which time the student is enrolled in the unit SCB100 Cooperative Education. On completion of the approved industrial internship placement the student resumes formal studies.

#### **Contact Details**

##### **Course Coordinator**

Dr Megan Hargreaves  
Phone: +61 7 3138 2244  
Email: m.hargreaves@qut.edu.au

##### **Discipline Coordinators**

*Biochemistry*  
Dr Perry Hartfield

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*Biotechnology*

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*Chemistry*

A/Prof Dennis Arnold  
Phone: +61 7 3138 2482  
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*Ecology*

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**Deferment**

QUT allows current Year 12 school leavers to defer their undergraduate admission offer for one year, or for six months if offered mid-year admission, except in courses using specific admission requirements such as questionnaires, portfolios, auditions, prior study or work experience.

Non-year 12 students may also request to defer their QTAC offer on the basis of demonstrated special circumstances.

Find out more on deferment.

**Contact Details**

Faculty of Science Office:

Phone: +61 7 3138 2152  
Email: sci-enquiries@qut.edu.au

**Course structure - Major in Biochemistry**

**First Level Units - Semester 1**

MANDATORY UNITS:

LSB118 Life Science  
MAB101 Statistical Data Analysis 1

PLUS EITHER:

PCB140 Introductory Chemistry  
OR

PCB142 Chemistry 1

Plus ONE other unit, for example:

MAB105 Preparatory Mathematics  
NRB100 Environmental Science  
PCB101 Physical Science

**First Level Units - Semester 2**

MANDATORY UNITS:

LSB238 Cell and Molecular Biology 1  
NRB270 Animal and Plant Structure and Function  
PCB242 Chemistry 2

Plus ONE other unit, for example:

LSB258 Principles of Human Physiology  
MAB101 Statistical Data Analysis 1  
PYB012 Psychology

**Second Level Units - Semester 1**

MANDATORY UNITS:

LSB308 Biochemistry  
LSB338 Cell and Molecular Biology 2

Plus TWO other units selected according to the comajor requirements

**Second Level Units - Semester 2**

MANDATORY UNITS:

LSB408 Metabolism  
LSB468 Molecular Biology

Plus TWO other units selected according to the comajor requirements

**Third Level Units - Semester 1**

MANDATORY UNIT:

LSB508 Advanced Metabolism

PLUS:

LSB527 Biomedical Research Technologies

Or choose a unit from:

LSB509 Medical Biotechnology 1

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LSB537 Genetic Engineering  
Plus TWO other units selected according to the comajor requirements

### Third Level Units - Semester 2

#### MANDATORY UNIT:

LSB608 Protein Science  
EITHER  
LSB605 Protein Engineering and Bioprocessing  
OR  
LSB607 Protein Purification  
Plus TWO other units selected according to the comajor requirements

### Recommended Comajors:

Biomolecular Sciences, Biotechnology, Chemistry, Forensic Science, Microbiology

### Course structure - Major in Biotechnology

#### First Level Units - Semester 1

##### MANDATORY UNITS:

LSB118 Life Science  
MAB101 Statistical Data Analysis 1  
PLUS EITHER:  
PCB140 Introductory Chemistry  
Or  
PCB142 Chemistry 1  
Plus ONE other unit, for example:  
MAB105 Preparatory Mathematics  
NRB100 Environmental Science  
PCB101 Physical Science

#### First Level Units - Semester 2

##### MANDATORY UNITS:

LSB238 Cell and Molecular Biology 1  
NRB270 Animal and Plant Structure and Function  
PCB242 Chemistry 2  
Plus ONE other unit, for example:  
LSB258 Principles of Human Physiology  
MAB101 Statistical Data Analysis 1  
PYB012 Psychology

#### Second Level Units - Semester 1

##### MANDATORY UNITS:

LSB308 Biochemistry  
LSB338 Cell and Molecular Biology 2  
Plus TWO other units selected according to the comajor requirements

#### Second Level Units - Semester 2

##### MANDATORY UNITS:

LSB468 Molecular Biology  
LSB469 Introduction to Genomics and Bioinformatics  
Plus TWO other units selected according to the comajor requirements

#### Third Level Units - Semester 1

##### MANDATORY UNITS:

LSB537 Genetic Engineering  
PLUS EITHER:  
LSB509 Medical Biotechnology 1  
Or  
LSB577 Plant Biotechnology 1  
Plus TWO other units selected according to the comajor requirements

#### Third Level Units - Semester 2

##### MANDATORY UNITS:

LSB619 Genomics and Bioinformatics  
PLUS EITHER:  
LSB609 Medical Biotechnology 2  
OR  
LSB677 Plant Biotechnology 2  
Plus TWO other units selected according to the comajor requirements, for example:

### Recommended Comajors:

Biomolecular Sciences, Biochemistry, Forensic Science, Microbiology

### Course structure - Major in Chemistry

#### First Level Units - Semester 1

##### MANDATORY UNITS:

PCB101 Physical Science  
PCB142 Chemistry 1  
PLUS EITHER:  
MAB100 Mathematical Sciences 1A  
Or  
MAB105 Preparatory Mathematics  
Or  
MAB111 Mathematical Sciences 1B  
Plus either:  
LSB118 Life Science  
Or  
NRB100 Environmental Science

#### First Level Units - Semester 2

##### MANDATORY UNITS:

MAB101 Statistical Data Analysis 1  
PCB242 Chemistry 2  
Plus TWO other units, for example:  
PCB150 Physics 1H

# SCIENCE

PCB200 Chemical Technology 1  
PYB012 Psychology

## Second Level Units - Semester 1

### MANDATORY UNITS:

PCB334 Inorganic Chemistry  
PCB354 Structure and Mechanism in Organic Chemistry  
Plus TWO other units selected according to the comajor requirements

## Second Level Units - Semester 2

### MANDATORY UNITS:

PCB405 Principles of Physical Chemistry  
PCB444 Spectroscopy  
Plus TWO other units selected according to the comajor requirements

## Third Level Units - Semester 1

### MANDATORY UNITS:

PCB505 Advanced Physical Chemistry  
PCB554 Synthesis and Reactivity in Organic Chemistry  
Plus TWO other units selected according to the comajor requirements

## Third Level Units - Semester 2

### MANDATORY UNITS:

PCB634 Organometallic and Coordination Chemistry  
PCB644 Frontiers in Chemistry  
Plus TWO other units selected according to the comajor requirements

## Recommended Comajors:

Biochemistry, Biotechnology, Forensic Science, Industrial Chemistry

## Course structure - Major in Ecology

### First Level Units - Semester 1

#### MANDATORY UNITS:

LSB118 Life Science  
NRB100 Environmental Science  
PCB101 Physical Science  
PLUS EITHER:  
MAB101 Statistical Data Analysis 1  
Or  
MAB105 Preparatory Mathematics  
Or  
NRB230 Planet Earth

### First Level Units - Semester 2

#### MANDATORY UNIT:

NRB270 Animal and Plant Structure and Function

## OPTIONAL UNITS:

LSB238 Cell and Molecular Biology 1  
MAB101 Statistical Data Analysis 1  
NRB240 History of Life on Earth

## Second Level Units - Semester 1

### MANDATORY UNITS:

NRB301 Earth Surface Systems  
NRB311 Population Ecology  
Plus TWO other units selected according to the comajor requirements

## Second Level Units - Semester 2

### MANDATORY UNITS:

NRB410 Genetics and Evolution  
NRB412 Experimental Design  
Plus TWO other units selected according to the comajor requirements

## Third Level Units - Semester 1

### MANDATORY UNITS:

NRB510 Population Genetics  
NRB511 Population Management  
Plus TWO other units selected according to the comajor requirements

## Third Level Units - Semester 2

### MANDATORY UNITS:

NRB610 Ecological Applications  
NRB611 Conservation Biology  
Plus TWO other units selected according to the comajor requirements

## Recommended Comajors:

Biodiversity, Environmental Science

## Course structure - Major in Environmental Science

### First Level Units - Semester 1

#### MANDATORY UNITS:

LSB118 Life Science  
NRB100 Environmental Science  
PLUS EITHER:  
MAB101 Statistical Data Analysis 1  
Or  
MAB105 Preparatory Mathematics  
Plus either:  
PCB140 Introductory Chemistry  
Or  
PCB142 Chemistry 1  
Or  
NRB230 Planet Earth

## SCIENCE

### First Level Units - Semester 2

MANDATORY UNIT:

NRB270 Animal and Plant Structure and Function

OPTIONAL UNITS:

LSB238 Cell and Molecular Biology 1

MAB101 Statistical Data Analysis 1

NRB240 History of Life on Earth

MAB101 Statistical Data Analysis 1

PLUS EITHER:

PCB140 Introductory Chemistry

Or

PCB142 Chemistry 1

Plus either:

NRB100 Environmental Science

Or

PCB101 Physical Science

### Second Level Units - Semester 1

MANDATORY UNITS:

NRB301 Earth Surface Systems

PLUS EITHER:

NRB311 Population Ecology

Or

NRB370 Invertebrate Biology

Or

NRB371 Plant Biology

Plus TWO other units selected according to the comajor requirements

### First Level Units - Semester 2

MANDATORY UNITS:

LSB238 Cell and Molecular Biology 1

NRB270 Animal and Plant Structure and Function

PCB242 Chemistry 2

Plus ONE other unit, for example:

LSB258 Principles of Human Physiology

MAB101 Statistical Data Analysis 1

PYB012 Psychology

### Second Level Units - Semester 2

MANDATORY UNITS:

NRB412 Experimental Design

NRB440 Environmental Chemistry

Plus TWO other units selected according to the comajor requirements

### Second Level Units - Semester 1

MANDATORY UNITS:

LSB468 Molecular Biology

PCB414 Industrial and Environmental Analytical Chemistry

SCB384 Forensic Science

Plus ONE or TWO other units selected according to the second-major requirements

### Third Level Units - Semester 1

MANDATORY UNITS:

NRB500 Environmental Systems and Modelling

NRB601 Field Mapping and Monitoring of Natural Resources

Plus TWO other units selected according to the comajor requirements

### Second Level Units - Semester 2

MANDATORY UNITS:

JSB979 Forensic Scientific Evidence

LSB468 Molecular Biology

PCB414 Industrial and Environmental Analytical Chemistry

Plus ONE or TWO other units selected according to the second-major requirements

### Third Level Units - Semester 2

MANDATORY UNITS:

NRB501 Spatial Analysis of Environmental Systems

NRB600 Sustainable Environmental Management

Plus TWO other units selected according to the comajor requirements

### Third Level Units - Semester 1

MANDATORY UNITS:

PCB514 Instrumental Analysis

PCB584 Forensic Examination of Physical Evidence

Plus TWO other units selected according to the second-major requirements

### Recommended Comajors:

Biodiversity, Ecology, Geoscience

### Course structure - Major in Forensic Science

Note: Must be taken as a double major with Biochemistry, Biotechnology, Chemistry or Microbiology

### First Level Units - Semester 1

MANDATORY UNITS:

LSB118 Life Science

### Third Level Units - Semester 2

MANDATORY UNITS:

LSB684 Forensic DNA Profiling

PCB684 Forensic Analysis and Toxicology

Plus TWO other units selected according to the second-major requirements

### Course structure - Major in Geoscience



**First Level Units - Semester 1**

MANDATORY UNITS:

- MAB101 Statistical Data Analysis 1
- NRB100 Environmental Science
- NRB230 Planet Earth
- PCB101 Physical Science

**First Level Units - Semester 2**

MANDATORY UNITS:

- MAB100 Mathematical Sciences 1A
- NRB240 History of Life on Earth
- PCB142 Chemistry 1
- Plus ONE other unit, for example:
- SCB222 Exploration of the Universe

**Second Level Units - Semester 1**

MANDATORY UNITS:

- NRB301 Earth Surface Systems
- NRB333 Mineralogy
- Plus TWO other units selected according to the comajor requirements, for example:
- NRB331 Sedimentary Geology

**Second Level Units - Semester 2**

MANDATORY UNITS:

- NRB434 Structural Geology
- NRB436 Introduction to Igneous and Metamorphic Petrology
- Plus TWO other units selected according to the comajor requirements, for example:
- NRB437 Stratigraphy and Depositional Environments

**Third Level Units - Semester 1**

MANDATORY UNITS:

- NRB534 Geophysics
- NRB536 Petrology and Geochemistry
- NRB601 Field Mapping and Monitoring of Natural Resources
- Plus ONE other unit selected according to the comajor requirements, for example:
- NRB535 Geology of Fossil Fuels and Minerals

**Third Level Units - Semester 2**

ONE OF:

- NRB633 Hydrogeology
- NRB635 Plate Tectonics and Advanced Structural Geology
- NRB636 Petroleum Geology and Basin Analysis
- PSB655 Remote Sensing
- Plus THREE other units selected according to the comajor requirements

**Recommended Comajors:**

Applied Geology, Environmental Science

**Course structure - Major in Mathematics**

**First Level Units - Semester 1**

MANDATORY UNITS:

- MAB100 Mathematical Sciences 1A
- MAB101 Statistical Data Analysis 1
- MAB111 Mathematical Sciences 1B
- MAB112 Mathematical Sciences 1C
- PLUS ONE OR TWO OF FOUNDATION UNITS:
- LSB118 Life Science
- NRB100 Environmental Science
- PCB101 Physical Science

**First Level Units - Semester 2**

MANDATORY UNITS:

- MAB111 Mathematical Sciences 1B
- MAB112 Mathematical Sciences 1C
- MAB210 Statistical Modelling 1
- MAB220 Computational Mathematics 1
- PLUS ONE OR TWO OF FOUNDATION UNITS:
- LSB118 Life Science
- PCB101 Physical Science

**Second Level Units - Semester 1**

NOTE: Select 96 credit points of advanced level units from Levels 2 and 3. Students must complete at least one of MAB311, MAB312 or MAB413

OPTIONAL UNITS:

- MAB311 Advanced Calculus
- MAB312 Linear Algebra
- MAB313 Mathematics of Finance
- MAB314 Statistical Modelling 2
- MAB481 Visualisation and Data Analysis

**Second Level Units - Semester 2**

OPTIONAL UNITS:

