

Bachelor of Resource Management

First-year subjects

202-101 Chemistry for Land and Food Resources

See full subject details on page 1.

202-103 Biology for Land and Food Resources

See full subject details on page 1.

202-104 Information Technology and Communication

See full subject details on page 1.

202-106 Land Resources

See full subject details on page 2.

202-107 Mathematics for Land and Food Resources

See full subject details on page 1.

207-101 Economics of Resource Use

See full subject details on page 2.

207-103 Ecology

Availability: Dookie and Burnley campuses.

Credit points: 12.5

HECS-band: 2

Coordinator: Dr Steve Hamilton

Contact: Thirty-six hours of lectures and 36 hours of practical exercises, including two 3-day field trips (*Semester 2*).

Description: On completion students should have knowledge of the structure and function of aquatic and terrestrial ecosystems, with an emphasis on the impact of human and natural disturbances on these ecosystems; and an ability to evaluate the role of individual organisms, species and populations within ecosystems and communities.

Assessment: A 3-hour examination (40%), one assignment of 2000 words minimum (30%), and two assignments of 1000 words minimum (15% each).

207-113 Australian Rural Landscapes

Availability: Parkville campus

Credit points: 12.5

HECS-band: 2

Coordinator: Mr Rowan Reid

Contact: 36 hours lectures, one 2-day field excursion, three 1-day field practicals and six hours of group study (*Semester 1*).

Description: The forests, farmlands, urban areas and reserves of the Australian rural landscape are the result of natural and human history acting on a unique biophysical base. Their management requires appreciation of this history, understanding of the individual components, and recognition of how they interact and are interdependent.

Students will be introduced to different land uses and their impacts, and will gain an insight into the perspectives and interests of landowners, community and industry. An introduction to current management approaches, including forest and catchment management planning and community participation, will highlight holistic approaches to landscape management.

The subject's content will include:

- Australian biophysical resources, vegetation and climate;
- the human story including the history of aboriginal management, European settlement and forest use, and the development of modern land-use systems;
- the distribution and composition of forest, woodland and grassland ecosystems as a reflection of biophysical resources, climate, fire patterns and human history;
- determinants of the pattern of development and location of agricultural and forest enterprises in Australia;
- the contribution of natural and cultured landscapes to Australia's society and economy;
- sustainability and conservation of forests, soil, water and biodiversity; and
- the role of the conservation movement, local communities and industry in decision-making.

Assessment: One 2-hour examination (50% of final marks), one major assignment tasks based on the field practical (20% of final marks), and up to three short assignments (totalling 30% of final marks).

Recommended texts: Kirkpatrick, J.B. *A Continent Transformed: Human Impact on the Natural Vegetation of Australia*, Oxford University Press, Melbourne, 1999. • Malcolm, L.R., Sale, P., and Egan, A, *Agriculture in Australia: An Introduction*, Oxford University Press, Melbourne, 1996. • Barr, N.F. and Cary, J.W, *Greening a Brown Land: An Australian Search for Sustainable Land Use*, Macmillan, Melbourne, 1992.

Second-year subjects

202-201 Plant Function

See full subject details on page 2.

202-202 Experimental Design/Statistical Methods

See full subject details on page 2.

202-203 Soil and Water Resources

See full subject details on page 3.

207-202 Australian Flora

Availability: Parkville campus.

Credit points: 12.5

HECS-band: 2

Coordinator: Dr Steve Hamilton

Prerequisites: 202-103 Biology for Land and Food Resources.

Contact: Twenty-four hours lectures and 30 hours tutorials/practicals (*Semester 2*).

Description: At completion of this subject students should have the knowledge and an ability to identify the major taxonomic groups of the fungi, algae, non-vascular and vascular plants, and their basic biology, distribution and significance within the broader ecology of aquatic and terrestrial communities and ecosystems, and their roles in natural resource management.

