Bachelor of Biotechnology Innovation (LS50)

Year offered: 2010
Admissions: No
CRICOS code: 037681J
Course duration (full-time): 4 years
Course duration (part-time): 8 years
Domestic fees (indicative): 2010: CSP $2,890 (indicative) per semester
International Fees (indicative): 2010: $11,500 (indicative) per semester
Domestic Entry: February
International Entry: February and July
QTAC code: 418311
Past rank cut-off: 77
Past OP cut-off: 12
OP Guarantee: Yes
Assumed knowledge: English (4, SA), Maths B (4, SA) and Chemistry (4, SA)
Preparatory studies: For information on acquiring assumed knowledge visit http://www.studentservices.qut.edu.au/apply/ug/info/knowledge.jsp
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.

Recommended Study

Queensland University of Technology
Brisbane Australia

CRICOS No. 00213J ABN 83 791 724 622

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.

Your Course

Year 1

In the first year you will lay a solid foundation of basic science and business skills and you will have your first opportunity to network with industry and academic mentors. Through the student BioEnterprise Scheme, you will join with a group of fellow students to form a virtual biotechnology company, which you will operate over the entire length of the course. Your company will 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.

Year 2

You will build on your foundation year and introduce advanced disciplinary concepts relevant to business and science, integrating these two disciplines to provide you with the skills to operate in this niche environment. You may promote your company to industry representatives at the annual Stellar Start-ups function.
Year 3
In the science units, you will focus on biotechnological applications while the integrative business units teach you skills in business planning and commercialisation.

Year 4
Your company may undertake an industry-based or consultancy project with an industry partner. The network of business associates you have developed over the length of the course will be the key to success as you embark on your search for your first job. Alternatively, you may wish to be your own boss as you establish your own company.

Professional Recognition
On graduation, you will be immediately eligible for graduate membership of AusBiotech Ltd and the Australian Society for Biochemistry and Molecular Biology (ASBMB).

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.

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.

Full-time Course Structure - For students who commenced in 2009 - First Semester Entry

Year 1 - Semester 1
- BSB115 Management
- MAB101 Statistical Data Analysis 1
- SCB111 Chemistry 1
- SCB112 Cellular Basis of Life

Year 1, Semester 2
- BSB126 Marketing
- LSB250 Human Physiology
- SCB121 Chemistry 2
- SCB122 Cell and Molecular Biology

Year 2, Semester 1
- AMB240 Marketing Planning and Management
- LQB383 Molecular and Cellular Regulation
- LQB386 Microbial Structure and Function
- LSB325 Biochemistry

Year 2, Semester 2
- LQB483 Molecular Biology Techniques
- LQB484 Introduction to Genomics and Bioinformatics
- LQB489 Plant Physiology and Cell Biology
- MGB223 Entrepreneurship and Innovation

Year 3, Semester 1
- LQB582 Biomedical Research Technologies
- LQB583 Genetic Research Technology
- LWS007 Introduction To Intellectual Property Law
- MGB324 Managing Business Growth

Year 3, Semester 2
### Year 4, Semester 1
- AMB240  Marketing Planning and Management
- LQB386  Microbial Structure and Function

### Year 4, Semester 2
- LQB489  Plant Physiology and Cell Biology
- MGB223  Entrepreneurship and Innovation

### Year 5, Semester 1
- LQB582  Biomedical Research Technologies
- MGB324  Managing Business Growth

### Year 5, Semester 2
- BSB311  Innovation Commercialisation Strategies
- LQB682  Protein Biochemistry and Bioengineering

### Year 6, Semester 1
- LQB583  Genetic Research Technology
- LWS007  Introduction To Intellectual Property Law

### Year 6, Semester 2
- LQB686  Microbial Technology and Immunology
- MGB200  Leading Organisations

### Year 7, Semester 1
- LQB584  Medical Cell Biology
- LQB585  Plant Genetic Manipulation

### Year 7, Semester 2
- Select TWO units from the following:
  - LQB684  Medical Biotechnology
  - LQB685  Plant Microbe Interactions
  - MGB309  Strategic Management

