

Bachelor of Horticulture

First year subjects

202-101 Chemistry for Land and Food Resources

See full subject details on page 591.

202-103 Biology for Land and Food Resources

See full subject details on page 591.

202-104 Information Technology and Communication

See full subject details on page 591.

202-106 Land Resources

See full subject details on page 591.

206-102 Plant Health

Availability: Burnley campus.

Credit points: 12.5

HECS-band: 2

Coordinator: Mr John Brereton

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

Contact: 36 hrs lectures and 24 hrs practicals (*Semester 2*).

Description: The content includes:

- factors affecting the health of plants, impact of stress on plants and methods of diagnosis;
- the concept of plant disease nature and cause;
- understanding of the disease cycle, environmental factors influencing disease, the classification and recognition of plant disease causing organisms and plant affecting insects and related pests;
- identification of selected symptoms and signs of disease/pests affecting horticultural crops and plants in the urban environment;
- and selection of control measures for a range of pest and disease problems, integrated pest and disease management, plant quarantine and disease resistance management.

Assessment: One 2-hour examination (50%), one practical examination 2 hours (30%), one 2500-word assignment (20%).

Recommended texts: C J Alexopoulos, C W Mims and M Blackwell, *Introductory Mycology (4th ed)*, John Wiley and Sons, 1996.

206-104 Horticulture I

Availability: Burnley Campus.

Credit points: 12.5

HECS-band: 2

Coordinator: Mr James Will

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

Description: Topics include:

- the theories and practice of plant manipulation, including those for plant propagation, plant transplantation and landscape maintenance;
- types of landscape plants used in environmental horticulture;
- sites, growing media and an introduction to soils;
- the use of horticultural chemicals and necessary safety factors;
- the range of equipment/machinery used in environmental horticulture;
- the concept of plant quality;
- systems theory and its application to environmental horticulture;
- and the influence of key climatic phenomena on the growth of horticultural plants.

Assessment: Examination (2 hours) 40%, assignment (2500 words) 20%, practical participation and report (1000 words) 10%, plant materials tests (2 hours) 30%.

Recommended texts: H T Hartmann, D E Kester, F T Davies and R Geneve, *Plant Propagation: Principles and Practices, 6th ed.*, Prentice Hall International, 1997. • K A Handreck and N D Black, *Growing Media for Ornamental Plants and Turf*, rev ed., NSW University Press, 1994. • J Kellow (ed), *Landscape Plant Manual Vol. 1*, Burnley College, The University of Melbourne, 1999.

206-105 Horticulture II

Availability: Burnley campus.

Credit points: 12.5

HECS-band: 2

Coordinator: Mr John Delpratt

Prerequisites: 206-104 Horticulture I.

Contact: 36 hours of lectures 24 hours of practicals and site visits (*Semester 2*).

Description: Topics include:

- the physical and chemical properties of growing media and their components, options available for nutrition of horticultural crops, and principles of protected crop production;
- understanding of cultural techniques and management of a wide range of plant types used in horticulture, including sources of plant material, techniques for analysing the conditions of a landscape site, and an overview of systems for landscape maintenance;
- plant performance and selection issues associated with specialized environments;
- and study of plant groups based on environmental tolerances, specialized uses and themes.

Assessment: Examination (2 hours) 40%, plant maintenance report (2000 words) 20%, a practical report (1000 words) 10%, plant materials tests (2 hours) 30%.

Prescribed texts: K A Handreck and N D Black, *Growing Media for Ornamental Plants and Turf*, rev ed., NSW University Press, 1994. • J Kellow (ed), *Landscape Plant Manual Vol. 1*, Burnley College, The University of Melbourne, 1999.

209-101 Economics of Resource Use

See full subject details on page 591.

Second year subjects

Complete descriptions of second and later year subjects will be available in the 2002 Handbook, or from the course coordinator.

202-201 Plant Function

See full subject details on page 592.

202-202 Experimental Design/Statistical Methods

See full subject details on page 592.

202-203 Soil and Water Resources

See full subject details on page 592.

206-207 Nursery Production Horticulture I

Availability: Burnley campus.

Credit points: 12.5

HECS-band: 2

Coordinator: Mr Ross Hall

Prerequisites: 206-105 Horticulture II.