The basic content includes:

- function and life cycle of the various major phylum groups within the Kingdom Plantae (Dinophyta, Chrysophyta, Bacillariophyta, Chlorophyta, Phaeophyta, Rhodophyta, Hepatophyta, Bryophyta, Lycophta, Filicophyta, Coniferophyta and Magnoliophyta);
- selected groups within the Kingdom Fungi (Deuteromycota, Zygomycota, Ascomycota, Basidiomycota, Oomycota, Mycophyta) and Monera (Cyanobacteria);
- the roles of these groups within the major ecosystems of Australia;
- further identification of these groups, with a major emphasis on the higher land plants; and
- preparation of a collection of vascular and non-vascular land plants.

Assessment: A 2-hour examination (40%), one practical test (20%), one 2000 word assignment (20%) and a plant collection of 50 specimens (20%).

207-203 Techniques of Resource Assessment

Availability: Parkville campus.

Credit points: 12.5

HECS-band: 2

Coordinator: Mr Graham Brodie

Prerequisites: 202-106 Land Resources.

Contact: Thirty-six hours of lectures and 36 hours of practicals (*Semester 2*).

Description: This subject should introduce the student to basic land survey methodology, the instruments used to do such survey and deliver field experience. This will involve soil, plant and animal surveys on a catchment scale.

The subject will introduce techniques such as:

- map reading;
- global positioning systems;
- data-loggers; soil, plant and animal survey, land capability assessment;
- GIS; remote sensing and;
- appropriate sampling and analysis strategies.

On completion of this subject the students should be able to:

- describe the major techniques available to evaluate land and biological resources;
- observe, sample and record data in field situations;
- interpret results from the use of such techniques; and
- understand how to apply them in a natural resource management context.

Assessment: A 3-hour examination (50%), one major assignment of 4000 words (40%) and two practical reports (each worth 5%).

207-205 Human Dimensions of Natural Resource Mgt

Availability: Parkville campus.

Credit points: 12.5

HECS-band: 2

Coordinator: Dr Kathryn Williams

Contact: 24 hours of lectures and 36 hours of practicals (*Semester 1*).

Description: This subject provides an introduction to human social and psychological processes as they relate to management of natural resources. Students should develop an understanding of the psychological and contextual factors that shape community engagement in conserving and utilising natural environments and resources. Students should develop skills and conceptual frameworks necessary for engaging with social issues in resource management.

Student understanding will be extended through interaction with guest speakers from a range of resource management professions, field trips, and through application of theory to resource management case studies.

The content includes:

- human understanding of natural systems;
- psychological benefits of nature;
- environmental aesthetics;
- environmental concern;
- environmentally significant behaviours; and
- engaging communities in resource management.

These will be examined in the context of influencing human environmental behaviour to protect natural resources or promote adoption of new technologies, designing and evaluating extension projects, dealing with conflict in resource management, planning for leisure and recreation, and interpreting natural resources.

Assessment: One 3-hour examination worth 50% of final mark. Two assignments each equivalent to 3000 words and each worth 25% of final mark.

207-211 Australian Fauna

Availability: Parkville campus.

Credit points: 12.5

HECS-band: 2

Coordinator: Ms Cheryl O'Dwyer

Prerequisites: 202-103 Biology for Land and Food Resources.

Contact: Twenty-four hours lectures and 24 hours practicals (*Semester 2*).

Description: This subject should provide students with an understanding of the identification, biology and ecology of Australian vertebrate and invertebrate fauna.

The content includes:

- origins and diversity of Australian vertebrates and invertebrates, nomenclature and taxonomy of the Australian fauna;
- biology and ecology of the major invertebrate and vertebrate groups; and
- identification of insects, reptiles, amphibians, birds and mammals.

Assessment: A 2-hour examination (40%), a practical examination (30%), and a 3000-word assignment (30%).

Third-year subjects

207-201 Resource Industry Economics

See full subject details on page 5.

208-210 Financial Management for Resource Ind I

See full subject details on page 3.

202-001 Industry Placement#

See full subject details on page 3.

202-301 Industry Project

See full subject details on page 4.

202-302 Human Resource Management

See full subject details on page 3.

202-303 Industry Project

See full subject details on page 4.

Fourth-year subjects

202-401 Honours Research Project

See full subject details on page 5.

202-402 Honours Research Project

See full subject details on page 5.

202-403 Honours Research Project (MYE)

See full subject details on page 5.