### Year 8, Semester 1
- LSB709-1  Biotechnology Research Project
- MGB225  Intercultural Communication and Negotiation Skills

### Year 8, Semester 2
- LSB709-2  Biotechnology Research Project
- LSB709-3  Biotechnology Research Project

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## Full-time Course Structure - For students who commenced in 2009 - Mid Year Entry

### Year 1, Semester 2
- BSB126  Marketing
- SCB121  Chemistry 2

### Year 3, Semester 1
- LQB383  Molecular and Cellular Regulation
- LSB325  Biochemistry

### Year 3, Semester 2
- LQB483  Molecular Biology Techniques
- LQB484  Introduction to Genomics and Bioinformatics

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## Part-time Course Structure - For students who commenced in 2009 - First Semester Entry

### Year 1, Semester 1
- MAB101  Statistical Data Analysis 1
- SCB112  Cellular Basis of Life

### Year 1, Semester 2
- LSB250  Human Physiology
- SCB122  Cell and Molecular Biology

### Year 2, Semester 1
- BSB115  Management
- SCB111  Chemistry 1

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Published on: 16 May 2011
SCB111  Chemistry 1
SCB112  Cellular Basis of Life
SCB121  Chemistry 2
SCB122  Cell and Molecular Biology

Year 2, Semester 1
BSB115  Management
LQB383  Molecular and Cellular Regulation
LSB325  Biochemistry
MAB101  Statistical Data Analysis 1

Year 2, Semester 2
LSB250  Human Physiology
LQB483  Molecular Biology Techniques
LQB484  Introduction to Genomics and Bioinformatics
LQB489  Plant Physiology and Cell Biology

Year 3, Semester 1
BSB126  Marketing
LQB386  Microbial Structure and Function
LQB584  Medical Cell Biology
LQB585  Plant Genetic Manipulation

Year 3, Semester 2
AMB240  Marketing Planning and Management
LQB682  Protein Biochemistry and Bioengineering
MGB200  Leading Organisations
MGB223  Entrepreneurship and Innovation

Year 4, Semester 1
LQB582  Biomedical Research Technologies
LQB583  Genetic Research Technology
LWS007  Introduction To Intellectual Property Law
MGB324  Managing Business Growth

Year 4, Semester 2
BSB311  Innovation Commercialisation Strategies
LQB686  Microbial Technology and Immunology
LQB684  Medical Biotechnology
LQB685  Plant Microbe Interactions
MGB309  Strategic Management

Year 5, Semester 1
LSB709-1  Biotechnology Research Project
LSB709-2  Biotechnology Research Project
LSB709-3  Biotechnology Research Project
MGB225  Intercultural Communication and Negotiation Skills

Full-time Course Structure for students who commenced in 2008

Year 1, Semester 1
BSB110  Accounting
MAB101  Statistical Data Analysis 1
SCB111  Chemistry 1
SCB112  Cellular Basis of Life

Year 1, Semester 2
BSB115  Management
LSB258  Principles of Human Physiology
SCB121  Chemistry 2
SCB122  Cell and Molecular Biology

Year 2, Semester 1
BSB126  Marketing
LQB383  Molecular and Cellular Regulation
LQB386  Microbial Structure and Function
LSB325  Biochemistry

Year 2, Semester 2
LQB483  Molecular Biology Techniques
LQB484  Introduction to Genomics and Bioinformatics
LQB489  Plant Physiology and Cell Biology

Year 3, Semester 1
LQB582  Biomedical Research Technologies
LQB583  Genetic Research Technology
LWS007  Introduction To Intellectual Property Law
MGB324  Managing Business Growth

Year 3, Semester 2
LQB582  Biomedical Research Technologies
LQB583  Genetic Research Technology
LWS007  Introduction To Intellectual Property Law
MGB324  Managing Business Growth

Year 4, Semester 1
LSB709-1  Biotechnology Research Project
LSB709-2  Biotechnology Research Project
LSB709-3  Biotechnology Research Project
MGB225  Intercultural Communication and Negotiation Skills

