Bachelor of Applied Science (Ecology) (SC01)

Year offered: 2010
Admissions: Yes
CRICOS code: 003502J
Course duration (full-time): 3 Years
Course duration (part-time): 6 Years
Domestic fees (indicative): 2010: CSP $2,200 (indicative) per semester
International Fees (indicative): 2010: $11,750 (indicative) per semester
Domestic Entry: February and July
International Entry: February and July* (Conditions apply for July entry)
QTAC code: 418011
Past rank cut-off: 77
Past OP cut-off: 12
OP Guarantee: Yes
Assumed knowledge: English (4, SA) and Maths B (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: 288
Standard credit points per full-time semester: 48
Standard credit points per part-time semester: 24
Course coordinator: Dr Marion Bateson
Discipline coordinator: Dr Ian Williamson
Campus: Gardens Point

Overview
Ecology is the study of relationships between organisms and their environment. Ecologists seek to understand why animals plants or micro-organisms are found where they are. They investigate why they are common or rare, or what makes their numbers change from time to time and place to place. As an applied science, ecology is used to design strategies for the management of populations of organisms ranging from iconic endangered animals to species that are harvested for food or insects that are vectors of diseases impacting on human health or agriculture.

The ecology major at QUT allows you to gain a broad range of scientific skills, including the specialist techniques required for conserving endangered wildlife, solving problems with invasive species and other pests, managing our local and national fisheries, and evaluating issues associated with the sustainability of our natural resources in the face of climate change and increasing human impact on the environment.

Recommended Study
At least one of the sciences: either Chemistry, Physics, Biological Science, Earth Science or Maths C.

Why Choose this Course
The ecology major at QUT has been designed to provide the background theory and hands-on skills required for dealing with the real-world problems and issues tackled by professional ecologists. Lectures are supported by classes in the laboratory and the field where the emphasis is on gaining practical experience in designing and carrying out field studies and experiments, and analysing and interpreting the information.

This degree provides you with the framework, theory and skills that can be applied across all ecological systems, from human modified environments such as agricultural ecosystems to more pristine areas such as rainforests and coral reefs. Teaching staff maintain links with government organisations and industry, via research and consultancy work, to ensure the course is up to date and relevant.

Career Outcomes
Ecologists find rewarding careers in research and monitoring with government departments responsible for sustainability, wildlife conservation and national parks, primary industries, pest management, fisheries, forestry and museums. They also find work in private firms engaged in research and consultancy. Positions include conservation officer, sustainable resources officer, wildlife manager, fisheries biologist, scientific or technical officer, teacher or research scientist. Employment in more specialised areas is available, usually requiring study beyond the first degree.

Professional Recognition
Professional recognition is achieved through membership of a scientific society, for example, the Ecological Society of Australia (ESA) or the Australian Wildlife Management Society (AWMS) and participation in its meetings and professional activities.

Your Course
Year 1
You will undertake introductory core studies in a range of scientific areas including life sciences, chemistry, physics, mathematics and environmental science to give you a solid foundation for your future studies. You will also gain key basic knowledge about the natural systems that exist on plant earth and the way these systems interact.

Year 2
You will focus on background concepts important for understanding ecology and the environment. You will examine in detail the fundamental concepts in ecology and evolution, and the basic processes important in the
formation of the physical environment that are fundamental to understanding natural resource systems. You will learn about the dynamics of plant and animal populations and the interactions that influence them, and the basic methods used to describe and monitor populations. A background in fundamental genetics and evolution will provide the framework for understanding and interpreting variation in biological systems. You will expand on basic concepts of data handling and analysis so that you have a sound knowledge of experimental design and its application to experimental studies in ecology and environmental science. You will also learn how to design and conduct ecological field studies and analyse and communicate information.

Year 3
The fundamental knowledge of ecology, evolution and experimental design is extended to develop the theoretical and applied knowledge used by practising ecologists. You will cover in detail the three main areas where ecology is applied – approaches to the conservation of rare and endangered species and ecosystems, the management of invasives and other pest species, and the sustainable exploitation of wild populations. These aspects are also covered in guest lectures by industry professionals, and by involving you in detailed case studies and field projects that examine particular management questions in ecology.