First Year Electives

650-142 Genetics & The Evolution of Life

See full subject details on page 1.

Second Year Electives

625-101 Earth Sciences - The Global Environment

See full subject details on page 1.

121-018 Geomorphology

See full subject details on page 3.

121-021 Environmental Politics and Management

See full subject details on page 3.

207-213 Trees and Forests

Availability: Parkville campus

Credit points: 12.5

HECS-band: 2

Coordinator: Mr Ron Hateley and Mr Ian Wild

Contact: Twenty-four hours of lectures and 24 hours of demonstrations and practical work, and one 3-day tour (*Summer semester*).

Description: This subject introduces students to the basics of tree and forest management, including dendrology, wood science, mensuration and silviculture.

On completion of the subject, students should:

- be competent in the identification, taxonomy and morphology of eucalypts, conifers and deciduous hardwoods;
- be aware of the distribution, characteristics and uses of Australian forest species;
- be able to describe the features, composition and properties of a variety of woods, and methods used to identify timbers;
- be able to assess and report on tree standing volumes and yields, and the effect of site productivity and stand density;
- understand the role of timber, vegetation and wildlife inventories in forest planning; and
- be aware of methods for generating and evaluating alternative plans for the management of forest resources.

Assessment: A 3-hour end-of-semester examination (50%), a term project (3000 words, 20%), two assignments (1500 words, 15% each) each).

Prescribed texts: K Wilson and D J B White, *The Anatomy of Wood: its diversity and Variability*, Stobart & Son Ltd, 1986. • L Costermans, *Native Trees and Shrubs of South-Eastern Australia*, Rigby, 1981.

Third Year Electives

202-304 Resource Mgt & Agric Systems Analysis

See full subject details on page 7.

207-301 Global Environment & Sustainable Systems

See full subject details on page 8.

207-305 Revegetation and Landscape Restoration

Availability: Burnley campus with use made of Dookie campus facilities through extended field trips

Credit points: 12.5

HECS-band: 2

Coordinator: Dr Greg Moore and Dr Steve Hamilton

Prerequisites: 207-202 Australian Flora and 207-211 Australian Fauna or 207-105 Horticulture II.

Contact: Thirty-six hours lectures, 36 hours field excursions (*Semester 2*).

Description: At completion of this subject, students should be able to:

- define agroforestry, revegetation and habitat creation systems;
- select appropriate species for habitat creation and revegetation situations;
- assess and prepare sites for planting and habitat creation;
- plan, implement and cost plantings and the creation of habitat landscapes;
- evaluate, design and implement urban and rural revegetation programs;
- recognise the relationships between flora and fauna in relevant systems;

- prepare a management plan for a revegetation or habitat creation site;
- determine the best land use options for a unit of land;
- describe the benefits of revegetation and habitat creation; and
- identify relevant aesthetic and design principles and philosophies.

The topics to be studied in the subject include:

- agroforestry, habitat creation and revegetation philosophies and definitions;
- costs and benefits of revegetation and habitat creation management;
- site assessment and modification;
- products and markets;
- species selection;
- site preparation and amelioration;
- revegetation schemes;
- techniques for creating habitats and diversifying flora and fauna;
- sites and their management; planting and establishment costs;
- labour;
- plantings and wildlife;
- government policy;
- career structures; and
- land use options and management.

Assessment: A 3-hour examination (60%) and two assignments equivalent to 2500 words (each 20%).

207-307 Fire Ecology and Management

See full subject details on page 2.

207-326 Wildlife Conservation and Management

Availability: Parkville campus.

Credit points: 12.5

HECS-band: 2

Coordinator: Ms Cheryl O'Dwyer

Prerequisites: 207-211 Australian Fauna.

Contact: Thirty-six hours of lectures and 36 hours of practical exercises. Includes a 3-day field trip and use of the Dookie campus (*Semester 2*).

Description: This subject should provide students with an understanding of the principles of wildlife management and the application of various techniques for increasing, harvesting and reducing wildlife populations.

The content includes:

- fundamentals of wildlife management, ecological processes and the regulation of wildlife populations;
- methods of population assessment;
- application of various techniques for increasing at risk populations; and
- productive use of wildlife and the management of this production.