- MAB315 Operations Research 2
- MAB413 Differential Equations
- MAB414 Applied Statistics 2
- MAB420 Computational Mathematics 2
- MAB422 Mathematical Modelling
- MAB480 Introduction to Scientific Computation

**Third Level Units - Semester 1**

OPTIONAL UNITS:

- MAB521 Applied Mathematics 3
- MAB522 Computational Mathematics 3

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MAB523	Introduction to Quality Management
MAB525	Operations Research 3A
MAB526	Statistical Science 3
MAB580	Scientific Computation
MAB672	Advanced Mathematical Modelling

### Third Level Units - Semester 2

#### OPTIONAL UNITS:

MAB613	Partial Differential Equations
MAB621	Discrete Mathematics
MAB623	Financial Mathematics
MAB624	Applied Statistics 3
MAB625	Operations Research 3B
MAB681	Advanced Visualisation and Data Analysis

### Recommended Comajors:

Maths, Physics, Statistics, Scientific Computation and Visualisation

### Course structure - Major in Microbiology

#### First Level Units - Semester 1

#### MANDATORY UNIT:

LSB118	Life Science
MAB101	Statistical Data Analysis 1
	PLUS EITHER:
PCB140	Introductory Chemistry
	Or
PCB142	Chemistry 1
	Plus ONE other unit, for example:
MAB105	Preparatory Mathematics
NRB100	Environmental Science
PCB101	Physical Science

#### First Level Units - Semester 2

#### MANDATORY UNITS:

LSB238	Cell and Molecular Biology 1
PCB242	Chemistry 2
	OPTIONAL UNIT:
NRB270	Animal and Plant Structure and Function
	Plus ONE other unit, for example:
LSB258	Principles of Human Physiology
MAB101	Statistical Data Analysis 1
PYB012	Psychology

#### Second Level Units - Semester 1

#### MANDATORY UNITS:

LSB308	Biochemistry
LSB328	Microbiology 1
	Plus TWO other units selected according to the comajor requirements

#### Second Level Units - Semester 2

#### MANDATORY UNIT:

LSB428	Microbiology 2
	PLUS EITHER:
LSB408	Metabolism
	Or
LSB468	Molecular Biology
	Or
LSB469	Introduction to Genomics and Bioinformatics
	Plus TWO other units selected according to the comajor requirements

#### Third Level Units - Semester 1

#### Select TWO units from:

LSB528	Environmental Microbiology
LSB547	Bacterial Pathogenesis and Disease Diagnosis
LSB568	Electron Microscopy
LSB578	Virology
	Plus TWO other units selected according to the comajor requirements

#### Third Level Units - Semester 2

#### Select TWO units from:

LSB628	Food Microbiology
LSB647	Clinical Mycology and Parasitology
LSB648	Molecular Microbiology
	Plus TWO other units selected according to the comajor requirements

### Recommended Comajors:

Biochemistry, Biomolecular Sciences, Biotechnology, Forensic Science

### Course structure - Major in Physics

#### First Level Units - Semester 1

#### MANDATORY UNITS:

MAB111	Mathematical Sciences 1B
PCB101	Physical Science
	OPTIONAL UNITS:
PCB107	Physics and Quantitative Techniques
	Plus either:
LSB118	Life Science
	Or
NRB100	Environmental Science

#### First Level Units - Semester 2

#### MANDATORY UNITS:

MAB112	Mathematical Sciences 1C
PCB250	Physics 1
PCB260	Physics 1A
	Select ONE other unit

**Second Level Units - Semester 1**

MANDATORY UNITS:

- MAB311 Advanced Calculus
- PCB361 AC Theory and Electronics
- PCB362 Physics 2
- Plus ONE other unit selected according to the comajor requirements

**Second Level Units - Semester 2**

MANDATORY UNITS:

- PCB460 Instrumentation and Computational Methods
- PCB462 Thermodynamics and Solid State Physics
- Plus TWO other units selected according to the comajor requirements

**Third Level Units - Semester 1**

MANDATORY UNITS:

- PCB561 Quantum and Condensed Matter Physics
- PCB562 Physical Methods of Analysis
- Plus TWO other units selected according to the comajor requirements

**Third Level Units - Semester 2**

MANDATORY UNITS:

- PCB661 Experimental Physics
- PCB665 Physics 3
- Plus TWO other units selected according to the comajor requirements

**Recommended Comajors:**

Applied Physics, Astrophysics, Mathematics

**Course structure - Comajor in Applied Geology**

**First Level Units**

First year units as for Geoscience major

**Second Level Units**

ENVIRONMENTAL GEOLOGY EMPHASIS

- NRB331 Sedimentary Geology
- NRB437 Stratigraphy and Depositional Environments
- NRB440 Environmental Chemistry

EXPLORATION GEOLOGY EMPHASIS

- NRB331 Sedimentary Geology
- NRB437 Stratigraphy and Depositional Environments
- NRB440 Environmental Chemistry

**Third Level Units**

ENVIRONMENTAL GEOLOGY EMPHASIS

- NRB501 Spatial Analysis of Environmental Systems
- NRB633 Hydrogeology

EXPLORATION GEOLOGY EMPHASIS

- NRB535 Geology of Fossil Fuels and Minerals
- NRB635 Plate Tectonics and Advanced Structural Geology
- NRB636 Petroleum Geology and Basin Analysis

**Recommended Major:**

This comajor is recommended for Geoscience majors

**Course structure - Comajor in Applied Physics**

**First Level Units**

First year units as for Physics major, plus ITB111 Software Development

**Second Level Units**

- PCB445 Nanotechnology and Nanoscience
- PCB563 Global Energy Balance and Climate Change

**Third Level Units**

- MAB312 Linear Algebra
- PCB562 Physical Methods of Analysis
- PCB593 Digital Image Processing
- PCB664 Lasers and Photonics

**Recommended Majors:**

This comajor is recommended for Physics majors

**Course structure - Comajor in Astrophysics**

**First Level Units**

First year units as for Physics major, plus SCB222 Exploration of the Universe

**Second Level Units**

- PCB469 Astrophysics 1
- PCB563 Global Energy Balance and Climate Change

**Third Level Units**

- MAB312 Linear Algebra
- PCB593 Digital Image Processing
- PCB669 Astrophysics 2
- PCB562 Physical Methods of Analysis
- Or
- PSB655 Remote Sensing

**Recommended Majors:**

This comajor is recommended for Physics majors

**Course structure - Comajor in Biodiversity**

**First Level Units**

First year units as for Ecology major

**Second Level Units**

LSB397 Plant Physiology

Or

NRB501 Spatial Analysis of Environmental Systems

NRB370 Invertebrate Biology

NRB371 Plant Biology

NRB470 Vertebrate Biology

**Third Level Units**

NRB572 Terrestrial Ecosystems

NRB672 Marine and Freshwater Ecosystems

**Recommended Majors:**

This comajor is recommended for Ecology majors

**Course structure - Comajor in Biomolecular Sciences**

**First Level Units**

First year units as for Life Science majors

**Second and Third Level Units**

Six (6) approved units chosen from advanced level Life Science units. May include Physiology units: LSB358, LSB458, LSB558 and LSB658.

**Recommended Majors:**

This comajor is recommended for Life Science majors

**Course structure - Comajor in Industrial Chemistry**

**First Level Units**

First year units as for Chemistry major, but including PCB200 Chemical Technology 1

**Second Level Units**

PCB314 Concepts in Analytical Chemistry

PCB414 Industrial and Environmental Analytical Chemistry

**Third Level Units**

PCB514 Instrumental Analysis

PCB524 Unit Operations

PCB614 Advanced Analysis

PCB624 Chemistry in Industry and Technology

**Recommended Majors:**

This comajor is recommended for Chemistry majors

**Course structure - Comajor in Scientific Computation and Visualisation**

**First Level Units**

First year units as for Maths major, except do

not need MAB210 Statistical Modelling 1.  
Recommended: MAB112 Mathematical Sciences 1C

**Second Level Units**

MAB480 Introduction to Scientific Computation

MAB481 Visualisation and Data Analysis

**Third Level Units**

MAB681 Advanced Visualisation and Data Analysis

**Recommended Majors:**

This comajor is recommended for Mathematics or Physics majors (others please see coordinator)

**Course structure - Comajor in Statistics**

**First Level Units**

MAB100 Mathematical Sciences 1A

Or

SA in Senior Maths B

MAB101 Statistical Data Analysis 1

MAB111 Mathematical Sciences 1B

MAB112 Mathematical Sciences 1C

**Second Level Units**

MAB210 Statistical Modelling 1

MAB414 Applied Statistics 2

**Third Level Units**

Plus four approved advanced level Mathematics units

**Recommended Majors:**

This major is recommended for most other majors, particularly Mathematics, Physics and Ecology

**Course structure - Additional Comajors - you may choose your comajor from one of the Majors**

**Biochemistry**

LSB308 Biochemistry

LSB408 Metabolism

LSB508 Advanced Metabolism

LSB608 Protein Science

Plus TWO approved units

**Biotechnology**

LSB308 Biochemistry

LSB338 Cell and Molecular Biology 2

LSB468 Molecular Biology

LSB537 Genetic Engineering

LSB408 Metabolism

Or

LSB497 Plant Molecular Biology  
Plus ONE approved unit

**Chemistry**

SIX of the mandatory units in the Chemistry major

**Ecology**

SIX of the mandatory units in the Ecology major

**Environmental Science**

FOUR of the mandatory units from the major  
Plus TWO approved Science units at advanced level

**Forensic Science**

JSB979 Forensic Scientific Evidence  
LSB468 Molecular Biology  
PCB414 Industrial and Environmental Analytical Chemistry  
SCB384 Forensic Science  
Plus TWO other units as approved by the coordinator

**Geoscience**

SIX approved units from the Geoscience major

**Mathematics**

SIX approved level Mathematics units (may include MAB210/MAB220)

**Microbiology**

LSB328 Microbiology 1  
LSB428 Microbiology 2  
Plus FOUR third level Microbiology units selected from the major list

**Physics**

MAB134 Electrical Engineering Mathematics 3  
PCB361 AC Theory and Electronics  
PCB362 Physics 2  
PCB460 Instrumentation and Computational Methods  
PCB462 Thermodynamics and Solid State Physics

**Course structure - Comajor in Aviation**

Suitable aviation studies (an approved Associate Diploma in aviation or equivalent) can be accepted as a comajor within the Bachelor of Applied Science course SC01. A total of 96 credit points can be credited for the aviation studies; this is based on 72 credit points for the comajor plus an additional 24 credit points generally required to underpin a comajor.

In the BAppSc with aviation, students can either (a) study for the BAppSc degree and the

aviation Associate Diploma concurrently, or (b) obtain credit for the SC01 course for an approved Associate Diploma in aviation that had been completed prior to gaining entry to the SC01 course.

(a) Students who wish to study for the BAppSc and the aviation Associate Diploma concurrently are required to apply to an accredited flying school or TAFE college for entry to the Associate Diploma. The aviation studies are undertaken at the same time as the SC01 course. This joint program generally requires at least four years.

(b) Students who have already completed an approved Associate Diploma prior to admission to the SC01 course will be granted 96 credit points towards the BAppSc degree.

**Course structure - Non-Science Comajors (subject to timetable restrictions)**

For comajors in humanities, business, IT or Psychology, please consult with your major coordinator, or the Course Coordinator, Dr Megan Hargreaves (phone 3138 2244 or email m.hargreaves@qut.edu.au)

**Potential Careers:**

Actuary, Air Traffic Controller, Analytical Chemist, Astrophysicist, Biochemist, Biologist, Biotechnologist, Chemist, Chemist Industrial, Coastal Scientist, Conservation Biologist, Database Manager, Ecologist, Environmental Scientist, Exploration Geologist, Forensic Biologist, Forensic Chemist, Forensic Scientist, Geologist, Geophysicist, Geoscientist, Health Physicist, Hydrogeologist, Immunologist, Industrial Chemist, Laboratory Technician (Chemistry), Marine Scientist, Mathematician, Medical Biotechnologist, Medical Physicist, Microbiologist, Mine Geologist, Molecular Biologist, Natural Resource Scientist, Pharmaceutical Research Scientist, Physicist, Plant Biotechnologist, Population Ecologist, Programmer, Quantitative Analyst, Research and Development Chemist, Statistician, Virologist.

## Bachelor of Applied Science (Carseldine First-year Experience Program) (SC01)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** 003502J

**Course duration (full-time):** 1 year at Carseldine and then 2 years at Gardens Point

**Course duration (part-time):** 2 years at Carseldine and then 4 years at Gardens Point

**Domestic fees (per credit point):** Commonwealth Supported Place; Full fee tuition 2007: \$210 per credit point (*subject to annual review*)

**Domestic fees (indicative):** 2007: Full fee tuition \$20,160; CSP \$7,053

**International Fees (per semester):** 2007:\$9,000 per semester (*subject to annual review*)

**Domestic Entry:** February

**International Entry:** February and July

**QTAC code:** 448021; Dfee: 448026

**Past rank cut-off:** 68; Dfee: 68

**Past OP cut-off:** 15; Dfee: 15

**OP Guarantee:** Yes

**Assumed knowledge:** English (4, SA) and Maths B (4, SA)

**Preparatory studies:** MATHS: QUT unit Preparatory Mathematics as a visiting student or QUT Continuing Professional Education course Mathematics Bridging. ENGLISH: Successful completion of a year of full-time vocational or tertiary study. For further information contact 07 3138 2000 or email [study@qut.com](mailto:study@qut.com)

**Total credit points:** 96

**Standard credit points per full-time semester:** 48

**Standard credit points per part-time semester:** 24

**Course coordinator:** Dr Megan Hargreaves

**Discipline coordinator:** Dr Habib Yezdani (Science Carseldine Coordinator); Dr Perry Hartfield (Biochemistry); Dr Marion Bateson (Biotechnology); Dr Dennis Arnold (Chemistry); Dr Ian Williamson (Ecology); Dr Robin Thwaites (Environmental Science); Dr Serge Kokot (Forensic Science); Dr Gregg Webb (Geoscience); Dr Christine Knox (Microbiology)

**Campus:** Carseldine

### null

All major areas of study in the Bachelor of Applied Science are available at Gardens Point campus. However, the opportunity also exists for students to undertake the first year program at Carseldine Campus.\*

The first year core units in the Bachelor of Applied Science develop a strong basis on which the more advanced units in each of the major areas of study are based. First year units include laboratory and fieldwork, with an emphasis on problem-solving through project work.