Contact: 36 hrs lectures and 24 hrs practicals/site visits (*Semester 1*).

Description: The objective of this subject is to extend the participant's ability to:

- describe systems for the propagation and production of nursery stock and cut flower crops;
- research, schedule and demonstrate the propagation and growing requirements of nursery stock and cut flower crops to meet specific production requirements;
- describe and demonstrate techniques for the manipulation of growth for nursery stock and cut flower crops;
- describe issues of planting design and selection relating to aesthetic and functional roles in the landscape;
- and identify and describe 200 plants used in Australian horticulture.

Assessment: A two-hour examination (40%), two practical reports equivalent to 1500 words (each worth 14%) and a two-hour plant materials test (30%).

Prescribed texts: Hartmann, H. T., Kester, D. E., Davies, F. T. and Geneve, R. L., *Plant propagation: principles and practices, 6th ed.*, 1997, Prentice Hall International, Upper Saddle River.. • Handreck, K. A. and Black, N. D., *Growing media for ornamental plants and turf, rev edn.*, 1994, Kensington, NSW University Press.. • Kellow, J. (ed), *Landscape plant manual vol. 3*, 1999., Burnley College University of Melbourne..

206-208 Nursery Production Horticulture II

Availability: Burnley campus.

Credit points: 12.5

HECS-band: 2

Coordinator: Mr John Delpratt

Prerequisites: 206-207 Nursery Production Horticulture I.

Contact: 36 hrs lectures and 24 hrs practicals/site visits (*Semester 2*).

Description: The objective of this subject is to extend the participant's ability to:

- research, schedule and demonstrate the specific propagation and growing requirements (including micropropagation) of nursery stock and cut flower crops;
- design basic nursery stock and cut flower production facilities;
- describe and demonstrate the theory and practice of pest and weed management in nursery stock and cut flower production;
- discuss selected themes of horticultural and Australian plants using taxonomic and cultural approaches;
- and identify and describe 200 plants used in Australian horticulture.

Assessment: Details Seminar presentation (30 mins.) 20%, design report (2000 words) 20%, two practical reports (1000 words) 20% each, plant materials tests (2 hours) 30%.

Prescribed texts: Hartmann, H. T., Kester, D. E., Davies, F. T. and Geneve, R. L., *Plant propagation: principles and practices, 6th ed.*, 1997, Prentice Hall International, Upper Saddle River.. • Handreck, K. A. and Black, N. D., *Growing media for ornamental plants and turf, rev edn.*, 1994, Kensington, NSW University Press.. • Kellow, J. (ed), *Landscape plant manual vol. 3*, 1999., Burnley College University of Melbourne.. • Taji, A. Dodd, W. and Williams R., *Plant tissue culture practice.*, 1992, University of New England Printery, Armidale.

206-209 Landscape Horticulture I

Availability: Burnley campus.

Credit points: 12.5

HECS-band: 2

Coordinator: Dr Peter May

Prerequisites: 206-105 Horticulture II.

Contact: 36 hrs lectures and 24 hrs tutorials/field work (*Semester 1*).

Description: The objective of this subject is to extend the participant's ability to:

- demonstrate understanding of the significance of the different sources of information available to environmental horticulturists;
- describe the functional roles of plants in the landscape;
- demonstrate understanding of the aesthetic role of plants and built structures in the landscape;
- demonstrate understanding of the principles and practices involved in establishing and managing vegetation in a variety of naturally occurring and contrived environments;
- describe the processes involved in the creation and management of ecologically based landscapes;
- and identify and describe 200 plants used in Australian Horticulture.

The content includes:

- sources and quality of environmental horticulture information base;
- the design roles of plants in the landscape;
- the selection and management of plants in the landscape;
- the chemical control and manipulation of plants in environmental plantings;
- the utilization of vegetation in specific locations;
- for example building interiors;
- client oriented landscapes, cemeteries and crematoria;
- roof gardens;
- industrial landscapes;
- coastal locations;
- and ground cover plantings.

Assessment: A two-hour examination (40%); assignment of 2000 words (20%); two practical reports (10 %); two plant tests of 60 minutes duration each (30%).