Assessment: One 5000-word written assignment (40%), a 2500-word written assignment (20%), and a two-hour examination (40%).

207-328 Working with Community Groups

See full subject details on page 8.

207-330 GIS and Remote Sensing

Availability: Parkville campus.

Credit points: 12.5

HECS-band: 2

Coordinator: Mr Graham Brodie

Contact: Block mode equivalent to 24 hours lectures and 36 hours practical work, including use of Dookie campus (*Semester 1*).

Description: This subject should provide students with an understanding of the principles of geographic information system and remote sensing technologies and their application to urban and rural resource management.

The content includes:

- introduction to database management systems;
- introduction to geographic information systems;
- global position systems and automatic data acquisition;
- integration of conventional data analysis tools with GIS;
- passive and active sensing systems;
- image processing and interpretation; and
- remote sensing for improved resource management.

Assessment: One 3-hour written examination (50%), two 2500-word assignments (40%) and a practical assignment (10%).

207-335 Resource Management Policy and Action

Availability: Parkville campus

Credit points: 12.5

HECS-band: 2

Coordinator: Prof Snow Barlow

Prerequisites: 207-205 Human Dimensions of Natural Resource Management

Contact: Thirty-six hours of lectures, 36 hours of tutorials and presentations (*Semester 2*).

Description: This subject will provide a general introduction to the development, implementation and review of environmental policy, and its relationship with the legal system. A variety of both Australian and international case studies will be examined, with a range of guest speakers to further explore these themes. At the completion of the subject, students should have developed an appreciation for the role of the legal and policy development process in the management of public and private land resources.

The content includes:

- the Australian legal system and the formation of law;
- the role of environmental law on a national and international scale;
- the major state and national legislation associated with land use, conservation and/or environment;
- the scope, objectives and practices of the major government agencies involved in public and private land policy development and implementation in Australia;
- assessment/regulatory procedures for potential environmental impacts of proposed developments;
- environmental policy at the international, national, state and local level, including the roles and powers of major stakeholders;
- environmental activism in Australia, and the role of populist opinion in policy development;
- the concept of ecological, economic and social sustainable development as a framework for environmental policy;
- policy analysis techniques and policy instruments, including regulatory and economic instruments; and
- future perspectives on environmental policy in Australia.

Assessment: Examination of three hours duration (40%), two assignments of 3000 words (25% each) and a seminar presentation (10%).

207-401 Soil Management and Conservation

See full subject details on page 10.

207-402 Management of Plant and Animal Invasions

Note: This subject is available as either a third- or fourth-year elective.

Availability: Parkville

Credit points: 12.5

HECS-band: 2

Coordinator: Prof Roger Cousens

Prerequisites: A basic ecology subject, such as 207-202 Australian Flora and 207-211 Australian Fauna; or 208-203 Ecology and Management of Grazing Systems; or 207-275 Forest Ecology; 654-204 Ecology: Individuals and Populations

Contact: Twenty-four hours of lectures, and 36 hours of tutorials and presentations (*Semester 2*).

Description: This subject will explore the ecology of invasions of exotic organisms, and the approaches that can be taken to manage them. It will be divided into three sections:

- general principles - dispersal mechanisms; population dynamics; chemical control methods; biological control; policies and regulations;
- case studies of plant invasions; and
- case studies of animal invasions.

On completion of the subject, students should be able to assess the potential of a species to invade; design a management strategy for an invading species; and be familiar with strategic and policy issues relating to plant and animal pests.

Assessment: Examination of three hours duration (40%), two assignments of 3000 words (25% each), seminar presentation (10%).

208-308 Irrigation and Water Management

See full subject details on page 9.

Fourth Year Electives

207-405 Hydrology and Catchment Management

See full subject details on page 4.

207-407 Parks and Recreation

See full subject details on page 4.

207-410 Agroforestry

See full subject details on page 4.

207-413 Community Mgt Of Land & Natural Resource

See full subject details on page 5.

207-414 Social Research Methods

See full subject details on page 4.

208-411 Research Philosophies and Statistics

See full subject details on page 4.