A relaxed bushland setting at Carseldine Campus provides an ideal environment for students to make the transition to university. Small class sizes, block teaching and access to computer-based information resources ensure that students have the opportunity to gain maximum advantage from QUT's winning blend of theory and practice. On-campus

parking is available and the campus is well serviced by bus and rail.

Upon successful completion of the first year at Carseldine, students are transferred to Gardens Point campus to complete the course.

For further details of the major areas of study offered, see the Bachelor of Applied Science (SC01) course offered at Gardens Point Campus

[http://www.studentservices.qut.edu.au/pdfs/css\\_docs/SC01.pdf](http://www.studentservices.qut.edu.au/pdfs/css_docs/SC01.pdf)

\*Students intending to select a major in Mathematics or Physics are not able to complete a suitable first year program at Carseldine campus and should apply for entry to the SC01 Bachelor of Applied Science at Gardens Point Campus.

### Recommended Study:

At least one of the sciences. For the majors in biochemistry, biotechnology, forensic science, and microbiology - Biological Science and Chemistry are recommended; for the major in Mathematics - Maths C is recommended.

### Major Areas of Study

#### Biochemistry:

Biochemistry is the study of the chemical processes that occur in living organisms including the chemical structure, function and properties and energy flows. Biochemistry is an essential and very successful area of study for many practitioners in the life sciences industry. Biochemistry students at QUT gain both the theoretical knowledge to understand biochemical problems and formulate solutions, and the practical skills to carry out the necessary laboratory investigations that test these solutions for real-world application. Students gain hands-on practical laboratory experience from their first year of study.

#### Career Opportunities

Many employment opportunities exist around the world in both the private and government sectors of industry for biochemists. QUT graduates skilled in biochemistry can find career opportunities in research, diagnostic and analytical laboratories, universities, hospitals and health departments, pharmaceutical companies, primary and agricultural industries and departments, food industry laboratories, environmental agencies, veterinary pathology laboratories and in the area of marketing, sales, commercialisation and management of biological products and processes.

#### Professional Recognition

Graduates are eligible for membership of the Australian Society for Biochemistry and Molecular Biology, and possibly the Australasian Association of Clinical Biochemists.

#### Biotechnology:

Biotechnology is the application of molecular biology and biochemical principles to create a new generation or products and processes for the benefit of society.

Biotechnology is one of the fastest growing areas of science and business in the world today. Modern biotechnology uses the techniques of genetic engineering to enable faster, cheaper and more reliable production of an ever-increasing range of engineered products. The integration of biotechnology research into QUT Biotechnology courses ensures that you will receive access to the latest information and hands-on laboratory experience in contemporary molecular technologies. All students receive hands-on practical laboratory experience from their first year of study in Queensland's newest biotechnology teaching laboratories.

#### *Career Opportunities*

Globally and locally the developing biotechnology industry demands highly skilled graduates. As a biotechnology graduate you will have a wide range of exciting career opportunities available to you across a number of existing and emerging global industries. New career opportunities include nanotechnology, proteomics, materials science, molecular farming and bioinformatics; while existing career opportunities in hospitals and diagnostic laboratories continue to expand.

#### *Professional Recognition*

Graduates are eligible for membership of AusBiotech Ltd, Australian Society for Biochemistry and Molecular Biology, and possibly the Australian Society for Medical Research, and the Australian Society for Microbiology.

### **Chemistry:**

Chemistry is the study of the structure, properties, synthesis and reactions of materials. Chemistry is one of the central sciences since its results are used in almost all areas of science - including life sciences, the environment, geosciences, biology, and food science. The Chemistry major at QUT allows you to gain an appreciation of the fundamental discipline - covering physical, organic and inorganic chemistry - but with an additional focus on modern applications such as drug discovery, analytical and environmental chemistry, polymer science and surface science. All theory is complemented with a comprehensive laboratory program, particularly with hands-on experience with modern computer-based analytical instruments.

#### *Career Opportunities*

Chemists are key professionals in industries that manufacture goods such as paints, paper, textiles, glass, plastics and rubber, metals and alloys, gases and fuels, foodstuffs and chemicals. Government agencies depend on chemists to develop and monitor standards for meat research, animal health pest control, preservation of timber, environmental chemistry, forensic analysis and coal chemistry. You can expect to find employment as an industrial chemist, material scientist, environmental chemist, quality control analyst, production supervisor, food chemist, organic chemist and inorganic chemist.

#### *Professional Recognition*

Graduates are eligible for membership of the Royal Australian Chemical Institute.

### **Ecology**

Ecology is the study of relationships between organisms and their environment. Ecology helps us to understand the distribution and abundance of organisms. As an applied science it is used to design strategies for the management of populations of organisms (both natural and commercial). The Ecology major at QUT will allow you to gain a broad range of scientific skills including the specialist techniques required for conserving and managing endangered animals, controlling pests, managing exploited populations and evaluating issues associated with the management of our natural resources.

#### *Career Opportunities*

Ecologists find rewarding careers in research science for government departments responsible for pest management, national park and wildlife, primary industries, fisheries, forestry and museums. They also find work in private firms engaged in research and consultancy work. Positions include fisheries biologist, wildlife manager, scientific or technical officer, teacher or lecturer and research scientist. Employment in more specialised areas is available, usually requiring study beyond the first degree.

#### *Professional Recognition*

Professional recognition is achieved through a scientific society (eg Ecological Society of Australia) and participation in its meetings.

### **Environmental Science:**

Environmental Science at QUT is the application of fundamental, core science disciplines to problems encountered in the management and understanding of our environment. Studies will allow you to gain both the strong scientific base and the generic skills to apply your scientific knowledge to a wide range of environmental problems. Rather than learning simply to describe the different environmental systems, you will gain an understanding of the mechanisms that control these systems, and the interaction between the various components. All environmental science units include laboratory and fieldwork with an emphasis on problems-solving through project work. You will be introduced to standardised methods and principles for environmental modelling and monitoring that can be applied across all disciplines.

#### *Career Opportunities*

Environmental scientists are needed in a wide variety of government departments and agencies, in consultancy and in manufacturing and mining companies. Graduates are equipped to assess resources, design and implement environmental impact programs, analyse and interpret environmental data and formulate contingency plans in a wide variety of areas including strategic land-use planning, waste disposal, pollution measurement and control, coastal protection, environmental impact of mining, tourism and development, rehabilitation and reforestation of contaminated land sites, groundwater assessment and modelling, waterway and floodplain drainage planning, erosion control in waterways, and marine science.

*Professional Recognition*

Graduates are eligible for membership of the Environment Institute of Australia and New Zealand.

**Forensic Science**

Forensic Science involves the application of chemical and biological principles and laboratory processes to identify and quantify matter within a legal context. Areas that are relevant to forensic science are wide ranging, and include: the detection and identification of illicit drugs, explosive and gunshot residues, accelerants used in arson cases, and trace evidence (e.g. paint, glass, fibres, soil); DNA profiling, where it is possible to distinguish between individuals on the basis of samples involving blood, saliva, hair or semen; toxicology studies to identify illicit and pharmaceutical drugs and poisons and interpret toxicity levels and their effect on the human body; and fingerprinting.

*Career Opportunities*

Employment opportunities exist for trained forensic scientists who work in laboratories handling criminal casework in areas including forensic biology, forensic chemistry, and forensic toxicology. QUT graduates in Forensic Science not only receive a strong grounding in core areas of both forensic biology and forensic chemistry but complement their major in Forensic Science with a full major in either Biotechnology or Chemistry. This course structure gives QUT Forensic Science graduates an enhanced qualification for careers in either forensic biology or forensic chemistry. In addition, the second major adds flexibility to future career paths by enabling Forensic Science graduates to gain employment either as a chemist or a biotechnologist if they prefer.

*Professional Recognition*

Graduates who complete the Forensic Science major in conjunction with the Biotechnology major are eligible for membership of the Australian and New Zealand Forensic Science Society, AusBiotech Ltd, and the Australian Society for Biochemistry and Molecular Biology.

Graduates who complete the Forensic Science major in conjunction with the Chemistry major are eligible for membership of the Australian and New Zealand Forensic Science Society and the Royal Australian Chemical Institute.

**Geoscience:**

Geoscience is the systematic study of the earth and the dynamic interactions of its systems. Geoscience incorporates a study of the materials of the earth, the natural processes acting in and upon the earth, and its history. The Geoscience major at QUT allows you to gain the skills needed to become a professional geologist and emphasises hands-on experience through laboratory work and field studies. It provides a broad range of geological skills as well as training in the specialist techniques required for field mapping and geological interpretation.

*Career Opportunities*

Geoscientists work in a range of areas including environmental geology, hydrogeology, coastal zone

management, hazard and pollution control, and resource exploration. Employment opportunities exist within mining and exploration companies which may involve underground geological mapping, evaluation of ore reserves, production control, or exploration for new mineral deposits; petroleum companies working on offshore drilling rigs; and a variety of government organisations working as field geologists or research scientists. Other graduates work in computing, data modelling, and remote sensing. An honours degree is required by many employers, including the larger mining and exploration companies.

*Professional Recognition*

Graduates are eligible for membership of the Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists, and the Geological Society of Australia.

**Microbiology:**

Microbiology is the study of living organisms of microscopic size. The principal components are bacteriology, virology and mycology, and areas of fundamental importance in the applied sciences of pathology and immunology. You will develop skills and knowledge in the handling and study of micro-organisms and investigation of their properties. Advanced studies allow you to expand your knowledge and expertise in your specialised area such as human pathology, animal and plant diseases, food technologies, environmental testing (soil, air and water) and bioremediation, and molecular applications of microbiological principles.

*Career Opportunities*

Microbiologists are employed in a variety of activities including human pathology testing in bacteriology, immunology, mycology, parasitology and virology, animal and plant disease, treatment of inorganic waste, food fermentations and microbiological testing of goods for pathogens or spoilage organisms, water and soil microbiology and research. Employment opportunities exist in private and government research and analytical laboratories, such as the CSIRO, universities, hospitals, health departments, primary industry departments, food industry laboratories, environmental agencies, and in the marketing of biological products.

*Professional Recognition*

Graduates are eligible for membership of the Australian Society for Microbiology.

**Professional Recognition**

For graduates with approved study: Australian Society for Biochemistry and Molecular Biology, Australasian Association of Clinical Biochemists, AusBiotech Ltd, Australian Society for Biochemistry and Molecular Biology, Australian Society for Medical Research, Australian Society for Microbiology, Royal Australian Chemical Institute, Ecological Society of Australia, Environment Institute of Australia and New Zealand, Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists, Geological Society of Australia, Australian Society for Microbiology.



**Contact Details**

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*Microbiology*

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**Deferment**

QUT allows current Year 12 school leavers to defer their undergraduate admission offer for one year, or for six months if offered mid-year admission, except in courses using specific admission requirements such as questionnaires, folios, auditions, prior study or work experience.

Non-year 12 students may also request to defer their QTAC offer on the basis of demonstrated special circumstances.

Find out more on deferment.

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**Semester 1**

Four units from:

- LSB118 Life Science
- MAB105 Preparatory Mathematics
- NRB100 Environmental Science
- PCB101 Physical Science
- PCB140 Introductory Chemistry
- NOTE: MAB105 should be substituted for either NRB100 or PCB101 if you have not attained an SA or greater for Senior Maths B

**Semester 2**

Four units from:

- LSB238 Cell and Molecular Biology 1
- MAB101 Statistical Data Analysis 1
- NRB230 Planet Earth
- NRB270 Animal and Plant Structure and Function
- PCB242 Chemistry 2
- NOTE: Select NRB230 if you plan to major in Geoscience

**Potential Careers:**

Analytical Chemist, Biochemist, Biologist, Biotechnologist, Chemist, Chemist Industrial, Coastal Scientist, Conservation Biologist, Ecologist, Environmental Scientist, Exploration Geologist, Forensic Biologist, Forensic Chemist, Forensic Scientist, Geologist, Geophysicist, Geoscientist, Hydrogeologist, Immunologist, Industrial Chemist, Laboratory Technician (Chemistry), Marine Scientist, Medical Biotechnologist, Microbiologist, Mine Geologist, Molecular Biologist, Natural Resource Scientist, Pharmaceutical Research Scientist, Plant Biotechnologist, Population Ecologist, Research and Development Chemist, Virologist.

## Bachelor of Applied Science & Bachelor of Applied Science (Honours) - Dean's Scholars Accelerated Honours Program (SC01 + SC60)

Year offered: 2007

Admissions: Yes

CRICOS code: 003502J

Course duration (full-time): 3 Years (plus initial summer term)

Domestic fees (per credit point): Commonwealth supported place; Full fee tuition 2007: \$210 per credit point (subject to annual review)

Domestic fees (indicative): 2007: Full fee tuition \$20160

International Fees (per semester): 2007: \$10,500 per semester (subject to annual review)

Domestic Entry: February: Fixed Closing Date- 30 November 2006.

International Entry: February: Fixed Closing Date- 30 November 2006.

QTAC code: 418042

Past rank cut-off: 99 plus successful interview. Please refer to Additional Entry Requirements.

Past OP cut-off: 1 plus successful interview. Please refer to Additional Entry Requirements.

Assumed knowledge: English (4, SA) and Maths B (4, VHA) plus two (2) of Biological Science, Chemistry, Earth Science, Maths C or Physics (4, VHA)

Total credit points: 384 [BAppSc 288 cp and BAppSc(Hons) 96 cp]

Course coordinator: Associate Professor Bruce Cornish

Discipline coordinator: Associate Professor John Aaskov (Life Sciences); Dr Graeme Pettet (Mathematics); Associate Professor David Gust (Natural Resource Sciences); Dr John McMurtrie (Physical and Chemical Sciences - Chemistry); Dr Dmitri Gramotnev (Physical and Chemical Sciences - Physics)

Campus: Gardens Point

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The Dean's Scholars Accelerated Honours Program is an accelerated program designed specifically for outstanding current, or returning from a gap year, Year 12 students who completed their Year 12 education in Australia. It also offers an accelerated pathway that enables students to complete both the Bachelor of Applied Science and the Bachelor of Applied Science (Honours) courses in just three years. A scholarship is offered to students in the Dean's Scholars Accelerated Honours Program. Students are accepted into the program on the basis of outstanding academic ability and an interest in scientific research.