Ecology Full-time Course Structure: First Semester Entry

<table>
<thead>
<tr>
<th>Year 1, Semester 1</th>
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<tbody>
<tr>
<td>SCB110 Science Concepts and Global Systems</td>
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<tr>
<td>SCB111 Chemistry 1</td>
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<tr>
<td>SCB112 Cellular Basis of Life</td>
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<tr>
<td>MAB101 Statistical Data Analysis 1</td>
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<tr>
<td>MAB105 Preparatory Mathematics</td>
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<tr>
<td>MAB120 Algebra and Calculus</td>
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<tr>
<td>MAB121 Calculus and Differential Equations</td>
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**NOTE:**
1. Students with a Sound Achievement (4 semesters) in Maths A should enrol in MAB105.
2. Students with a Sound Achievement in Maths B and NOT wishing to major in Physics should enrol in MAB101.
3. Students with a Sound Achievement in Maths C and wishing to major in Physics should enrol in MAB121.
4. Students without a Sound Achievement in Maths C and wishing to major in Physics should enrol in MAB120.
5. Students without a Sound Achievement in Maths B or Maths A should consult with the course coordinator.

### Year 1, Semester 2

<table>
<thead>
<tr>
<th>Unit Code</th>
<th>Unit Name</th>
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<tbody>
<tr>
<td>NQB201</td>
<td>Planet Earth</td>
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<tr>
<td>NQB202</td>
<td>History of Life on Earth</td>
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<tr>
<td>SCB120</td>
<td>Plant and Animal Physiology</td>
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<td>SCB121</td>
<td>Chemistry 2</td>
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<tr>
<td>SCB122</td>
<td>Cell and Molecular Biology</td>
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<td>SCB123</td>
<td>Physical Science Applications</td>
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### Year 2, Semester 1 *

<table>
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<tr>
<th>Unit Code</th>
<th>Unit Name</th>
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<tbody>
<tr>
<td>NQB321</td>
<td>Ecology</td>
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<tr>
<td>NQB302</td>
<td>Earth Surface Systems</td>
</tr>
<tr>
<td>NQB322</td>
<td>Invertebrate Biology</td>
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<tr>
<td>NQB323</td>
<td>Plant Biology</td>
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### Year 2, Semester 2 *

<table>
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<tr>
<th>Unit Code</th>
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<tbody>
<tr>
<td>NQB421</td>
<td>Experimental Design</td>
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<tr>
<td>NQB422</td>
<td>Genetics and Evolution</td>
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### Year 3, Semester 1 *

<table>
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<tr>
<th>Unit Code</th>
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<tr>
<td>NQB521</td>
<td>Population Genetics and Molecular Ecology</td>
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<tr>
<td>NQB523</td>
<td>Population Management</td>
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### Year 3, Semester 2 *

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<tr>
<th>Unit Code</th>
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<tr>
<td>NQB622</td>
<td>Conservation Biology</td>
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<tr>
<td>NQB623</td>
<td>Ecological Systems</td>
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**Recommended Second Majors:**
- Biodiversity, Environmental Science

* Elective Unit for all Majors:
- SCB500 Industry Project

**NOTE:** SCB500 Industry Project is a unit that will be
offered as an elective in all majors. This unit requires 84 credit points of Level 2 and/or 3 Science units, so it may only be taken at the completion of Year 2 in Summer or during Year 3.

Ecology Full-time Course Structure: Mid-Year Entry

Mid-Year (July) Entry

FOR DOMESTIC STUDENTS: Due to the careful construction of scientific knowledge demanded in the SC01 degree, mid-year entry requires some compromises. There are two ways to construct a mid-year program:

1. Take foundation units and their follow-up units together, rather than in sequence. This will be very challenging, but will allow you to start second year units at the start of the next year. Please contact either the course coordinator or the discipline coordinator to devise a suitable program of study. Please note: as this option usually involves taking units from different levels concurrently, which may not be timetabled appropriately, in some cases it may not be possible to complete within the standard time frame.

2. Take three units per semester for the first three semesters, adding one semester to your degree completion time. This allows you to do your first year units in the correct sequence, at a slightly more leisurely pace, while still being officially a full-time student. You may enrol in a fourth unit (level 2 unit from your chosen major) provided you have the necessary pre-requisites. This is the recommended option.

FOR INTERNATIONAL STUDENTS: Mid-year entry is only available under certain circumstances. Please contact the Course Coordinator to discuss available midyear entry and advance standing options on a case by case basis.

Year 1, semester commencing July

NQB201  Planet Earth
SCB112  Cellular Basis of Life
SCB120  Plant and Animal Physiology

NOTE: Students wishing to enrol in four units should add either MAB101 or MAB105 and contact the discipline coordinator for a modified program for subsequent semesters.