Year 4, Semester 2
BSB311  Innovation Commercialisation Strategies
LQB682  Protein Biochemistry and Bioengineering
LQB686  Microbial Technology and Immunology
MGB200  Leading Organisations

Year 5, Semester 1
LSB709-1  Biotechnology Research Project
LSB709-2  Biotechnology Research Project
LSB709-3  Biotechnology Research Project
MGB225  Intercultural Communication and Negotiation Skills
LQB585  Plant Genetic Manipulation
LSB709-1  Biotechnology Research Project
MGB225  Intercultural Communication and Negotiation Skills

Year 4, Semester 2
LSB709-2  Biotechnology Research Project
LSB709-3  Biotechnology Research Project
   Plus any TWO of the following units:
LQB684  Medical Biotechnology
LQB685  Plant Microbe Interactions
MGB309  Strategic Management

Potential Careers:
Biotechnologist, Biotechnology Business/Investment Analyst, Business Development Officer, Cell Biologist, Commercialisation Officer, Medical Biotechnologist, Molecular Biologist, Plant Biotechnologist, Technology Transfer Officer.

UNIT SYNOPSES

AMB240 MARKETING PLANNING AND MANAGEMENT
This unit extends the student’s knowledge of the fundamental marketing concepts and theories introduced in the Faculty Core unit in Marketing, by adding further breadth and depth of knowledge of marketing and developing skills in the application of this knowledge to marketing planning and management within the business environment. Emphasis is on the role of the marketing manager at the product management level in undertaking analysis, planning, implementation and control of marketing activities.
Prerequisites: BSB126 or CTB126  Equivalents: CTB240  Credit points: 12  Contact hours: 3 per week  Campus: Gardens Point and Caboolture  Teaching period: 2010 SEM-1 and 2010 SEM-2

BSB115 MANAGEMENT
The unit provides an introduction to the theories and practice of management and organisations. Emphasis is on the conceptual and people skills that are needed in all areas of management and in all areas of organisational life. The unit acknowledges that organisations exist in an increasingly international environment where the emphasis will be on knowledge, the ability to learn, to change and to innovate. Organisations are viewed from individual, group, corporate and external environmental perspectives.
Antirequisites: BSD115  Equivalents: CTB115  Credit points: 12  Contact hours: 3 per week  Campus: Gardens Point and Caboolture  Teaching period: 2010 SEM-1, 2010 SEM-2 and 2010 SUM

BSB126 MARKETING
This introductory subject examines the role and importance of marketing to the contemporary organisation. Emphasis is placed on understanding the basic principles and practices of marketing such as the marketing concept, market segmentation, management information systems and consumer behaviour. The unit explores the various elements of the marketing mix, with special reference to product, price, distribution, and promotion, including advertising and public relations. By way of introduction only, key issues relating to services marketing, e-marketing and strategic marketing are also canvassed.
Antirequisites: BSB116  Equivalents: CTB126  Credit points: 12  Contact hours: 4 per week  Campus: Gardens Point and Caboolture  Teaching period: 2010 SEM-1, 2010 SEM-2 and 2010 SUM

BSB311 INNOVATION COMMERCIALISATION STRATEGIES
Students study strategies and approaches used in industry and government organisations for the research, development and commercialisation of biotechnology innovations. The unit offers the opportunity to read widely as well as in depth about the commercialisation of molecular biology and biotechnology research. Theoretical concepts are integrated with prepared case studies prior to guest speaker seminars.
Prerequisites: BSB310 or MGB223  Credit points: 12  Contact hours: 3 per week  Campus: Gardens Point  Teaching period: 2010 SEM-2

LQB383 MOLECULAR AND CELLULAR REGULATION
Molecular and Cellular Regulation is a second year unit and is a continuation and expansion of topics introduced in SCB112 Cellular Basis of Life and SCB122 Cell & Molecular Biology. Molecular and Cellular Regulation strengthens the focus on the molecular and genetic aspects of cellular processes and the consequences to the organism of failure.
of these basic processes. Topics taught relate to gene structure and regulation in prokaryotes and eukaryotes and the role of gene expression in the development of complex organisms. Related concepts such as cell signalling, communication, proliferation and survival are further developed in this unit.