### Additional Entry Requirements

Successful interview.

Applicants will be sent interview information by QUT Faculty of Science progressively from late October.

### Fixed Closing Date

Applications for this program will close on **30 November**.

### Professional Recognition

As a graduate of the Dean's Scholars Accelerated Honours Program you will qualify for professional recognition and employment in fields relevant to the specialisations that you have chosen. It is expected that many Dean's Scholars will proceed to Doctor of Philosophy studies.

### Scholarships

Students who are accepted into the Dean's Scholars Honours Program are eligible for a \$9,000 scholarship paid over three years.

### Career Outcomes

As a student in the Dean's Scholars Accelerated Honours Program you will choose one of the following ten majors. You will also choose a co-major to accompany your major area of study. The co-major may be one of the other majors, or it could be one of the co-majors listed below:

**Majors:** Biochemistry, Biotechnology, Chemistry, Ecology, Environmental Science, Forensic Science, Geoscience, Mathematics, Microbiology, Physics.

**Co-majors:** Applied Geology, Applied Physics, Astrophysics, Biodiversity, Biomolecular Sciences, Environmental Management, Industrial Chemistry, Scientific Computation and Visualisation, Statistics.

### Course Structure

As a student in the Dean's Scholars Accelerated Honours Program you will choose one of the majors available through the Bachelor of Applied Science (SC01) course. You will also choose a co-major to accompany your major area of study.

To allow the Dean's Scholars Program to be completed in an accelerated format some changes are made to the first year of the standard Bachelor of Applied Science (SC01) degree. The core units normally studied in first year are replaced by an enriched course of study which includes the following units:

#### SCB301 Science for Dean's Scholars

An intensive preparatory program immediately preceding the commencement of the first semester. This preparatory program commences mid-January and requires attendance for approximately 18 hours per week for six weeks.

#### SCB303 Tutorial Program for Dean's Scholars

An individually-tailored tutorial program during the first semester, under the guidance of an academic mentor. This unit is designed in a consultative process involving the student, the academic mentor, and the Dean.

#### SCB401 Research Methods for Dean's Scholars

The unit allows research skills to be developed through a literature review, experimental design considerations, research proposal formulation and writing, and the presentation of a research proposal.

#### SCB501 Research Project for Dean's Scholars

An individually tailored research project is carried out under the supervision of a research mentor.

**Honours Program**

Following the successful completion of the coursework and your initial research project in the first two years of the program, you will then commence the Bachelor of Applied Science (Honours) course. The Honours program continues the study of your chosen scientific major and also provides the opportunity to undertake a large research project. The Honours degree provides an excellent preparation to continue onto postgraduate research.

**Contact Details**

**Course Coordinator**

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**Discipline Coordinators**

*Life Sciences*

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*Mathematical Sciences*

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*Natural Resource Sciences:*

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*Physical & Chemical Sciences - Chemistry*

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*Physical & Chemical Sciences - Physics*

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**OP Guarantee**

The OP Guarantee does not apply to this course.

**Deferment**

QUT's deferment policy does not apply to this course.

**Domestic student tuition fee (Dfee) places**

**Undergraduate domestic full fee places (Dfee) are not available in this course.** Tuition fees are only applicable to currently enrolled students who were unable to comply regulations regarding their original Commonwealth Supported place (i.e. failure to lodge an eCAF, has consumed of other their Student Learning Entitlement etc.) and who have been invited and accepted to continue as a fee-paying student.

**Course structure - Majors in Biochemistry, Biotechnology and Microbiology**

**Year 1, Summer Term (24 cp)**

Dean's Scholars Program enrichment unit:  
 SCB301 Science for Dean's Scholars

**Year 1, Semester 1 (60 cp)**

Dean's Scholars Program enrichment unit:  
 SCB303 Tutorial Program for Dean's Scholars  
 Normal BAppSc and BAppSc(Hons) units:  
 BAppSc Coursework (48 cp)

**Year 1, Semester 2 (60 cp)**

Dean's Scholars Program enrichment unit:  
 SCB401 Research Methods for Dean's Scholars  
 Normal BAppSc and BAppSc(Hons) units:  
 BAppSc Coursework (48 cp)

**Year 2, Semester 1 (72 cp)**

Dean's Scholars Program enrichment unit:  
 SCB501-1 Research Project for Dean's Scholars  
 Normal BAppSc and BAppSc(Hons) units:  
 BAppSc Coursework (48 cp)

**Year 2, Semester 2 (60 cp)**

Normal BAppSc and BAppSc(Hons) units:  
 BAppSc Coursework (48 cp)  
 Normal BAppSc and BAppSc(Hons) unit:  
 LSB657 Perspectives in Life Science

**Year 3, Semester 1 (60 cp) and Semester 2 (48 cp)**

Normal BAppSc and BAppSc(Hons) units:  
 BAppSc + BAppSc(Hons) Coursework (12cp + 36 cp respectively)  
 Normal BAppSc and BAppSc(Hons) units:  
 BAppSc(Hons) Research (60 cp)

**Course structure - Major in Chemistry**

**Year 1, Summer Term (24 cp)**

Dean's Scholars Program enrichment unit:  
 SCB301 Science for Dean's Scholars

**Year 1, Semester 1 (60 cp)**

Dean's Scholars Program enrichment unit:  
 SCB303 Tutorial Program for Dean's Scholars  
 Normal BAppSc and BAppSc(Hons) units:  
 BAppSc Coursework (48 cp)

**Year 1, Semester 2 (60 cp)**

Dean's Scholars Program enrichment unit:  
 Elective (12 cp)  
 Normal BAppSc and BAppSc(Hons) units:  
 BAppSc Coursework (48 cp)

**Year 2, Semester 1 (60 cp)**

Dean's Scholars Program enrichment unit:  
 SCB401 Research Methods for Dean's Scholars  
 Normal BAppSc and BAppSc(Hons) units:  
 BAppSc Coursework (48 cp)

**Year 2, Semester 2 (72 cp)**

Dean's Scholars Program enrichment unit:  
 SCB501-1 Research Project for Dean's Scholars  
 Normal BAppSc and BAppSc(Hons) units:  
 BAppSc Coursework (48 cp)

**Year 3, Semester 1 (60 cp) and Semester 2 (48 cp)**

Normal BAppSc and BAppSc(Hons) units:  
 BAppSc + BAppSc(Hons) Coursework (12 cp +  
 36 cp respectively)  
 Normal BAppSc and BAppSc(Hons) units:  
 BAppSc(Hons) Research (60 cp)

**Course structure - Major in Mathematics**

**Year 1, Summer Term (24 cp)**

Dean's Scholars Program enrichment unit (MS  
 module + MA module + one of the PH, CH, and  
 LS modules):  
 SCB301 Science for Dean's Scholars

**Year 1, Semester 1 (60 cp)**

Normal BAppSc and BAppSc(Hons) units:  
 BAppSc Coursework (60 cp)

**Year 1, Semester 2 (60 cp)**

Normal BAppSc and BAppSc(Hons) units:  
 BAppSc Coursework (60 cp)

**Year 2, Semester 1 (60 cp)**

Normal BAppSc and BAppSc(Hons) units:  
 BAppSc Coursework (60 cp)

**Year 2, Semester 2 (60 cp)**

Normal BAppSc and BAppSc(Hons) units:  
 BAppSc Coursework (36 cp)  
 Dean's Scholars Program enrichment unit:  
 SCB501-1 Research Project for Dean's Scholars

**Year 3, Semester 1 (60 cp) and Semester 2 (60 cp)**

Normal BAppSc and BAppSc(Hons) units:  
 BAppSc + BAppSc(Hons) Coursework (24 cp +  
 60 cp respectively)  
 Normal BAppSc and BAppSc(Hons) units:  
 BAppSc(Hons) Research (36 cp)

**Course structure - Major in Physics**

**Year 1, Summer Term (24 cp)**

Dean's Scholars Program enrichment unit:  
 SCB301 Science for Dean's Scholars

**Year 1, Semester 1 (60 cp)**

Dean's Scholars Program enrichment unit:  
 SCB303 Tutorial Program for Dean's Scholars  
 Normal BAppSc and BAppSc(Hons) units:  
 BAppSc Coursework (48 cp)

**Year 1, Semester 2 (60 cp)**

Dean's Scholars Program enrichment unit:  
 Elective (12 cp)  
 Normal BAppSc and BAppSc(Hons) units:  
 BAppSc Coursework (48 cp)

**Year 2, Semester 1 (60 cp)**

Dean's Scholars Program enrichment unit  
 (approved Physics elective)  
 Normal BAppSc and BAppSc(Hons) units:  
 BAppSc Coursework (48 cp)

**Year 2, Semester 2 (72 cp)**

Dean's Scholars Program enrichment unit:  
 SCB501-1 Research Project for Dean's Scholars  
 Normal BAppSc and BAppSc(Hons) units:  
 BAppSc Coursework (24 cp)

**Year 3, Semester 1 (60 cp) and Semester 2 (48 cp)**

Normal BAppSc and BAppSc(Hons) units:  
 BAppSc + BAppSc(Hons) Coursework (12 cp +  
 36 cp respectively)  
 Normal BAppSc and BAppSc(Hons) units:  
 BAppSc(Hons) Research (60 cp)

**Potential Careers:**

Actuary, Air Traffic Controller, Analytical Chemist, Astrophysicist, Biochemist, Biologist, Biotechnologist, Cell Biologist, Chemist, Chemist Industrial, Coastal Scientist, Conservation Biologist, Database Manager, Ecologist, Environmental Scientist, Exploration Geologist, Forensic Chemist, Forensic Scientist, Geologist, Geophysicist, Geoscientist, Health Physicist, Hydrogeologist, Immunologist, Industrial Chemist, Laboratory Technician (Chemistry), Marine Scientist, Mathematician, Medical Biotechnologist, Medical Physicist, Microbiologist, Mine Geologist, Molecular Biologist, Natural Resource Scientist, Pharmaceutical Research Scientist, Physicist, Plant Biotechnologist, Population Ecologist, Programmer, Quantitative Analyst, Research and Development Chemist, Statistician, Virologist.

## Bachelor of Applied Science/Bachelor of Mathematics (SC20)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** 049434C

**Course duration (full-time):** 4 years

**Domestic fees (per credit point):** Commonwealth supported place; Full fee tuition 2007: \$210 per credit point (*subject to annual review*)

**Domestic fees (indicative):** 2007: Full fee tuition \$20,160; CSP \$7,114

**International Fees (per semester):** 2007:\$9,000 per semester (*subject to annual review*)

**Domestic Entry:** February

**International Entry:** February and July

**QTAC code:** 418712; Dfee: 418716

**Past rank cut-off:** 75; Dfee: 70

**Past OP cut-off:** 12; Dfee: 14

**OP Guarantee:** Yes

**Assumed knowledge:** English (4, SA) and Maths B (4, SA)

**Preparatory studies:** MATHS: QUT unit Preparatory Mathematics as a visiting student or QUT Continuing Professional Education course Mathematics Bridging. ENGLISH: Successful completion of a year of full-time vocational or tertiary study. For further information contact 07 3138 2000 or email [study@qut.com](mailto:study@qut.com)

**Total credit points:** 384

**Standard credit points per full-time semester:** 48

**Course coordinator:** Dr Megan Hargreaves (Science); Dr Graeme Pettet (Mathematics)

**Campus:** Gardens Point

### Recommended Study

Maths C and knowledge of at least one of the sciences. For the majors in biochemistry, biotechnology, forensic science, and microbiology - Biological Science and Chemistry are recommended.

### Career Opportunities

This four-year double degree provides students with the opportunity to integrate studies in a science area with mathematics. This combination will lead to enhanced job opportunities for graduates and also provide a very sound background for students proceeding to postgraduate research studies in either a science discipline or mathematics.

Mathematics is vital for much scientific research and it is also becoming increasingly important for employees in many science-based careers to have a good background in mathematics and statistics. There are many jobs advertised where employers are ideally looking for applicants with skills and knowledge in science and mathematics. Some examples are:

*Natural resource management* - obtaining an accurate estimate of fish populations and predicting sustainable fishing limits requires complex mathematical and statistical modelling

*Agriculture management* - from climate modelling down to

the individual paddock level, the interaction between forecast crop yields and prices, crop and harvest scheduling and environmental impacts

*Genetics* - including gene sequencing and quantitative genetics

*Chemistry and Biochemistry* - operations research (scheduling) and quality management techniques benefit management of a chemical testing laboratory or chemicals business; computational and applied mathematics and scientific computation and visualisation relate to research areas such as drug design using combinatorial chemistry

*Infection and disease control* - uses statistics and mathematical modelling

*Bioinformatics* - involves analysing and modelling data arising in molecular biology, genome sequencing and gene networks

*Developing new physical measurement and imaging techniques* - needs applied and computational mathematics

### Course Structure

Mathematics provides a very precise way of describing our world and activities within it. It is used to understand and formulate current knowledge, to develop new products and processes and to assist with predicting changes which may occur under various scenarios. Mathematical techniques are used extensively in conjunction with all areas of science.

Graduates will have well-developed analytical and problem-solving skills and also practical hands-on experience in the science area of their choice. They will have the ability to use mathematical and statistical techniques across a wide range of applications and to communicate effectively with others.

This four year double degree course integrates studies in one of the science majors with studies in mathematics. The science majors available are Biochemistry, Biotechnology, Chemistry, Ecology, Environmental Science, Forensic Science, Geoscience, Microbiology and Physics.

The Mathematics component offers studies in core mathematics, applied mathematics, computational mathematics, discrete mathematics, financial mathematics, mathematical modelling, operations research, statistics, statistical modelling, scientific computation and data visualisation.

### Professional Recognition

Membership of the Australian Mathematical Society, the Statistical Society of Australia Inc and the Australian Society for Operations Research is available. For professional recognition relating to the science majors refer to Bachelor of Applied Science (SC01).