Prescribed texts: Kellow, J. (ed), *Landscape plant manual vol. 3*, 1999., Burnley College University of Melbourne..

206-210 Landscape Horticulture II

Availability: Burnley campus.

Credit points: 12.5

HECS-band: 2

Coordinator: Dr Ruth Beilin

Prerequisites: 206-209 Landscape Horticulture I.

Contact: 36 hrs lectures and 24 hrs tutorials/field work (*Semester 2*).

Description: The objective of this subject is to extend the participant's ability to:

- demonstrate understanding of the professional role of the environmental horticulturist in the design and management of landscape;
- describe the role of public open space management in satisfying the diverse recreational needs of a contemporary society;
- describe planning processes in the provision of public open space;

- describe the maintenance- management systems that assist in the efficient management of public open space;
- demonstrate understanding of principles of the cost effective management of urban vegetation;
- describe the specialized management requirements of turf as an element of public open space;
- recognize the role of interpretation in the management of public open space;
- discuss selected themes of horticultural and Australian plants using taxonomic and cultural approaches;
- and identify and describe 200 plants used in Australian horticulture.

The content includes:

- current levels and types of public open space provision in relation to society's needs;
- the spectrum of park types;
- design and planning in public open space and the role of environmental horticulture in this process;
- principles of vegetation management in public open space including turf;
- the maintenance management process;
- interpretation in public open space;
- evaluation of quality of public open space;
- origins and utilization of Australian flora;
- and study of plant groups based on key horticultural and Australian genera and themes.

Assessment: A two-hour examination (40%); assignment of 2000 words (20%); a practical report (10 %); two plant tests of 60 minutes duration each (30%).

Prescribed texts: Kellow, J. (ed), *Landscape plant manual IV*, 1999., Burnley College University of Melbourne..

206-317 Horticultural Engineering

Availability: Burnley campus

Credit points: 12.5

HECS-band: 2

Coordinator: Mr Ken James

Contact: 24 hrs lectures, 24 hrs tutorials and 12 hrs practical sessions (*Semester 2*).

Description: On completion of this subject students should:

- gain an understanding of the machinery used in the management of horticulture resources, including principles of operation and maintenance;
- and develop an understanding of site surveying techniques and basic structural principles used in managing horticultural sites including landscapes, parklands and gardens.

Assessment: Student assignment on machinery management issues (2000 words) (40%) and two written examinations (each 1 hour) (60%).

209-201 Resource Industry Economics I

See full subject details on page 597.

Third year subjects

202-001 Work Experience

See full subject details on page 593.

202-301 Industry/Research Project

See full subject details on page 593.

202-302 Human Resource Management

See full subject details on page 593.

Fourth year subjects

202-401 Industry/Research Project

See full subject details on page 593.

Elective subjects

Note: Insufficient enrolments may lead to a subject being suspended.

206-205 Human Dimensions of Natural Resource Mgt

See full subject details on page 615.

206-302 Molecular Biology, Genetics & Breeding

See full subject details on page 599.

206-303 Advanced Plant Production**Availability:** Burnley and Dookie campuses.**Credit points:** 12.5**HECS-band:** 2**Coordinator:** Mr Ross Hall**Prerequisites:** 206-208 Nursery Production Horticulture II.**Contact:** 24 hrs of lectures, 10 x 3 hr lab sessions/site visits (*Semester 1*).**Description:** Upon completion of this unit the student should be able to:

- schedule and grow high quality nursery crops;
- demonstrate her capacity to manage the production of greenhouse ornamental crops;
- and describe the processes involved in the introduction of new ornamental crops into the Australian market.