**Prerequisites:** SCB122 or LSB238  
**Antirequisites:** LSB468 and LSB338  
**Credit points:** 12  
**Contact hours:** 4 per week  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-1

**LQB386 MICROBIAL STRUCTURE AND FUNCTION**

Aspects of microbiology impinge upon many facets of daily life, for example, human health, genetic engineering, the food industry and the built and natural environment. The unit introduces you to and provides you with a solid foundation in the basic microbiology required for progression to advanced studies in Microbiology. This unit provides knowledge about safe handling and study of microorganisms that is also very important in many other disciplines, because micro-organisms are used as models and tools in a wide range of study areas.

**Prerequisites:** SCB112 and (SCB121 or SCB113)  
**Antirequisites:** LSB328  
**Credit points:** 12  
**Contact hours:** 4 per week  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-1

**LQB483 MOLECULAR BIOLOGY TECHNIQUES**

Molecular biology and recombinant DNA technologies have important roles in many areas within the life sciences, including medicine, agriculture, cell biology, environmental science and forensics. Through close alignment of theoretical concepts and practical skills, this lab-based unit expands on molecular themes introduced in earlier cell and molecular biology units to develop expertise in modern recombinant DNA techniques and an understanding of strategies used to identify and manipulate genes. The close relationship between theory and practice in this unit is designed to develop competence, independence and critical thinking that will provide students with a solid foundation for advanced molecular biology studies presented in several third level units.

**Prerequisites:** LSB238 or SCB122  
**Antirequisites:** LSB468, LSN468, LSN483  
**Assumed knowledge:** LSB383 is recommended prior study  
**Credit points:** 12  
**Contact hours:** 4 per week  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-2

**LQB484 INTRODUCTION TO GENOMICS AND BIOINFORMATICS**

The completion of the Human Genome project, along with similar projects on other organisms of a prokaryote and eukaryote nature, marked the beginning of a major revolution in fundamental biology that changed our understanding of the natural world. To understand how information on genome structure-function relationships (ie bioinformatics) is being used in areas such as gene discovery, disease diagnosis and drug development, students need to understand how the information content of DNA and proteins is extracted and analysed. This unit introduces students to the approaches to database mining and genome exploration.

**Prerequisites:** LQB383 or LSB338 or LSN101 and LSN102  
**Antirequisites:** LSB537, LSB619, LSB469  
**Credit points:** 12  
**Contact hours:** 4 per week  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-2

**LQB489 PLANT PHYSIOLOGY AND CELL BIOLOGY**

Plants are a vital resource providing food, medicines, fibre and fuel. The utilisation and manipulation of plants requires an understanding of growth and development on a molecular, cellular and whole plant basis. This is an intermediate-level unit covering the principles of plant cell biology and physiology to provide a platform for more advanced studies in plant biology and biotechnology. It integrates the fundamentals of plant physiology, biochemistry and molecular biology in such a way to enable students to understand how plants grow, develop and interact with their environment, and will also be valuable for lifelong appreciation of the potential of agriculture and its contribution to humanity. The aim of this unit is to provide you with an understanding of plant function from the cell to the whole plant, skills in measuring and monitoring these processes and an appreciation of how they are influenced by the environment.

**Prerequisites:** SCB120 or SCB122 or NRB270 or LSB238  
**Antirequisites:** LSB397, LSB497  
**Credit points:** 12  
**Contact hours:** 4 per week  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-2

**LQB582 BIOMEDICAL RESEARCH TECHNOLOGIES**

This unit will study the technical principles and practical techniques that are essential for advancing research and development in biochemistry and biotechnology.