### Mathematics Bursaries

Students enrolled in this course can apply for industry-sponsored bursaries. These bursaries are awarded to Australian citizens or permanent residents on a competitive

basis. Applications should be submitted by 1 December of the year preceding entry to the course. For further information see [www.maths.qut.edu.au](http://www.maths.qut.edu.au)

**Contact Details**

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**Mathematics Coordinator**

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**Deferment**

QUT allows current Year 12 school leavers to defer their undergraduate admission offer for one year, or for six months if offered mid-year admission, except in courses using specific admission requirements such as questionnaires, folios, auditions, prior study or work experience.

Non-year 12 students may also request to defer their QTAC offer on the basis of demonstrated special circumstances.

Find out more on deferment.

**Course structure**

Students must complete at least (a) 192 credit points (16 twelve credit point units) of Mathematics units and (b) 192 credit points (16 twelve credit point units) of Science units, according to the requirements as follows:

**Level 1 Units:**

Students must complete the following Level 1 Mathematics units:

- MAB100 Mathematical Sciences 1A
- MAB101 Statistical Data Analysis 1
- MAB111 Mathematical Sciences 1B
- MAB112 Mathematical Sciences 1C
- MAB210 Statistical Modelling 1
- MAB220 Computational Mathematics 1

NOTE: MAB100 is for students who do not have an exit assessment of at least Sound Achievement in four semesters of both Senior Mathematics B and Senior Mathematics C (or equivalent).

Students must complete at least TWO of the following Level 1 Science Foundation units:

- LSB118 Life Science
- NRB100 Environmental Science
- PCB101 Physical Science

In addition, students are required to complete any mandatory units - and should complete all recommended units, specified for the science major selected.

**Level 2 and 3 Mathematics Units:**

At least 120 credit points (10 twelve credit point units) must be taken from Level 2 and Level 3 Mathematics units with at least 48 credit points (4 twelve credit point units) from Level 3 Mathematics units:

Students must complete:

- MAB311 Advanced Calculus
  - MAB312 Linear Algebra
- And at least one of:
- MAB315 Operations Research 2
  - MAB413 Differential Equations
  - MAB414 Applied Statistics 2
  - MAB422 Mathematical Modelling

**Level 2 and 3 Science Units:**

At least 96 credit points (8 twelve-credit point units) must be taken from Level 2 and Level 3 Science units with at least 48 credit points (4 twelve credit point units) from Level 3 Science units. The science units must meet the advanced level requirements of one of the following majors of the SC01 Bachelor of Applied Science course: Biochemistry; Biotechnology; Chemistry; Ecology; Environmental Science; Forensic Science; Geoscience: Microbiology or Physics.

**Elective Units:**

Elective units (number depends upon major selected) can be taken from Faculty of Science units. Because up to two MAB units may normally be specified in a Science degree depending on the major selected, an equivalent number of units may be substituted with units from another Faculty if such units are required as prerequisites.

**Science Units: Level 1 Science Foundation Units**

Students must select at least TWO of these units:

- LSB118 Life Science
- NRB100 Environmental Science
- PCB101 Physical Science

**Science Units: Biochemistry Major**

**Level 1**

- LSB118 Life Science
  - LSB238 Cell and Molecular Biology 1
  - NRB270 Animal and Plant Structure and Function
  - PCB101 Physical Science
  - PCB242 Chemistry 2
- Either
- PCB140 Introductory Chemistry
- Or
- PCB142 Chemistry 1

## SCIENCE

Recommended Unit:  
LSB258 Principles of Human Physiology

Or  
LSB577 Plant Biotechnology 1

### Level 2

LSB308 Biochemistry  
LSB338 Cell and Molecular Biology 2  
LSB408 Metabolism  
LSB468 Molecular Biology

Either  
LSB609 Medical Biotechnology 2  
Or  
LSB677 Plant Biotechnology 2

### Science Units: Chemistry Major

### Level 3

LSB508 Advanced Metabolism  
LSB527 Biomedical Research Technologies  
LSB608 Protein Science  
Plus either:  
LSB605 Protein Engineering and Bioprocessing  
Or  
LSB607 Protein Purification

### Level 1

PCB101 Physical Science  
Either  
LSB118 Life Science  
Or  
NRB100 Environmental Science  
PCB142 Chemistry 1  
PCB242 Chemistry 2  
Recommended:  
PCB150 Physics 1H  
PCB200 Chemical Technology 1

### Science Units: Biotechnology Major

### Level 1

LSB118 Life Science  
LSB238 Cell and Molecular Biology 1  
NRB270 Animal and Plant Structure and Function  
PCB101 Physical Science  
PCB242 Chemistry 2  
Either  
PCB140 Introductory Chemistry  
Or  
PCB142 Chemistry 1  
Recommended Unit:  
LSB258 Principles of Human Physiology

### Level 2

PCB334 Inorganic Chemistry  
PCB354 Structure and Mechanism in Organic Chemistry  
PCB405 Principles of Physical Chemistry  
PCB444 Spectroscopy

### Level 3

PCB505 Advanced Physical Chemistry  
PCB554 Synthesis and Reactivity in Organic Chemistry  
PCB634 Organometallic and Coordination Chemistry  
PCB644 Frontiers in Chemistry

### Level 2

LSB308 Biochemistry  
LSB468 Molecular Biology  
Either  
LSB338 Cell and Molecular Biology 2  
Or  
LSB397 Plant Physiology  
Either  
LSB469 Introduction to Genomics and Bioinformatics  
Or  
LSB497 Plant Molecular Biology

### Science Units: Ecology Major

### Level 1

LSB118 Life Science  
NRB100 Environmental Science  
NRB270 Animal and Plant Structure and Function  
PCB101 Physical Science  
Recommended Units:  
NRB230 Planet Earth  
NRB240 History of Life on Earth

### Level 2

NRB301 Earth Surface Systems  
NRB311 Population Ecology  
NRB410 Genetics and Evolution  
NRB412 Experimental Design

### Level 3

LSB537 Genetic Engineering  
LSB619 Genomics and Bioinformatics  
Either  
LSB509 Medical Biotechnology 1

### Level 3

## SCIENCE

NRB510	Population Genetics
NRB511	Population Management
NRB610	Ecological Applications
NRB611	Conservation Biology

### Science Units: Environmental Science Major

#### Level 1

LSB118	Life Science
NRB100	Environmental Science
NRB240	History of Life on Earth Either
PCB140	Introductory Chemistry Or
PCB142	Chemistry 1 Recommended Units:
NRB230	Planet Earth
NRB270	Animal and Plant Structure and Function

#### Level 2

NRB301	Earth Surface Systems
NRB311	Population Ecology
NRB412	Experimental Design
NRB440	Environmental Chemistry

#### Level 3

NRB500	Environmental Systems and Modelling
NRB572	Terrestrial Ecosystems
NRB600	Sustainable Environmental Management
NRB672	Marine and Freshwater Ecosystems

### Science Units: Forensic Science Major

#### Level 1

LSB118	Life Science
LSB238	Cell and Molecular Biology 1
NRB270	Animal and Plant Structure and Function
PCB101	Physical Science
PCB242	Chemistry 2 Either
PCB140	Introductory Chemistry Or
PCB142	Chemistry 1 Recommended:
LSB258	Principles of Human Physiology

#### Level 2

JSB979	Forensic Scientific Evidence
LSB468	Molecular Biology
PCB414	Industrial and Environmental Analytical Chemistry

SCB384	Forensic Science
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#### Level 3

LSB684	Forensic DNA Profiling
PCB514	Instrumental Analysis
PCB584	Forensic Examination of Physical Evidence
PCB684	Forensic Analysis and Toxicology

### Science Units: Geoscience Major

#### Level 1

NRB100	Environmental Science
NRB230	Planet Earth
NRB240	History of Life on Earth
PCB101	Physical Science Either
PCB140	Introductory Chemistry Or
PCB142	Chemistry 1

#### Level 2

NRB301	Earth Surface Systems
NRB333	Mineralogy
NRB434	Structural Geology
NRB436	Introduction to Igneous and Metamorphic Petrology

#### Level 3

NRB534	Geophysics
NRB536	Petrology and Geochemistry
NRB601	Field Mapping and Monitoring of Natural Resources One other Level 3 unit from:
NRB535	Geology of Fossil Fuels and Minerals
NRB633	Hydrogeology
NRB635	Plate Tectonics and Advanced Structural Geology
NRB636	Petroleum Geology and Basin Analysis
PSB655	Remote Sensing

### Science Units: Microbiology Major

#### Level 1

LSB118	Life Science
LSB238	Cell and Molecular Biology 1
NRB270	Animal and Plant Structure and Function
PCB101	Physical Science
PCB242	Chemistry 2 Either
PCB140	Introductory Chemistry Or
PCB142	Chemistry 1



## SCIENCE

Recommended Unit:  
LSB258 Principles of Human Physiology

### Level 2

LSB308 Biochemistry  
LSB328 Microbiology 1  
LSB428 Microbiology 2  
LSB468 Molecular Biology

### Level 3

Select at least four units from:

LSB528 Environmental Microbiology  
LSB547 Bacterial Pathogenesis and Disease Diagnosis  
LSB568 Electron Microscopy  
LSB578 Virology  
LSB628 Food Microbiology  
LSB647 Clinical Mycology and Parasitology  
LSB648 Molecular Microbiology

### Science Units: Physics Major

#### Level 1

PCB101 Physical Science  
Either  
LSB118 Life Science  
Or  
NRB100 Environmental Science  
PCB250 Physics 1  
PCB260 Physics 1A  
Recommended:  
PCB107 Physics and Quantitative Techniques  
Mathematics units equivalent to: #  
MAB131 Engineering Mathematics 1A  
MAB132 Engineering Mathematics 2A

#### Level 2

PCB361 AC Theory and Electronics  
PCB362 Physics 2  
PCB460 Instrumentation and Computational Methods  
PCB462 Thermodynamics and Solid State Physics  
Mathematics unit equivalent to: #  
MAB134 Electrical Engineering Mathematics 3  
# Note: Engineering Mathematics units have been listed under this major as these are the requirements for the Physics major in SC01 Bachelor of Applied Science. \*You should not enrol in these units.\* The equivalent Mathematics units are MAB100, MAB111, MAB112 and MAB311. Students who may have already completed some or all of the Engineering Mathematics units should consult the Mathematics Course Coordinator for SC20.

#### Level 3

PCB561 Quantum and Condensed Matter Physics  
PCB562 Physical Methods of Analysis  
PCB661 Experimental Physics  
PCB665 Physics 3

### Mathematics Units

#### Level 1

MAB100 Mathematical Sciences 1A  
MAB101 Statistical Data Analysis 1  
MAB111 Mathematical Sciences 1B  
MAB112 Mathematical Sciences 1C  
MAB210 Statistical Modelling 1  
MAB220 Computational Mathematics 1  
NOTE: MAB100 for students who do not have an exit assessment of at least Sound Achievement in four semesters of both Senior Mathematics B and Senior Mathematics C

#### Level 2

MAB311 Advanced Calculus  
MAB312 Linear Algebra  
At least one of:  
MAB315 Operations Research 2  
MAB413 Differential Equations  
MAB414 Applied Statistics 2  
MAB422 Mathematical Modelling  
Other Level 2 units:  
MAB313 Mathematics of Finance  
MAB314 Statistical Modelling 2  
MAB420 Computational Mathematics 2  
MAB480 Introduction to Scientific Computation  
MAB481 Visualisation and Data Analysis

#### Level 3

Select at least four units from:  
MAB521 Applied Mathematics 3  
MAB522 Computational Mathematics 3  
MAB524 Statistical Inference  
MAB525 Operations Research 3A  
MAB526 Statistical Science 3  
MAB580 Scientific Computation  
MAB613 Partial Differential Equations  
MAB623 Financial Mathematics  
MAB624 Applied Statistics 3  
MAB625 Operations Research 3B  
MAB640 Industry Project  
MAB672 Advanced Mathematical Modelling  
MAB681 Advanced Visualisation and Data Analysis  
Other Level 3 units:

MAB523 Introduction to Quality Management

MAB621 Discrete Mathematics

Students should check semester of offer, prerequisites and corequisites

NOTE: MAB420 Computational Mathematics 2 and MAB481 Visualisation and Data Analysis require ITB111 Software Development 1 to be taken as an elective and MAB380 Introduction to Supercomputing requires ITB111 Software Development 1 and ITB112 Software Development 2 to be taken as electives.

**Potential Careers:**

Actuary, Analytical Chemist, Astrophysicist, Biochemist, Bioinformatician, Biologist, Biotechnologist, Chemist, Chemist Industrial, Coastal Scientist, Conservation Biologist, Database Manager, Ecologist, Environmental Scientist, Forensic Scientist, Geologist, Geophysicist, Geoscientist, Health Physicist, Hydrogeologist, Immunologist, Industrial Chemist, Laboratory Technician (Chemistry), Marine Scientist, Mathematician, Medical Biotechnologist, Medical Physicist, Microbiologist, Molecular Biologist, Natural Resource Scientist, Physicist, Plant Biotechnologist, Population Ecologist, Programmer, Quantitative Analyst, Statistician, Virologist.

## Bachelor of Biomedical Science (SC40)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** 052768K

**Course duration (full-time):** 3 Years

**Course duration (part-time):** 6 Years

**Domestic fees (per credit point):** Commonwealth Supported Place; Full fee tuition 2007: \$210 per credit point (*subject to annual review*)

**Domestic fees (indicative):** 2007: Full fee tuition \$20,160; CSP \$6,835

**International Fees (per semester):** 2007:\$9,000 per semester (*subject to annual review*)

**Domestic Entry:** February

**International Entry:** February

**QTAC code:** 418401; Dfee: 418406

**Past rank cut-off:** 80; Dfee: 75

**Past OP cut-off:** 10; Dfee: 12

**OP Guarantee:** Yes

**Assumed knowledge:** English (4, SA), Maths B (4, SA) and Chemistry (4, SA)

**Preparatory studies:** MATHS: QUT unit Preparatory Mathematics as a visiting student or QUT Continuing Professional Education course Mathematics Bridging. CHEMISTRY: QUT unit Introductory Chemistry as a visiting student or QUT Continuing Professional Chemistry Bridging. ENGLISH: Successful completion of a year of full-time vocational or tertiary study. For further information contact 07 3864 2000 or email [study@qut.com](mailto:study@qut.com)

**Total credit points:** 288

**Standard credit points per full-time semester:** 48

**Standard credit points per part-time semester:** 24

**Course coordinator:** Dr Catherine Dallemagne

**Campus:** Gardens Point

### Career Opportunities

The Bachelor of Biomedical Science is a highly relevant and appropriate qualification for entry into postgraduate medicine. This course provides a solid foundation for the areas tested in GAMSAT, the entrance examination for postgraduate medicine. Many opportunities are also available for postgraduate study in science at QUT, including Honours and postgraduate courses in Life Sciences.