Assessment: Two 3000 word assignments (25%), two project reports each equivalent to 2500 words (each 20%), and continuous assessment of project management (10%).**206-304 Ecophysiology and Phytogeography****Availability:** Burnley campus.**Credit points:** 12.5**HECS-band:** 2**Coordinator:** Dr Greg Moore**Contact:** 36 hrs Lectures, 24 hrs Practicals and 12 hrs Tutorials (*Semester 2*).**Description:** The objectives of the subject are to extend the student's ability to:

- define species and describe the processes of speciation and hybridization;
- relate the concepts of continental drift to the evolution of the global and Australian flora;
- describe the types of natural selection including r- and k- selection;
- trace the origin of the Australian flora and assess the influence of humans upon the flora;
- discuss the major tenets of modern evolution theory;
- evaluate the status of fossils and their formation;
- relate the concepts of evolution to those of ecology and natural resource management;
- describe the major steps of human evolution;
- relate floral distribution to evolutionary, physiological and anatomical concepts;
- apply phytogeographical concepts to plant selection and horticultural management;
- and match plants to the landscape using their physiological and ecological adaptations.

The topics to be studied in the subject are:

- types of fossil formation, origins of life, the Precambrian, the first land plants, the fossil record of vascular plants, natural selection, r- and k-selection, species and speciation, continental drift and plate tectonics, Gondwana and the Glossopterids, the Carboniferous, the origins of the Australian flora, hybrids, isolating mechanisms, the Angiosperms, origin of plant parts, the Permian, the Gymnosperms, human evolution, speciation and hybridization;
- the relationship between continental drift and floral evolution;
- types of natural selection;
- matching plants to the environment and the environment to plants - management strategies and their scientific bases;
- flowering biology, hormones, stress, nutrients, ripening, senescence;
- and the effects of humans on the Australian flora; the relationship between the concepts of evolution and natural resource management.

Assessment: A three-hour final examination (55%), a mid-semester test (25%) and an assignment equivalent to 2000 words (20%).**206-305 Revegetation and Landscape Restoration**

See full subject details on page 616.

206-306 Environmental and Resource Management**Availability:** Burnley and Dookie campuses.**Credit points:** 12.5**HECS-band:** 2**Coordinator:** Dr Greg Moore**Contact:** 36 hrs lectures, 36 hrs pracs/field excursions (*Semester 1*).**Description:** The objectives of the subject is to extend the students' ability to:

- undertake environmental assessment based on selected criteria;
- use scientific methods to collect data and information on the environmental factors under investigation;

- use current technology available for environmental investigation, monitoring and evaluation at both regional and local levels;
- develop sustainable solutions to environmental issues studied, based on scientific data collected on the environment;
- complete an environmental assessment based on selected criteria;
- have a knowledge of current technology used in collecting scientific information on the environment studied;
- and be able to present data and information as part of a total environmental strategy.

Assessment: A three-hour examination (50%), a 3000 word assignment (25%) and a practical test or assignment (25%).**206-307 GIS and Remote Sensing**

See full subject details on page 600.

206-308 Turfgrass Science and Management I**Availability:** Burnley campus.**Credit points:** 12.5**HECS-band:** 2**Coordinator:** Dr David Aldous**Contact:** 36 hrs lectures and 24 hrs practical sessions (*Semester 1*).**Description:** The objectives of this subject are to extend participants' ability to:

- use conventional and vegetative taxonomic keys in identifying different turfgrasses;
- identify and describe the major sport and amenity grasses;
- describe the physiology of turfgrass growth and development;
- describe the techniques by which turfgrass can be established;
- describe the post-maintenance care of juvenile turf;
- test for turfgrass seeds and vegetative material;
- describe the principles and practices of turfgrass nutrition and fertilizers;
- describe the principles and practices associated with turfgrass irrigation and drainage;
- describe the principles and practices of equipment and machinery used for mowing, aeration, dethatching, and topdressing;
- recommend control methods and strategies for weeds, insects, nematodes, and diseases of turfgrass;
- and develop a works program and schedule for fine and coarse turf maintenance.

The content includes:

- turfgrass identification and selection using appropriate classification systems;
- the physiology and ecological characteristics of turfgrass growth and development;
- cultural, environmental, and technical requirements for successful propagation of turfgrass from seed and vegetative sources;
- and post-establishment of juvenile turf, revegetation, soils and root zone modification, turfgrass nutrition and fertilizers, soil water - irrigation and drainage, mowing principles and practices, turfgrass machinery and equipment application, turfgrass weeds, diseases, weeds, nematodes and insects and their control, plan and schedule a turfgrass maintenance program.