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

**LQB583 GENETIC RESEARCH TECHNOLOGY**

The tools available for the discovery and manipulation of new genes are increasing exponentially and, in turn, this is having a significant impact in many areas of the life sciences. The true potential for this ultimately relies on the ability to link genes and their function. There are many strategies, both targeted and global, which facilitate an understanding of gene and genome structure function relationships. These strategies rely on integrated technologies based on molecular genetics, molecular biology and genetic engineering. The identification of function leads then to unlimited potential for detection and manipulation of these genes in human, animal and plant
systems.
Prerequisites: LQB483 Credit points: 12 Contact hours: 4 per week Campus: Gardens Point Teaching period: 2010 SEM-1

LQB584 MEDICAL CELL BIOLOGY
This unit builds and extends the understanding of basic theoretical and practical aspects of molecular cell biology developed in previous cell and molecular biology units. Medical Cell Biology develops and extends the context of the cellular environment and its central role within the organism providing all of the biological functions required by the organism to survive, defend and protect itself from disease and trauma. An understanding of cell biology theory and molecular mechanisms of animal development and disease is essential for introduction to higher level units in medical biotechnology.
Prerequisites: LQB383 or LSB338 Antirequisites: LSB449, LSB503, LSN584 Credit points: 12 Contact hours: 4 per week Campus: Gardens Point Teaching period: 2010 SEM-1

LQB585 PLANT GENETIC MANIPULATION
The potential of plant biotechnology can only be recognised as a result of the significant advances being made in technologies enabling the genetic manipulation of plants. Familiarity with the strategies, techniques and breadth of applications is essential as a basis for anyone planning a career in plant biotechnology. The unit is designed with a significant emphasis on achieving technical expertise in plant genetic manipulation and control of gene expression.
Credit points: 12 Contact hours: 4 per week Campus: Gardens Point Teaching period: 2010 SEM-1

LQB682 PROTEIN BIOCHEMISTRY AND BIOENGINEERING
This unit is designed to give you the essential concepts and techniques driving research and industrial biotechnology so that you will be equipped for multiple careers in the biological sciences. The skills you develop will allow you to enter a practical laboratory environment or to apply your knowledge in related areas of evaluations of technologies and intellectual property.
Prerequisites: LQB381 or LSB308 or LSN101 and LSN102 Antirequisites: LSB605, LSB608 Credit points: 12 Contact hours: 5 per week Campus: Gardens Point Teaching period: 2010 SEM-2

LQB684 MEDICAL BIOTECHNOLOGY
In this unit students gain a thorough understanding of diagnostics and therapeutics in the commercial environment of medical biotechnology. LQB6849 aims to increase the student’s understanding of cell-based strategies, approaches and applications used as therapeutic interventions in medicine. The unit focuses on current, state-of-the-art and emerging technologies and applications within biotechnology as directed to novel therapeutic discovery, design, development and delivery of clinical therapeutics including tissue transplantation and regeneration, cellular therapies, genetic therapies, immunotherapies, clinical, ethical and regulatory affairs.
Prerequisites: LQB584 or LSB503 or LSB449 Antirequisites: LSN684 Assumed knowledge: A background understanding of Cell and Molecular Biology as provided in LQB383, LQB483 and LQB584 is assumed knowledge Equivalents: LSB609 Credit points: 12 Contact hours: 5 per week Campus: Gardens Point Teaching period: 2010 SEM-2

LQB685 PLANT MICROBE INTERACTIONS
Microorganisms, including viruses, bacteria and fungi, cause many devastating diseases in plants and are responsible for significant losses to crops in Australia and Internationally. Diagnosis and control of these organisms, which vary considerably in their biology and infection strategies, is an ongoing challenge. However, plant genetic engineering approaches are now offering new and novel solutions to these problems. These approaches are of widespread scientific, commercial and humanitarian interest. The application of current technologies and development of new, novel technologies relies on an understanding of the biology of the organism, of the way in which these organisms cause disease in plants and the mechanism by which many plants are resistant.
Prerequisites: LQB483 or LSN483 and LSN101 and LSN102 Antirequisites: LSB578 Assumed knowledge: LQB386 recommended Credit points: 12 Contact hours: 4 per week Campus: Gardens Point Teaching period: 2010 SEM-2