The Bachelor of Biomedical Science is also designed for students seeking a science-based qualification that will lead to career opportunities in medical biotechnology, medical microbiology, and clinical biochemistry fields.

### Recommended Study

Biological Science is recommended.

### Course Design

The Bachelor of Biomedical Science comprises first-year studies in chemistry, physics, anatomy, physiology and cell biology, providing a solid knowledge base for GAMSAT. Units in the second and third years combine advanced studies with theoretical, practical, and problem-solving skills. Several units in the area of humanities and applied health are an integral part of the course.

Students will be well prepared to sit GAMSAT which is designed to evaluate mastery and use of concepts in basic science as well as the acquisition of more general skills in problem solving, critical thinking and writing. The Bachelor of Biomedical Science provides a solid grounding in GAMSAT testing areas: reasoning in humanities and social sciences, written communication, reasoning in biological and physical sciences (including chemistry, biology and physics).

### Professional Recognition

Depending on the subjects selected in the final year of the course, graduates will be eligible for membership of one or more of the following organisations: Australian Association of Clinical Biochemists, AusBiotech Ltd, Australian Society for Microbiology.

### Contact Details

#### Course Coordinator

Dr Catherine Dallemagne

Phone: +61 7 3138 2561

Email: [c.dallemagne@qut.edu.au](mailto:c.dallemagne@qut.edu.au)

### Deferment

QUT allows current Year 12 school leavers to defer their undergraduate admission offer for one year, or for six months if offered mid-year admission, except in courses using specific admission requirements such as questionnaires, folios, auditions, prior study or work experience.

Non-year 12 students may also request to defer their QTAC offer on the basis of demonstrated special circumstances.

Find out more on deferment.

### Course structure - Full-time

#### Year 1, Semester 1

LSB118	Life Science
MAB141	Mathematics and Statistics for Medical Science
PCB142	Chemistry 1
PYB007	Interpersonal Processes and Skills

#### Year 1, Semester 2

LSB238	Cell and Molecular Biology 1
LSB255	Human Anatomy
PCB150	Physics 1H
PCB242	Chemistry 2

#### Year 2, Semester 1

LSB325	Biochemistry
LSB328	Microbiology 1
LSB338	Cell and Molecular Biology 2
LSB468	Molecular Biology

#### Year 2, Semester 2

HHB114	Introduction To Human Rights And Ethics
LSB425	Quantitative Medical Science
LSB449	Human Cell Biology
LSB458	Physiology 2

Protocols  
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CONTEMPORARY ETHICS  
Semester 1:

HHB270	Gene Technology And Ethics
HHB269	Ethics, Technology And The Environment

**Year 3, Semester 1**

LSB358	Physiology 1
LSB509	Medical Biotechnology 1
LSB525	Clinical Biochemistry 1
LSB547	Bacterial Pathogenesis and Disease Diagnosis

**Course structure - Part-time**

**Year 1, Semester 1**

LSB118	Life Science
MAB141	Mathematics and Statistics for Medical Science

**Year 1, Semester 2**

LSB238	Cell and Molecular Biology 1
LSB255	Human Anatomy

**Year 2, Semester 1**

PCB142	Chemistry 1
PYB007	Interpersonal Processes and Skills

**Year 2, Semester 2**

PCB150	Physics 1H
PCB242	Chemistry 2

**Year 3, Semester 1**

LSB325	Biochemistry
LSB338	Cell and Molecular Biology 2

**Year 3, Semester 2**

LSB425	Quantitative Medical Science
LSB449	Human Cell Biology

**Year 4, Semester 1**

LSB328	Microbiology 1
LSB358	Physiology 1

**Year 4, Semester 2**

LSB458	Physiology 2
HHB114	Introduction To Human Rights And Ethics

**Year 5, Semester 1**

LSB468	Molecular Biology
LSB509	Medical Biotechnology 1

**Year 5, Semester 2**

LSB609	Medical Biotechnology 2
LSB658	Clinical Physiology

**Year 6, Semester 1**

LSB525	Clinical Biochemistry 1
LSB547	Bacterial Pathogenesis and Disease Diagnosis

**Year 3, Semester 2**

LSB609	Medical Biotechnology 2
LSB625	Clinical Biochemistry 2
LSB647	Clinical Mycology and Parasitology
LSB658	Clinical Physiology

**Note for Year 3**

Third year students may substitute ONE unit from EACH of Year 3/Semesters 1 and 2 with an approved pair of electives from the following list, providing that a MATCHING SET of science units is deleted: (eg [a] LSB509 and LSB609 OR [b] LSB525 and LSB625 OR [c] LSB547 and LSB647). The elective options are subject to timtabling and campus offerings.

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**HEALTH COUNSELLING**

Semester 1:

PYB012	Psychology
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Semester 2:

PYB208	Counselling Theory and Practice 1
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**PUBLIC HEALTH**

Semester 1:

PUB104	Introduction to Health Services Management
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Semester 2:

PUB251	Contemporary Public Health
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**EXERCISE SCIENCE FOR PREVENTIVE MEDICINE**

Semester 1:

HMB271	Foundations of Motor Control, Learning and Development
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Semester 2:

HMB273	Exercise Physiology 1
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**INDIGENOUS PERSPECTIVES**

Semester 1:

HHB123	Indigenous Australian Culture Studies
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Semester 2:

HHB276	Indigenous Knowledge: Research Ethics and
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**Year 6, Semester 2**

LSB625 Clinical Biochemistry 2

LSB647 Clinical Mycology and Parasitology

**Note for Years 5 and 6:**

In Year 5 and 6, you may substitute one pair of units (LSB509 and LSB609, or LSB525 and LSB625, or LSB547 and LSB647) with any pair of units from the list which appears under the Note for Year 3 in the Full-time course structure. (Please consult the course coordinator if you wish to do this)

**Potential Careers:**

Laboratory assistant, Laboratory Technician, Medicine (after further study), Research Assistant.

## Bachelor of Pharmacy (SC45)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** 055902G

**Course duration (full-time):** 4 years

**Domestic fees (per credit point):** Commonwealth Supported Place; Full fee tuition 2007: \$210 per credit point (*subject to annual review*)

**Domestic fees (indicative):** 2007: Full fee tuition \$20,160; CSP \$6,837

**International Fees (per semester):** 2007: \$10,000 per semester (*subject to annual review*)

**Domestic Entry:** February

**International Entry:** February IELTS 7.0 no subtest less than 6.0

**QTAC code:** 418512

**Past rank cut-off:** 96

**Past OP cut-off:** 3

**Assumed knowledge:** English (4, SA), Maths B (4, SA) and Chemistry (4, SA)

**Preparatory studies:** MATHS: QUT unit Preparatory Mathematics as a visiting student or QUT Continuing Professional Education course Mathematics Bridging. CHEMISTRY: QUT unit Introductory Chemistry as a visiting student or QUT Continuing Professional Chemistry Bridging. ENGLISH: Successful completion of a year of full-time vocational or tertiary study. For further information contact 07 3864 2000 or email [study@qut.com](mailto:study@qut.com)

**Total credit points:** 384

**Standard credit points per full-time semester:** 48

**Course coordinator:** Associate Professor Fraser Ross

**Campus:** Gardens Point

### Career Opportunities

Pharmacists are employed in a range of settings including community pharmacies, hospitals, industry, regulatory and research roles. Australia is currently experiencing a shortage of trained pharmacists, particularly in hospital and community pharmacies. You can expect your skills to be in demand as the QUT Bachelor of Pharmacy focuses on these aspects of the pharmacy profession. You will also be well prepared to undertake postgraduate studies in pharmacy related areas.

As the first professional contacted for advice about health, community pharmacists frequently play a major role as health educators. Hospital pharmacists may work closely with doctors in a patient-care role, evaluate newly released medicines, coordinate clinical trials, or prepare medicines for patients requiring specialised treatments.

### Recommended Study

Biological Science is recommended.

### OP Guarantee

The OP Guarantee does not apply to this course.

### Course Design

The Bachelor of Pharmacy comprises four years of study in areas ranging from pharmacy practice, pharmaceuticals, pharmacology, drug metabolism, physiology and chemistry.

You will also undertake professional practice units in QUT's on-campus dispensary and counselling facilities before embarking on a series of professional placements in hospitals and community pharmacy environments.

### Professional Recognition

Following graduation, approximately 12 months of pre-registration training performed under the supervision of a registered pharmacist is required to meet the registration requirements of the Pharmacists Board of Queensland. Graduates will be eligible for membership of a number of professional associations, including the Pharmaceutical Society of Australia (PSA), the Pharmacy Guild and the Society of Hospital Pharmacists of Australia (SHPA).

### Why Choose this Course?

This course has been developed with significant input from pharmacists to incorporate latest practices and emerging trends. The inclusion of essential small business management skills will help you to operate effectively in your chosen setting.

### Contact Details

#### Course Coordinator

Associate Professor Fraser Ross

Phone: +61 7 3138 2502

Email: [fb.ross@qut.edu.au](mailto:fb.ross@qut.edu.au)

### Domestic student tuition fee (Dfee) places

**Undergraduate domestic full fee places (Dfee) are not available in this course.** Tuition fees are only applicable to currently enrolled students who were unable to comply regulations regarding their original Commonwealth Supported place (i.e. failure to lodge an eCAF, has consumed of other their Student Learning Entitlement etc.) and who have been invited and accepted to continue as a fee-paying student.

### Deferment

QUT allows current Year 12 school leavers to defer their undergraduate admission offer for one year, or for six months if offered mid-year admission, except in courses using specific admission requirements such as questionnaires, folios, auditions, prior study or work experience.

Non-year 12 students may also request to defer their QTAC offer on the basis of demonstrated special circumstances.

Find out more on deferment.

### Course structure

#### Year 1, Semester 1

LSB118	Life Science
MAB141	Mathematics and Statistics for Medical Science
PCB142	Chemistry 1
PYB007	Interpersonal Processes and Skills

**Year 1, Semester 2**

LSB238	Cell and Molecular Biology 1
LSB255	Human Anatomy
PCB242	Chemistry 2
SCB208	Introduction to Pharmacy Practice

**Year 2, Semester 1**

LSB325	Biochemistry
LSB358	Physiology 1
SCB308	Pharmacy Practice 1
SCB338	Pharmaceutical Chemistry and Pharmacology 1

**Year 2, Semester 2**

LSB458	Physiology 2
SCB408	Pharmacy Practice 2
SCB428	Pharmacokinetics
SCB438	Medicinal Chemistry and Pharmacology 2

**Year 3, Semester 1**

LSB328	Microbiology 1
SCB508	Pharmacy Practice 3
SCB528	Pharmaceutics 1
SCB538	Pharmacology 3

**Year 3, Semester 2**

SCB608	Pharmacy Practice 4
SCB628	Pharmaceutics 2
SCB638	Pharmacogenomics & Drug Metabolism
SCB648	Pharmacotherapeutics

NOTES: - Progression to Year 4 cannot occur before the successful completion of Years 1, 2 and 3.  
- Year 4 requires enrolment in all four (4) units each semester.

**Year 4, Semester 1**

SCB708	Pharmacy Practice 5
SCB748	Pharmacotherapeutics 2
SCB758	Pharmacy Management 1
SCB768	Professional Placements 1

**Year 4, Semester 2**

SCB808	Pharmacy Practice 6
SCB848	Pharmacotherapeutics 3
SCB858	Pharmacy Management 2
SCB868	Professional Placements 2

**Potential Careers:**

Community Pharmacist, Hospital Pharmacist, Pharmaceutical Research Scientist.

## Bachelor of Applied Science Innovation (For Continuing Students Only) (SC51)

**Year offered:** 2007

**Admissions:** No

**CRICOS code:** 042262G

**Course duration (full-time):** 3 years

**Course duration (part-time):** For the part-time course structure, please consult the Course Coordinator

**Domestic fees (per credit point):** Commonwealth Supported Place; Full fee tuition 2007: \$210 per credit point (*subject to annual review*)

**Domestic fees (indicative):** 2007: \$20160

**International Fees (per semester):** 2004: A\$8000; 2005: A\$8000 (*subject to annual review*)

**Domestic Entry:** February

**International Entry:** February

**QTAC code:** 418011

**Past rank cut-off:** 80

**Past OP cut-off:** 10

**OP Guarantee:** Yes

**Assumed knowledge:** English (4 SA), Maths B (4 SA); and for Bioinformatics & Chemistry Technology majors - Chemistry (4 SA)

**Preparatory studies:** MATHS: QUT unit Preparatory Mathematics as a visiting student or QUT Continuing Professional Education course Mathematics Bridging. CHEMISTRY: QUT unit Introductory Chemistry as a visiting student or QUT Continuing Professional Education course Chemistry Bridging. ENGLISH: Successful completion of a year of full-time vocational or tertiary study. For further information contact 07 3864 2000 or email [sbs.enquiries@qut.edu.au](mailto:sbs.enquiries@qut.edu.au)

**Total credit points:** 288

**Standard credit points per full-time semester:** 48

**Course coordinator:** Associate Professor Bruce Cornish

**Discipline coordinator:** To be advised (Chemical Technology); Prof Ian Turner (Scientific Computation & Visualisation)

**Campus:** Gardens Point

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***This course is available for continuing students only.***

This course is an obvious choice for anyone eager to embark on an exciting career in the emerging fields of bioinformatics, chemical technology or scientific computation and visualisation. Innovation in science is a priority for Queensland, being the Smart State. The Australian government has also given a clear indication that it will provide strong support for innovation in science and the information communication technologies.

### Overview

Innovation, the process of developing skills, generating new ideas through research, and turning them into a commercial success.

The Bachelor of Applied Science Innovation is a modern science degree that aims to equip graduates with knowledge and skills in some important and emerging scientific disciplines while at the same time allowing them to

build skills in information technology and commercialisation. Excellent opportunities and career prospects are therefore to be expected for graduates who have gained skills in these areas, and who have at the same time developed capabilities in commercialising new discoveries and ideas.