Year 2, semester commencing February

NQB302  Earth Surface Systems
SCB110  Science Concepts and Global Systems

Plus either

MAB101  Statistical Data Analysis 1

Or

MAB105  Preparatory Mathematics

Year 2, semester commencing July

NQB202  History of Life on Earth
SCB111  Chemistry 1
SCB123  Physical Science Applications

Ecology Part-time Course Structure

Students interested in undertaking this major part-time should consult the discipline coordinator.

UNIT SYNOPTSES

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.

Assumed knowledge: BSB123, EFB101, MAB141, MAN101

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

MAB105 PREPARATORY MATHEMATICS
This unit is a substitute for Senior Mathematics B for those students who need the equivalent background for the successful study of units which assume it. It includes: basic number facts, natural numbers, integers, rational numbers, real numbers and their operations; basic algebra; functions and equations, graphs, linear functions, equations and applications; systems of linear equations; quadratic, exponential, logarithmic and trigonometric functions, properties and applications; introduction to calculus; rates of change, derivatives, rules of differentiation, second derivatives, maxima and minima and applications; integration and applications. This unit is incompatible with an exit assessment of High Achievement or better in Senior Mathematics B.

Assumed knowledge: Year 10 Level 6 Mathematics is assumed knowledge

Credit points: 12
Contact hours: 4 per week  Campus: Gardens Point
Teaching period: 2010 SEM-1 and 2010 SEM-2
MAB120 ALGEBRA AND CALCULUS
This unit introduces and reviews the elementary concepts of function, calculus, matrices and vectors with special reference to applications in science, technology and business where appropriate. Topics covered include the algebra of complex numbers, elementary functions (polynomial, trigonometric, exponential and logarithmic) and their properties, differentiation and integration methods and principles, geometric and algebraic applications of vectors and the solution of linear systems using matrices.

Assumed knowledge: Grade of at least Sound Achievement in Senior Mathematics B (or equivalent) or MAB105 is assumed knowledge
Equivalents: MAB100, MAB125, MAB180
Credit points: 12
Contact hours: 4 per week
Campus: Gardens Point
Teaching period: 2010 SEM-1, 2010 SEM-2 and 2010 SUM

MAB121 CALCULUS AND DIFFERENTIAL EQUATIONS
This unit extends the areas of function and calculus introduced in MAB120 by introducing series representations for functions and more advanced methods of differentiation and integration for functions of one variable. A strong connection to real world problems is made by introducing the use of differential equations in modelling, and exploring appropriate methods of solution. Practical calculations of volumes and surface areas of solids of revolution extend your interpretations of the definite integral. Taylor and Fourier series are introduced as a means of approximating functions by sums of polynomials and periodic functions. Some more advanced methods for indefinite integrals, such as partial fraction decomposition, are also introduced.

Assumed knowledge: Grade of at least Sound Achievement in Senior Mathematics C (or equivalent) or MAB125 or MAB180 or MAB120 is assumed knowledge
Equivalents: MAB111, MAB126
Credit points: 12
Contact hours: 4 per week
Campus: Gardens Point
Teaching period: 2010 SEM-1, 2010 SEM-2 and 2010 SUM

NQB201 PLANET EARTH
Earth Science impacts every aspect of modern life. Hence, the concepts of Earth Science are fundamental not only to the field of Geology, but also to Environmental Science, natural resource management, civil engineering and society at large. Planet Earth provides an introduction to Earth Science, including earth materials, geologic history, geological process at the Earth's surface, and the complex interplay between the lithosphere, atmosphere, hydrosphere and biosphere through geologic time. Thus, Planet Earth is a foundation unit for further studies in Geology and Environmental Science and also serves as a broad introduction to the world we live in.

Equivalents: NRB230
Credit points: 12
Contact hours: 4 per week
Campus: Gardens Point
Teaching period: 2010 SEM-2

NQB202 HISTORY OF LIFE ON EARTH
This unit provides an introduction to the history and development of life on Earth with an emphasis on fundamental biological and ecological principles as they have operated through geological time. The unit provides the student with an understanding of the processes of evolution, extinction and the changing environmental conditions through Earth's history. The unit provides the student with practical experience in fossil identification, classification and morphological interpretation. It provides the student with a "deep-time" perspective of climate and other environmental changes affecting modern ecosystems. Hence, History of Life on Earth is a foundation unit for the Earth and Environmental Sciences as well as Ecology, Biological Sciences and Education.