LQB686 MICROBIAL TECHNOLOGY AND IMMUNOLOGY
Increasingly microbiologists are employing emerging technologies to rapidly detect, localise, characterise and identify microorganisms to gain a greater understanding of their prevalence, distribution, physiological functions, genotypes/phenotypes and pathogenesis. This unit will extend your knowledge of the origins of microorganisms and recently sequenced microbial genomes, and provide you with the necessary knowledge for the development and application of emerging microbial technologies. The study of microorganisms is enhanced by an understanding of the host immunological response(s) to microbial colonisation and disease.
Prerequisites: LQB386 and LQB483 Antirequisites: LSB648 Credit points: 12 Contact hours: 4 per week Campus: Gardens Point Teaching period: 2010 SEM-2

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

**Prerequisites:** SCB112 or LSB118 or LSB131  
**Antirequisites:** LSB231  
**Credit points:** 12  
**Contact hours:** 5 per week  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-2

**LSB258 PRINCIPLES OF HUMAN PHYSIOLOGY**  
The aim of this unit is to provide a grounding in the principles of human physiology. Following an introduction to the organisation of tissues, each of the major systems that constitute the human body are introduced by the integrated study of their structure and function.

**Prerequisite(s):** LSB118  
**Corequisite(s):** LSB238  
**Contact hours:** 4 per week  
**Campus:** Gardens Point  
**Incompatible with:** LSB142, LSB182

**LSB325 BIOCHEMISTRY**  
The study of biochemistry and cell biology, along with anatomy and physiology, provides students with the knowledge required for the proper understanding of the structure and function of the human body and its organ systems in health and disease, as a preparation for their clinical studies.

**Prerequisites:** SCB121 or SCB113  
**Antirequisites:** LSB275, LQB381, LQB481  
**Credit points:** 12  
**Contact hours:** 4 per week  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-1

**LSB709 BIOTECHNOLOGY RESEARCH PROJECT**  
Knowledge of the practical aspects of developing a project for research and development is a fundamental aspect of real-world biotechnology. This unit involves a small team research project based on the R and D proposal developed in LSB409 Readings in Biotechnology. The unit guides student teams through the research process from the experimentation to the writing of an assessment of the project under the guidance of academic and industry mentors.

**Credit points:** 12  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-1, 2010 SEM-2 and 2010 SUM

**LWS007 INTRODUCTION TO INTELLECTUAL PROPERTY LAW**  
Intellectual property protection is undoubtedly of paramount importance in the research, development and commercialisation of emerging technologies. Managers and researchers need to be aware of the different types of property that can be protected and how the property needs to be protected. There have also been significant developments in the field of intellectual property law in recent years. The concepts taught in Introduction to Intellectual Property Law are of significant relevance to persons intending to practice in the emerging fields of science.

**Credit points:** 12  
**Contact hours:** 3 per week  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-1

**MAB101 STATISTICAL DATA ANALYSIS 1**  
Experiments, observational studies, sampling, and polls; data and variables; framework for describing and manipulating probability; independence; Binomial and Normal distributions; population parameters and sample statistics; concepts of estimation and inference; standard error; confidence intervals for means and proportions; tests of hypotheses on means and proportions (one sample and two independent samples); inference using tables of counts; modelling relationships using regression analysis; model diagnosis; use of statistical software.

**Antirequisites:** BSB123, EFB101, MAB141, MAN101  
**Assumed knowledge:** Grade of at least Sound
Achievement in Senior Mathematics B (or equivalent) or MAB105 is assumed knowledge.  

**Credit points:** 12  

**Contact hours:** 4 per week  

**Campus:** Gardens Point  

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

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**MGB200 LEADING ORGANISATIONS**

This unit introduces you to a range of perspectives in understanding human behaviour and its context within organisation structures. The unit also enables you to interpret, analyse, evaluate and explain conditions and consequences of work in organisations with a view to understanding and appreciating complex management issues in day to day experiences in business.

**Prerequisites:** BSB115 or CTB115  

**Antirequisites:** MGB211, CTB211, MGB222, CTB232  

**Credit points:** 12  

**Contact hours:** 3  

**Campus:** Gardens Point  

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

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**MGB223 ENTREPRENEURSHIP AND INNOVATION**

This unit introduces students to the nature and characteristics of entrepreneurship and innovation and explores the inter-relationship between the two within contemporary economies from managerial perspective. Learning will be directed towards developing the theoretical and applied knowledge, skills, and attitudes that will support and enhance innovation and enterprise creation activity, through the development of a business plan. The unit is designed for those individuals interested in creating a new venture or working in industries as employees of venture owners or those that serve this sector. Students will have opportunity to build a comprehensive plan of their business concept.