Students who enter the program choose a major in Chemical Technology or Scientific Computation and Visualisation. Studies in information technology and in business areas such as innovation and commercialisation complement the scientific major chosen.

The course consists of:

- a major (eight units)
- six science units that support the units constituting the major plus one mandatory unit (Statistical Data Analysis)
- six business and information technology units (Marketing, Introduction to Databases, Professional Studies, Software Development 1, Venture Skills, Innovation and Market Development)
- An elective stream (chosen from Applicable Computing, Commercialisation, or a Scientific Project plus supporting units).

### Major Areas of Study

#### Chemical Technology

Chemical Technology is concerned with a wide spectrum of industrial and commercial endeavours involving mining, minerals processing, coal, materials and polymers, paints, surface coatings and corrosion protection, agricultural products and processing, food and beverages, production of electricity and gas, defence research, water quality and waste water treatment. Such endeavours require chemical technologists who possess scientific and technological knowledge and skills, as well as some understanding of and skills in information technology innovation, commercialisation and marketing.

#### Career Opportunities

Chemical technologists are key professionals in industries that manufacture materials such as paints, paper, textiles, glass, plastics, rubber, metals, alloys, gases, fuels, foodstuffs and chemicals. Exciting careers are available in a variety of roles associated with research, innovation, and the development of discoveries of new chemical materials into viable ventures.

#### Professional Recognition

Graduates are eligible for membership of the Royal Australian Chemical Institute.

#### Scientific Computation and Visualisation Major

Scientific Computation and Visualisation is a rapidly growing and exciting discipline involving the use of parallel computer systems and computer modelling. Computers today can generate massive amounts of information, and scientists



working in this field use modern computing technology to visualise and explore very large data sets.

**Career Opportunities**

As a graduate with a Scientific Computation and Visualisation major you will have strong mathematical and information technology skills, providing you with a wide range of career options. Your special capabilities in scientific computer modelling and data visualisation will open up exciting careers in the scientific and engineering research fields.

**Professional Recognition**

Graduates are eligible for membership of the Australian Mathematical Society.

**Contact Details**

**Course Coordinator**

Associate Professor Bruce Cornish

Phone: +61 7 3138 2860

Email: b.cornish@qut.edu.au

**Discipline Coordinators**

**Chemical Technology**

To be advised

**Scientific Computation and Visualisation**

Prof Ian Turner

Phone: +61 7 3138 2259

Email: i.turner@qut.edu.au

**Course structure - Major in Chemical Technology**

**Year 1, Semester 1**

MAB101	Statistical Data Analysis 1
PCB142	Chemistry 1
PCB150	Physics 1H
	Core Business / IT unit

**Year 1, Semester 2**

MAB100	Mathematical Sciences 1A
PCB200	Chemical Technology 1
PCB242	Chemistry 2
	Core Business / IT unit

**Year 2, Semester 1**

PCB305	Principles of Physical Chemistry
PCB354	Structure and Mechanism in Organic Chemistry
	Core Business / IT unit
	Elective stream unit

**Year 2, Semester 2**

PCB414	Industrial and Environmental Analytical Chemistry
PCB434	Inorganic Chemistry
PCB444	Spectroscopy

Core Business / IT unit

**Year 3, Semester 1**

PCB514	Instrumental Analysis
PCB524	Unit Operations
	Core Business / IT unit
	Elective stream unit

**Year 3, Semester 2**

PCB624	Chemistry in Industry and Technology
PCB644	Frontiers in Chemistry
	Core Business / IT unit
	Elective stream unit

**Course structure - Major in Scientific Computation and Visualisation**

**Year 1, Semester 1**

ITB111	Software Development 1
MAB100	Mathematical Sciences 1A
MAB101	Statistical Data Analysis 1
	Core Business / IT unit

**Year 1, Semester 2**

ITB112	Software Development 2
MAB111	Mathematical Sciences 1B
MAB112	Mathematical Sciences 1C
MAB220	Computational Mathematics 1

**Year 2, Semester 1**

MAB481	Visualisation and Data Analysis
	Mathematics unit *
	Core Business / IT unit
	Core Business / IT unit

**Year 2, Semester 2**

MAB210	Statistical Modelling 1
MAB380	Introduction to Supercomputing
	Mathematics unit *
	Elective stream unit

**Year 3, Semester 1**

MAB580	Scientific Computation
	Mathematics unit *
	Core Business / IT unit
	Elective stream unit

**Year 3, Semester 2**

MAB681	Advanced Visualisation and Data Analysis
	Mathematics unit *
	Core Business / IT unit
	Elective stream unit

\* Mathematics Units - Choose from one of the following emphases

(others may be negotiated with the Course Coordinator)

**GENERAL/APPLIED EMPHASIS:**

- MAB311 Advanced Calculus
- MAB521 Applied Mathematics 3  
Either
- MAB523 Introduction to Quality Management  
Or
- MAB621 Discrete Mathematics  
OR

**FINANCIAL MATHEMATICS EMPHASIS:**

- MAB313 Mathematics of Finance
- MAB623 Financial Mathematics  
Either
- MAB523 Introduction to Quality Management  
Or
- MAB621 Discrete Mathematics

**COMPUTATIONAL MATHEMATICS EMPHASIS:**

- MAB312 Linear Algebra
- MAB420 Computational Mathematics 2
- MAB522 Computational Mathematics 3
- MAB621 Discrete Mathematics

**Core Business / IT Units and Elective Stream Units**

Business and Information Technology core units (72 credit points)

Six specific units introducing business, innovation, communication, and information technology:

- AMB251 Innovation and Market Development
- BSB126 Marketing
- ITB111 Software Development 1
- ITB115 Introduction to Databases
- ITB116 IT Professional Studies 1  
Either
- MGB218 Venture Skills  
Or
- MGB223 Creating New Enterprises

\* ITB650 Computational Intelligence is offered as a substitute unit for ITB111 Software Development 1 for BAppScInnov students in the Chemical Technology major who do not wish to undertake the applicable Computing stream.

Elective Streams (one to be chosen) (36 credit points)

(a) Applicable Computing: Three approved units chosen from the Bachelor of Information Technology course and/or the supercomputing program

(b) Commercialisation: LSB309 Introduction to Intellectual Property Law; AND two approved units from the Bachelor of Business course

(c) Scientific Project: Scientific project unit (eg PCB604 Project {12 cp}; MAB640 Industry Project {24 cp, prereq MAB523}) and supporting units chosen from:

An advanced level science unit relevant to the project

- BSB311 Research, Development and Commercialisation Strategies
- LSB309 Introduction to Intellectual Property Law
- MAB523 Introduction to Quality Management

**Potential Careers:**

Bioinformatician, Biotechnologist, Cell Biologist, Chemical Technologist, Chemist, Data Communications Specialist, Mathematician, Molecular Biologist.

## Bachelor of Applied Science (Honours) (SC60)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** 009041G

**Course duration (full-time):** 1 Year

**Course duration (part-time):** 2 Years

**Domestic fees (per credit point):** Commonwealth supported place; Full fee tuition 2007: \$210 per credit point (*subject to annual review*)

**Domestic fees (indicative):** 2007: Full fee tuition \$20,160; CSP \$7,114

**International Fees (per semester):** 2007: \$9,000 per semester (*subject to annual review*)

**Domestic Entry:** February and July

**International Entry:** February and July

**Total credit points:** 96

**Standard credit points per full-time semester:** 48

**Course coordinator:** Associate Professor Peter Fredericks

**Discipline coordinator:** Dr John Bartley (Chemistry); Dr Tony Clarke (Ecology); Dr Robin Thwaites (Environmental Science); Dr Gary Huftile (Geology); Associate Professor Terry Walsh (Life Science); Dr Troy Farrell (Mathematics); Dr Esa Jaatinen (Physics)

**Campus:** Gardens Point

### Career Outcomes

The Bachelor of Applied Science (Honours) program is designed for graduates who have excelled in their degree from a recognised tertiary institution, with major studies in a relevant discipline. The course not only enhances your professional employability in your chosen discipline but also prepares you for a research career. The Honours qualification opens a direct pathway to postgraduate studies, qualifying you for entry into Doctor of Philosophy and Master of Applied Science courses.

### Entry Requirements

To be eligible for admission, you should have completed QUT's Bachelor of Applied Science or equivalent and should have attained a grade point average (GPA) of at least 5 (on a 7-point scale), including grades of at least 5 in all units directly relevant to the proposed Honours program. Application for admission should normally be made at the end of the pass degree, or within 18 months of completing that degree.

If you do not satisfy the above conditions but who have demonstrated outstanding performance in only the final year of a degree, or your application is based on other factors including work experience or involvement in research, you may be admitted at the discretion of the Executive Dean of Faculty.

Please note that for the Mathematics major, other degrees with major studies in Mathematics (including Statistics) may provide suitable entry to the program.

### Course Structure

The Honours year comprises coursework and a major research project supervised by QUT staff, in some cases in

conjunction with local industry.

### Professional Recognition

Relevant scientific professional bodies include Australasian Association of Clinical Biochemists, Australasian Institute of Mining and Metallurgy, AusBiotech Ltd, Australian Institute of Geoscientists, Australian Institute of Physics, Australian Mathematical Society, Australian Society for Biochemistry and Molecular Biology, Australian Society for Medical Research, Australian Society for Microbiology, Australian Society for Operations Research, Ecological Society of Australia, Geological Society of Australia, Royal Australian Chemical Institute, and Statistical Society of Australia. Eligibility for membership is based on the combination of units undertaken in the degree and the Bachelor of Applied Science course that underpins it.

### Contact Details

#### Course Coordinator

Associate Professor Peter Fredericks

Phone: +61 7 3138 2341

Email: [p.fredericks@qut.edu.au](mailto:p.fredericks@qut.edu.au)

Science Research Centre:  
<http://www.sci.qut.edu.au/research/src.jsp>

### Discipline Coordinators

#### Chemistry

Dr John Bartley

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#### Ecology

Dr Tony Clarke

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#### Environmental Science

Dr Robin Thwaites

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#### Geology

Dr Gary Huftile

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#### Life Science

Associate Professor Terry Walsh

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#### Mathematics

Dr Troy Farrell

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#### Physics

Dr Esa Jaatinen

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**Course structure - Major in Chemistry**

**Year 1, Semester 1**

- PCB700-1 Research Project
- PCB700-2 Research Project
- PCB742 Elective Unit
- PCB780-1 Advanced Topics in Chemistry 1

**Year 1, Semester 2**

- PCB700-3 Research Project
- PCB700-4 Research Project
- PCB700-5 Research Project
- PCB780-2 Advanced Topics in Chemistry 1

NOTE: Students wishing to apply for entry to BAppSc(Hons) should consult with the contact person for the relevant science discipline before applying (see contact details link above).

**Course structure - Major in Ecology, Environmental Science, Geology**

**Year 1, Semester 1**

- NRB720-1 Project
- NRB730-1 Research Methods and Strategies
- NRB730-2 Research Methods and Strategies
- NRB735 Advanced Studies in Resource Sciences

**Year 1, Semester 2**

- NRB720-2 Project
- NRB720-3 Project
- NRB720-4 Project
- NRB720-5 Project

NOTE: Students wishing to apply for entry into BAppSc(Hons) should consult with the contact person for the relevant science discipline before applying (see contact details link above).

**Course structure - Major in Life Science**

**Year 1, Semester 1**

- LSB850-1 Research Strategies
- LSB851-1 Readings in Life Science 1
- LSB852-1 Project

**Year 1, Semester 2**

- LSB850-2 Research Strategies
- LSB851-2 Readings in Life Science 1
- LSB852-2 Project

NOTE: Students wishing to apply for entry into BAppSc(Hons) should consult with the contact person for the relevant science discipline before applying (see contact details link above).

**Course structure - Major in Mathematics**

**Year 1, Semester 1**

- MAN787-1 Project
- 36 credit points of elective units selected from the list below\*

**Year 1, Semester 2**

- MAN787-2 Project
- MAN787-3 Project
- 24 credit points of elective units selected from the list below\*

**Elective List (Mathematics) - 60 credit points to be selected**

- MAN717 Minor Project
- MAN761 Analysis
- MAN764 Applied Mathematical Modelling
- MAN765 Bayesian Data Analysis
- MAN766 Applied Time Series Analysis
- MAN768 Advanced Techniques in Operations Research
- MAN769 Mathematics of Finance
- MAN771 Computational Mathematics 4
- MAN774 Perturbation Methods
- MAN775 Statistical Modelling of Financial Processes
- MAN777 Mathematics of Fluid Flow
- MAN778 Applications of Discrete Mathematics

Up to 12 credit points from the following lists can be included in the 60 credit points of electives:

- MAB522 Computational Mathematics 3
- MAB524 Statistical Inference
- MAB526 Statistical Science 3
- MAB613 Partial Differential Equations
- MAB672 Advanced Mathematical Modelling

Up to two units of a quantitative nature from another Faculty or School may be included with the permission of the Mathematics Coordinator. The unit(s) must be of honours level and relevant to the proposed program. Examples of suitable units are:

- EFN505 Financial Risk Management
- PCB706 Quantum Mechanics

\* The Course Coordinator may approve a student taking 24 credit points of elective units (together with MAN787-1 and MAN787-2) in Semester 1 and 36 credit points of elective units (together with MAN787-3) in Semester 2.

NOTE: Students wishing to apply for entry to BAppSc(Hons) should consult with the contact person for the relevant science discipline before applying (see contact details link above).

**Course structure - Major in Physics**

**Year 1, Semester 1**

PCB700-1 Research Project

PCB700-2 Research Project

PCB706 Quantum Mechanics

Elective

NOTE: An alternative to PCB706 Quantum Mechanics may be permitted

**Year 1, Semester 2**

PCB700-3 Research Project

PCB700-4 Research Project

PCB700-5 Research Project

Elective

NOTE: Students wishing to apply for entry into BAppSc(Hons) should consult with the contact person for the relevant science discipline before applying (see contact details link above).