Equivalents: NRB240
Credit points: 12
Contact hours: 4 per week
Campus: Gardens Point
Teaching period: 2010 SEM-2

NQB302 EARTH SURFACE SYSTEMS
Understanding long and short term climate and environmental change is now recognised as crucial to the interpretation of our biotic, geomorphic and cultural landscapes. To fully understand environment change it is important to recognise the interconnectedness between the atmosphere, hydrosphere, lithosphere, biosphere and humanity's place within these spheres over various temporal and spatial scales. Developing knowledge of past and present climate change and landscaping processes helps to predict future process pathways for natural resource management, civil engineering, risk analysis, and impact assessment in the context of both natural and anthropogenic induced change.

Assumed knowledge: NQB201 is assumed knowledge.
Equivalents: NRB301
Credit points: 12
Contact hours: 4 per week
Campus: Gardens Point
Teaching period: 2010 SEM-1

NQB321 ECOLOGY
Ecology is the study of the factors that influence the distribution and abundance of organisms. Ecology deals with basic properties of individuals and the emergent properties of collections of individuals that form populations and the dynamics of these populations and their interactions with populations of other species. An understanding of basic ecological principles is central to managing species and ecosystems. This unit provides a broad theoretical background in the major concepts of plant and animal ecology. It serves the dual role of providing a thorough grounding in ecology for students from all faculties; and laying the conceptual foundation for later subjects in the ecology and environmental science.

Prerequisites: SCB110 or SCB112
Equivalents:
NRB311  Credit points: 12  Contact hours: 4 per week  Campus: Gardens Point  Teaching period: 2010 SEM-1

NRB322 INVERTEBRATE BIOLOGY
Anyone pursuing a career as an ecologist, environmental biologist, or teacher needs to be familiar with invertebrates, including their diversity and how they function. Because approximately 90% of all invertebrates are arthropods, this unit focuses on this dominant phylum, which includes all the animals with jointed exoskeletons (the insects, prawns and crabs, spiders, millipedes and more). The aim is to provide you with an overview of arthropod diversity, structure and function, as a basis for exploring the role of arthropods in natural and human-modified systems.
Equivalents: NRB370  Credit points: 12  Contact hours: 4 per week  Campus: Gardens Point  Teaching period: 2010 SEM-1

NRB323 PLANT BIOLOGY
This unit will provide an understanding and appreciation of plants by taking an evolutionary approach to the study of major plant groups. Content includes life cycles, morphology, adaptations for survival in varied environments, economic and ecological aspects of various groups as they relate to humans, phylogeny and diversity of major groups. This unit will encourage careful observation, curiosity and thinking about plants. The practicals will provide an opportunity to observe and understand form, function and diversity and will emphasise development of skills in plant systematics and identification, with special emphasis on Australian flora.
Prerequisites: SCB112  Equivalents: NRB371  Credit points: 12  Contact hours: 4 per week  Campus: Gardens Point  Teaching period: 2010 SEM-1

NRB421 EXPERIMENTAL DESIGN
An understanding of experimental design is essential for students and professionals in the ecological and environmental sciences as many biological systems are characterised by high levels of variability. This unit emphasises practical considerations of field and laboratory-based experimentation in ecology and environmental science, and provides experience in problem assessment, definition, formulation of testable hypotheses and experimental design.
Prerequisites: MAB101 or MAB104 or MAB105 , and NQB321 or NRB311  Equivalents: NRB412  Credit points: 12  Contact hours: 4 per week  Campus: Gardens Point  Teaching period: 2010 SEM-2

NRB422 GENETICS AND EVOLUTION
This unit provides a basic understanding of the mechanisms of inheritance using Mendelian Genetics as a foundation. These principles are extended to develop a clear understanding of the mechanisms and processes that drive evolution in natural populations. Topics include the physical basis of heredity, Mendelian and non-Mendelian inheritance patterns, genotype/environment interactions, quantitative traits, evolutionary theory, adaptation and natural selection, speciation and phylogeny, sexual selection and the evolution of life histories.
Prerequisites: SCB112  Equivalents: NRB410  Credit points: 12  Contact hours: 4 per week  Campus: Gardens Point  Teaching period: 2010 SEM-2

NQB521 POPULATION GENETICS AND MOLECULAR ECOLOGY
This unit is an extension of NQB422 Genetics and Evolution. Topics include the genetic structure of populations and processes of evolutionary change; natural selection, inbreeding and adaptation, species and speciation theory; ecological genetics; the genetics of behaviour.
Prerequisites: NQB422  Antirequisites: NRB510  Credit points: 12  Contact hours: 4 per week  Campus: Gardens Point  Teaching period: 2010 SEM-1