**Prerequisites:** BSB115 or CTB115  

**Equivalents:** CTB223  

**Credit points:** 12  

**Contact hours:** 3 per week  

**Campus:** Gardens Point and Caboolture  

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

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**MGB225 INTERCULTURAL COMMUNICATION AND NEGOTIATION SKILLS**

The course develops students' abilities to identify and resolve problems in cross-cultural communication or negotiation situations where cultural differences have created misunderstandings or undesirable or unexpected outcomes. It first explores the concept of 'national culture' by considering the work of major theorists of cultural value dimensions - from Hall to Schwartz. Students are encouraged to analyse communication/negotiation process issues in terms of these value dimensions and to practise managing the process of communication/negotiation to improve their outcomes.

**Prerequisites:** BSB115, CTB115, BSB119 or BSB124  

**Antirequisites:** MGB312  

**Equivalents:** IBB205  

**Credit points:** 12  

**Contact hours:** 3  

**Campus:** Gardens Point  

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

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**MGB309 STRATEGIC MANAGEMENT**

In this unit fundamental elements of strategy, which can be used in the decision making process, are placed in a framework that is developed within the particular context of Australia's economic development position. The emphasis is upon process and content issues that affect the strategic performance and positioning of the organisation. This involves creating an understanding of the universal building blocks of competitive advantage at the business, corporate and international levels. By understanding the nature and determinants of competitive and strategic advantages, students should be able to take a more strategic and critical perspective.

**Prerequisites:** MGB200, MGB211, CTB211, MGB222, or CTB232  

**Antirequisites:** MIB314  

**Credit points:** 12  

**Contact hours:** 3 per week  

**Campus:** Gardens Point and Caboolture  

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

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**MGB324 MANAGING BUSINESS GROWTH**

This unit is designed to provide skills in the analysis, solutions and implementation of the general management issues that SME owners have to manage in their growing operations. The unit brings together the different functional aspects of managing an established SME and how they are best managed from the owner's (general manager's) point of view. It also provides opportunity to bring students into contact with real world SME owners and their venture management issues.

**Prerequisites:** MGB223  

**Equivalents:** MGB218  

**Credit points:** 12  

**Contact hours:** 3  

**Teaching period:** 2010 SEM-1

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**SCB111 CHEMISTRY 1**

This unit covers the fundamentals of general and physical chemistry. Topics include atomic and molecular structure, introduction to chemical bonding, reaction stoichiometry, thermochemistry, gas phase chemistry, reaction kinetics, equilibrium, acids, bases, buffers, oxidation, reduction and electrochemistry. The practical program involves experiments illustrating a range of chemical reaction types including precipitation reactions, acid-base chemistry and redox chemistry using analytical experimental methods. A comprehensive tutorial program (CHELP) complements the lectures and is designed to assist students to develop the problem solving skills required for further study in chemistry and related sciences.

**Antirequisites:** SCB113  

**Credit points:** 12  

**Contact hours:** 4.5 per week  

**Campus:** Gardens Point  

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

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**SCB112 CELLULAR BASIS OF LIFE**

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

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

**SCB121 CHEMISTRY 2**
Chemistry is the central science. This is a unit of fundamental importance as it covers the background and general principles that underpin understanding in many Science and Health related disciplines, particularly in regards to the chemistry of life. In this unit students will be introduced to fundamental aspects of chemistry including the electronic structure of atoms, chemical bonding and molecular structure. From this basis students will develop an understanding of the fundamentals of organic chemistry including chirality, functional groups and organic reactions which will lead to important bio-inorganic molecules and coordination complexes.

**Prerequisites:** (SCB111 or PCB142) . SCB111 can be studied in the same teaching period  
**Antirequisites:** SCB113  
**Credit points:** 12  
**Contact hours:** 4.5 per week  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-1 and 2010 SEM-2

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

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