**Elective List (Physics)**

PCB664 Lasers and Photonics

PCB669 Astrophysics 2

PCB708 Advanced Topics in Physics

PCN716 Advanced Topics in Physics 2

NOTE: PCB708 and PCN716 typically comprise two components chosen from atmospheric aerosol physics, classical mechanics, non-linear optics, quantum electrodynamics, advanced general relativity or aspects of units from the Masters in Medical Physics course.

**Potential Careers:**

Actuary, Analytical Chemist, Astrophysicist, Biochemist, Biologist, Biotechnologist, Chemist, Chemist Industrial, Coastal Scientist, Conservation Biologist, Database Manager, Ecologist, Environmental Scientist, Forensic Scientist, Geologist, Geophysicist, Geoscientist, Health Physicist, Hydrogeologist, Immunologist, Industrial Chemist, Laboratory Technician (Chemistry), Marine Scientist, Mathematician, Medical Biotechnologist, Medical Physicist, Microbiologist, Molecular Biologist, Natural Resource Scientist, Physicist, Plant Biotechnologist, Population Ecologist, Programmer, Quantitative Analyst, Statistician, Virologist.

## Graduate Diploma in Applied Science (SC71)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** 020314E

**Course duration (full-time):** 2 semesters (1 year)

**Course duration (part-time):** 4 semesters (2 years)

**Domestic fees (per credit point):** Commonwealth Supported Place (*subject to annual review*)

**Domestic fees (indicative):** 2007: CSP \$7,114

**International Fees (per semester):** 2007: \$9,000 per semester (*subject to annual review*)

**Domestic Entry:** February and July

**International Entry:** February

**Total credit points:** 96

**Standard credit points per full-time semester:** 48

**Standard credit points per part-time semester:** 24

**Course coordinator:** Associate Professor Peter Fredericks

**Discipline coordinator:** Dr Geoffrey Will (Chemistry); Dr Mark O'Brien (Life Science); Dr Troy Farrell (Mathematics); Associate Professor Peter Mather (Natural Resource Sciences); Dr Andrew Fielding (Physics)

**Campus:** Gardens Point

### Entry requirements

Applicants must possess a bachelor degree in applied science or equivalent qualification, or other evidence of qualifications that satisfy the Faculty Academic Board that the applicant possesses the capacity to pursue the course of study.

### Course Design

This coursework program allows students to complete a minor project in some disciplines. The assessed coursework may include advanced lecture courses, seminars, reading courses or independent study designed to focus on information retrieval skills. Coursework units are chosen from those in the Master of Applied Science course, and may contain units from other postgraduate courses, the Bachelor of Applied Science (Honours) program or advanced undergraduate programs.

Candidates of the Graduate Diploma in Applied Science undertake a program of coursework, or coursework and a minor research project, as approved by the Academic Board on the advice of the Head of School.

Students must complete a total of 96 credit points which may consist of between 60 and 96 credit points of coursework, and up to 36 credit points as a minor research project.

Coursework units will be selected from the specific units available within the Master of Applied Science (SC80) course and may contain units selected from other postgraduate courses or advanced undergraduate courses where the background of the student requires this.

### Overview

This course offers students a one-year postgraduate qualification by coursework, or coursework and a minor

research project. The course will particularly suit if students are employed in the industry and wish to undertake postgraduate study to upgrade their professional qualification in one of the science disciplines.

### Contact Details

#### Coordinator

Associate Professor Peter Fredericks

Phone: +61 7 3138 2341

Email: p.fredericks@qut.edu.au

#### Discipline Coordinators

##### Chemistry

Dr Geoffrey Will

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Email: g.will@qut.edu.au

##### Life Science

Dr Mark O'Brien

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Email: m.obrien@qut.edu.au

##### Mathematics

Dr Troy Farrell

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Email: t.farrell@qut.edu.au

##### Natural Resource Sciences

Associate Professor Peter Mather

Phone: +61 7 3138 1737

Email: p.mather@qut.edu.au

##### Physics

Dr Andrew Fielding

Phone: +61 7 3138 5325

Email: a.fielding@qut.edu.au

### Course structure - Chemistry Strand

PCN701	Topics in Advanced Chemistry 1
PCN705-1	Research Methodology
PCN705-2	Research Methodology
PCN710	Chemical Instrumentation
PCN720	Chemometrics
PCN730	Advanced Physical Methods in Chemistry
PCN740	Laboratory Techniques for Preparative Chemistry
PCN801	Topics in Advanced Chemistry 2

### Course structure - Ecology, Environmental Science & Geoscience Strands

NRN100	Readings in Natural Resource Sciences 1
NRN101	Readings in Natural Resource Sciences 2
NRN104	Advanced Topics in Natural Resource Sciences 1
NRN105	Advanced Topics in Natural Resource Sciences 2

And units approved by the Strand Coordinator

**Course structure - Life Science Strand**

- LSN011 Research Seminars in Life Science 1
- LSN013 Readings in Life Science 3
- LSN023 Research Seminars in Life Science 3

**Course structure - Mathematics Strand**

Units selected from other programs, such as MA75 Graduate Diploma in Mathematical Science and MA85 Master of Mathematical Science, offered by the School of Mathematical Sciences and approved by the Mathematics coordinator.

**Course structure - Physics Strand**

- PCN715 Advanced Topics in Physics 1
  - PCN716 Advanced Topics in Physics 2
- And/or alternative unit(s) approved by the Physics Coordinator

**Potential Careers:**

Actuary, Analytical Chemist, Astrophysicist, Biochemist, Biologist, Biotechnologist, Chemist, Chemist Industrial, Coastal Scientist, Conservation Biologist, Database Manager, Ecologist, Environmental Scientist, Forensic Scientist, Geologist, Geophysicist, Geoscientist, Health Physicist, Hydrogeologist, Immunologist, Industrial Chemist, Laboratory Technician (Chemistry), Marine Scientist, Mathematician, Medical Biotechnologist, Medical Physicist, Microbiologist, Molecular Biologist, Natural Resource Scientist, Physicist, Plant Biotechnologist, Population Ecologist, Programmer, Quantitative Analyst, Statistician, Virologist.

## Master of Applied Science (Research) (SC80)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** 014020C

**Course duration (full-time):** 4 semesters (2 years)

**Course duration (part-time):** 8 semesters (4 years)

**Domestic fees (per credit point):** RTS/RTA; Full fee tuition 2007 \$130 per credit point (exceeded max entitlements) (*subject to annual review*)

**Domestic fees (indicative):** 2007: \$12,480

**International Fees (per semester):** 2007:\$9,500 per semester (*subject to annual review*)

**Domestic Entry:** At any time

**International Entry:** At any time

**Total credit points:** 192

**Standard credit points per full-time semester:** 48

**Standard credit points per part-time semester:** 24

**Course coordinator:** Associate Professor Peter Fredericks

**Discipline coordinator:** Dr Geoffrey Will (Chemistry); Associate Professor Terry Walsh (Life Sciences); Professor Vo Anh (Mathematics); Associate Professor Peter Mather (Natural Resource Sciences); Dr Andrew Fielding (Physics)

**Campus:** Gardens Point

### Entry Requirement

Applicants must possess a bachelor of applied science or equivalent qualification or other evidence of qualifications that satisfy the Faculty Academic Board that the applicant possesses the capacity to pursue the course of study.

### Course Design

This degree consists of coursework that can comprise up to one-third of the course and research, which must be at least two-thirds of the course. The assessed coursework may be in the form of advanced lectures, seminars, reading courses, or independent study designed to focus on information retrieval skills. The research component is a program of supervised research and investigation at a level of scientific competence significantly higher than that expected from an undergraduate degree and, typically, a masters thesis does not need to be as substantial as a Doctor of Philosophy thesis.

Students undertake a program of research and investigation on a topic approved by the Academic Board. All projects should be sponsored either by outside agencies such as industry, government authorities, or professional organisations, or by the University itself.

Students entering the course with an honours degree or its equivalent to candidates with substantial relevant work experience normally gain exemptions to a maximum of 96 credit points at the discretion of the Academic Board on the recommendation of the Head of School.

Students entering the course with a graduate diploma may gain exemption to a maximum of 96 credit points at the discretion of the Academic Board on the recommendation of the Head of School.

A full-time candidate who does not hold an honours degree appropriate to the course of study will normally be required to complete both course and research work, including submission of the thesis for examination during a period of registration of 24 months. The corresponding period in the case of a part-time candidate shall be 48 months. In special cases the Academic Board may approve a shorter period.

A holder of an honours degree or its equivalent appropriate to the course of study may submit the thesis for examination after not less than 12 months of registration if a full-time student, or 24 months if a part-time student. In special cases the Academic Board may approve a shorter period.

### Overview

The objectives of this course are to:

- provide postgraduate educational opportunities in specialised fields of applied science by means of a program that involves either an original contribution to knowledge or an original application of existing knowledge
- provide education in research methods
- enable graduates employed in industry to undertake further education by a combination of coursework, research and thesis
- expand the involvement of students employed in industrial organisations and external agencies in undertaking relatively short-duration applied research or investigation.

Students can undertake an approved project in any area of interest supported by a research area or school within the Faculty of Science. Please note that these areas of research specialisation are only a guide. Staff are happy to discuss study choices directly with students.

### Contact Details

#### Course Coordinator

Associate Professor Peter Fredericks

Phone: +61 7 3138 2341

Email: p.fredericks@qut.edu.au

#### Discipline Coordinators

##### Chemistry

Dr Geoffrey Will

Phone: +61 7 3138 2297

Email: g.will@qut.edu.au

##### Life Sciences

Associate Professor Terry Walsh

Phone: +61 7 3138 2347

Email: t.walsh@qut.edu.au

##### Mathematics

Professor Vo Anh



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*Natural Resource Sciences*  
 Associate Professor Peter Mather  
 Phone: +61 7 3138 1737  
 Email: p.mather@qut.edu.au

*Physics*  
 Dr Andrew Fielding  
 Phone: +61 7 3138 5325  
 Email: a.fielding@qut.edu.au

**Course structure - Chemistry Strand**

- PCN701 Topics in Advanced Chemistry 1
- PCN705-1 Research Methodology
- PCN705-2 Research Methodology
- PCN801 Topics in Advanced Chemistry 2  
 Select one of the following Elective Units:
- PCN710 Chemical Instrumentation
- PCN720 Chemometrics
- PCN730 Advanced Physical Methods in Chemistry
- PCN740 Laboratory Techniques for Preparative Chemistry

**Course structure - Ecology, Environmental Science & Geoscience Strands**

Essential units:

- NRN100 Readings in Natural Resource Sciences 1
- NRN102 Confirmation of Candidature Seminar
- NRN103 Final Seminar  
 Select up to one of the following units if required:
- NRN101 Readings in Natural Resource Sciences 2
- NRN104 Advanced Topics in Natural Resource Sciences 1
- NRN105 Advanced Topics in Natural Resource Sciences 2

**Course structure - Life Science Strand**

- LSN011 Research Seminars in Life Science 1
- LSN013 Readings in Life Science 3
- LSN023 Research Seminars in Life Science 3

**Course structure - Mathematics Strand**

Selections from other School programs, such as MA75 Graduate Diploma in Mathematical Science and MA85 Master of Mathematical Science, to a maximum of 60 credit points

**Course structure - Physics Strand**

- PCN715 Advanced Topics in Physics 1
- PCN716 Advanced Topics in Physics 2  
 and/or alternative unit(s) approved by the Physics coordinator

**Research Work**

The Research Work component of the degree must constitute at least 128 credit points. The units below have been devised to represent the EFTSU (Effective Full-time Student Unit) and attendance type of graduate research students.

**Full-Time Students**

The minimum number of credit points per semester for full-time status is 36. The standard number is 48. At the end of each semester a grade of T - Assessment Continues will be awarded in any IFNXXX units provided satisfactory progress is being maintained. A final grade (S - Satisfactory or U - Unsatisfactory) will be awarded once the thesis has been examined according to the degree rules.

**Full-Time Course Structure**

- Full-time students undertaking research but no coursework units enrol in
- IFN100 Full-Time Masters Research  
 null  
 Full-time students who are required to undertake coursework units in addition to their research as part of their masters enrolment should enrol in a combination of the following units. These should total (in combination with the coursework unit/s) as close as possible to 48 credit points per semester.
- IFN300 Masters Research
- IFN301 Masters Research
- IFN302 Masters Research
- IFN303 Masters Research
- IFN304 Masters Research

**Part-Time Students**

The maximum number of credit points per semester for part-time status is 36. The standard number is 24. At the end of each semester a grade of T - Assessment Continues will be awarded in any IFNXXX units provided satisfactory progress is being maintained. A final grade (S - Satisfactory or U - Unsatisfactory) will be awarded once the thesis has been examined according to degree rules.

**Part-time Course Structure**

- Part-time students undertaking research but no coursework units enrol in:
- IFN200 Part-Time Masters Research  
 null  
 Part-time students who are required to undertake coursework units in addition to their research as part of their masters enrolment

should enrol in a combination of the following units. These should total (in combination with the coursework unit/s) as close as possible to 24 credit points:

IFN302	Masters Research
IFN303	Masters Research
IFN304	Masters Research

**Potential Careers:**

Actuary, Analytical Chemist, Astrophysicist, Biochemist, Biologist, Biotechnologist, Chemist, Chemist Industrial, Coastal Scientist, Conservation Biologist, Database Manager, Ecologist, Environmental Scientist, Forensic Scientist, Geologist, Geophysicist, Geoscientist, Health Physicist, Hydrogeologist, Immunologist, Industrial Chemist, Laboratory Technician (Chemistry), Marine Scientist, Mathematician, Medical Biotechnologist, Medical Physicist, Microbiologist, Molecular Biologist, Natural Resource Scientist, Physicist, Plant Biotechnologist, Population Ecologist, Programmer, Quantitative Analyst, Statistician, Virologist.

**University Study Abroad Certificate  
(UO80)**

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** 050556E

**International Fees (per semester):** 2007: \$8,000 per semester (*subject to annual review*)

**International Entry:** February and July

**Campus:** Gardens Point, Kelvin Grove and Carseldine

## University Study Abroad Diploma (UO90)

**Year offered:** 2007

**Admissions:** Yes

**CRICOS code:** 012704B

**International Fees (per semester):** 2007: \$8,000 per semester (*subject to annual review*)

**International Entry:** February and July

**Campus:** Gardens Point, Kelvin Grove and Carseldine