NQB523 POPULATION MANAGEMENT
This unit develops the theoretical treatment of populations as a unit of study and integrates the content of previous ecology units into approaches for the management of biological populations. The unit focuses on those interactions that are most relevant to pest control, but the unit is also of fundamental importance to harvesting and conservation biology.
Prerequisites: NQB321, NQB421  Antirequisites: NRB511  Credit points: 12  Contact hours: 4 per week  Campus: Gardens Point  Teaching period: 2010 SEM-1

NQB622 CONSERVATION BIOLOGY
Conservation Biology is the application of ecological theory and principles to the problem of the maintenance of viable populations of rare, threatened or endangered species, or ecological systems. The unit integrates ecological and genetic material covered in earlier units to provide an understanding of factors that enable the maintenance or enhancement of populations. The unit examines biodiversity and its determinants, the process of extinction, population viability analysis and the diagnosis and treatment of population declines, habitat fragmentation, metapopulation processes and the design of natural reserves, and conservation genetics.
Prerequisites: NQB321 or NRB311, and NQB422 or NRB410  Equivalents: NRB611  Credit points: 12  Contact hours: 4 per week  Campus: Gardens Point  Teaching period: 2010 SEM-2

NQB623 ECOLOGICAL SYSTEMS
This unit integrates the content of other ecology units into applied approaches to the management of populations and
systems. The unit employs concepts from population ecology, population management and conservation biology and builds methodologies and concepts necessary for an applied approach to conservation and pest management. A field trip provides the vehicle for developing these themes. Content includes collection, collation and preparation of biological resource material relevant to a case study, diagnostic features and identification of species of relevance, factors involved in the design of a large-scale field study, field techniques necessary for understanding species/habitat interactions, and the analysis and interpretation of large field data sets.

**Prerequisites:** NOB321 or NRB311  
**Credit points:** 12  
**Contact hours:** 4 per week  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-2

**SCB110 SCIENCE CONCEPTS AND GLOBAL SYSTEMS**

You will undertake interdisciplinary study of the physical, geological and biological concepts relating to the origins of life: from the creation of matter and planets, to the emergence of life in all its complexity, culminating in evolution of earth ecosystems. Human influences, overlaid upon earth’s complex systems, will be examined as to their type, extent, and impact. In counterpoint, you will explore the breadth of philosophical developments underlying our search for knowledge; fundamental thoughts and ideas that span the last 2,500 years of human history. Ultimately, these concepts evolved through the development of a scientific method and we explore its workings in relation to the ongoing enterprise of human understanding.

**Credit points:** 12  
**Contact hours:** 4.5 per week  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-1

**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

**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:** SCB112  
**Credit points:** 12  
**Contact hours:** 4.5 per week  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-1 and 2010 SEM-2

**SCB120 PLANT AND ANIMAL PHYSIOLOGY**

Regardless of which area of biology you decide to specialise in, you will need to understand the complex interactions between cells, tissues, organs and organ systems that comprise multi-cellular organisms. Although many living processes can be explained at the levels of biochemistry, biophysics and cell biology, a true understanding of complex, multicellular organisms requires integration of knowledge drawn from all of these areas, combined with the more complex physiological and structural levels you will learn about in this unit. The knowledge gained in this and other first level units provides you with the conceptual framework necessary to understand processes occurring from the cellular to the whole organism level and to higher levels of organisation.

**Prerequisites:** SCB112  
**Equivalents:** NRB270  
**Credit points:** 12  
**Contact hours:** 4.5 per week  
**Campus:** Gardens Point  
**Teaching period:** 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)  
**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 of 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

SCB123 PHYSICAL SCIENCE APPLICATIONS
Physics principles underpin all of the sciences and ‘new technologies’. This unit adopts an investigative team-based approach to provide students with an appreciation of fundamental concepts in physical science, together with experience in the application of these concepts to a range of ‘real world’ problems. The unit should be taken in the first year of study as the fundamental principles introduced here will be built upon in later units in the context of each science student’s major discipline area. Employers in cutting-edge industries expect science graduates to have effective strategies for problem solving, skills for collaborative work and scientific communication and research skills. This unit aims to develop these skills by applying the fundamental concepts of physical science to problems in a team environment.

Credit points: 12    Contact hours: 4.5 per week
Campus: Gardens Point    Teaching period: 2010 SEM-2

SCB500 INDUSTRY PROJECT
In this unit students will apply scientific methods and quantitative techniques to real work issues. Students will develop an appropriate plan for analysing and resolving an industry issue under the guidance of both a QUT supervisor and an associate supervisor from an industry partner. At the end of the unit students will present both an oral seminar and a written report.

Credit points: 12    Contact hours: 52    Campus: Gardens Point    Teaching period: 2010 SEM-1, 2010 SEM-2 and 2010 SUM