Assessment: A three-hour examination of one hour (50%), one assignment of 3000 words (25 percent), a turfgrass plant collection (25%).**Prescribed texts:** Aldous, D.E. (ed.), *International Turf Management Handbook*, (1999), Butterman-Heinemann, London, 480pp.**206-309 Turfgrass Science and Management II****Availability:** Burnley campus.**Credit points:** 12.5**HECS-band:** 2**Coordinator:** Dr David Aldous**Prerequisites:** 206-308 Turfgrass Science and Management I.**Contact:** 36 hrs lectures and 24 hrs practical sessions (*Semester 1*).**Description:** The objective of this subject is to extend participants' ability to:

- describe methods of facility design and greens construction;
- initiate plans, specifications, and calculations for specific turfgrass facilities;
- initiate contracts, plans and specifications for turf management works;
- discuss the perched water table and its use in greens construction;
- measure and assess for playing surface quality;
- evaluate the monetary value of a playing surface using valuation methods;
- describe criteria for selection and evaluation of staff as a resource;
- evaluate financial records within the framework of the turfgrass facility;

- determine cost effectiveness management strategies for a turf equipment and machinery budget;
- describe the environmental legislation and specialized problems in managing turf for effective use;
- and describe the detailed culture and management of grasses used in a number of specialized sport and recreation facilities.

The content includes:

- design and modern construction theory;
- soil particle size analysis and measurement of media profile aggregate;
- playing performance standards;
- turfgrass quality assurance and measurement of the playing surface;
- evaluate the monetary value of the playing surface;
- financial and human resource issues in managing a turf facility;
- environmental legislation and specialized problems in managing turf for effective use;
- and case studies on the management of fine and coarse turfgrass facilities.

Assessment: A three-hour examination (50%), and two 3000 word assignments (each worth 25%).

Prescribed texts: Aldous, D.E. (ed.), *International Turf Management Handbook*, (1999), Butterman-Heinemann, London, 480pp.

206-310 Horticultural Reproduction Technology

Availability: Burnley campus.

Credit points: 12.5

HECS-band: 2

Coordinator: Mr James Will

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

Contact: 24 hrs lectures and 24 hrs practicals/tutorials (*Semester 1*).

Description: The objective of this subject is to extend the participant's ability to:

- understand and research the reproductive biology of horticultural plants;
- describe the major biological and environmental factors affecting a plant's capacity to produce, disperse and regenerate from seed;
- understand floral morphology and cytogenetics as appropriate to plant breeding;
- apply Mendelian genetics to plant breeding;
- describe and demonstrate the theory of plant incompatibility systems;
- describe and demonstrate specified seed testing procedures;
- and recommend and describe effective techniques for germinating seed and establishing plants from seed under nursery, field and revegetation conditions.

The content includes:

- evolution of genes and plant genomes;
- breeding systems and strategies of angiosperms;
- Mendelian inheritance;
- incompatibility systems in plants;
- F1 and pedigree breeding systems;
- pollen: stigma interactions;
- cytogenetics and cytogenetic techniques important in plant breeding;
- seed development, dispersal germination and establishment and environmental influences on these processes;
- the technology applicable to commercial seed production;
- seed testing;
- and effective techniques for sowing, germinating and establishing seed.

Assessment: A two-hour examination (45%), a mid-semester test (25%), and two practical reports equivalent to 2000 words (each worth 15%).

Prescribed texts: Hartmann, H. T., Kester, D. E., Davies, F. T. and Geneve, R. L., *Plant propagation: principles and practices, 6th edn.*, 1997, Prentice Hall International, Upper Saddle River. • Richards, A.J., *Plant breeding systems, 2nd edn.*, 1997, Chapman and Hall, London.

206-311 Ecological Management

Availability: Burnley campus.

Credit points: 12.5

HECS-band: 2

Coordinator: Dr Greg Moore

Semester: Semester 1

Description: The principles of plant ecology are applied to the management of horticultural enterprises and resources such as nurseries, streetscapes, parks and gardens. The political, cultural, social and economic components of ecological decision making are applied to aspects of biodiversity, Australian plant communities, fire as a management tool, interpretation and ecological homeostasis. Students will participate in a case study that reveals aspects of the management of a real horticultural resource.

Assessment: Three-hour examination (50%) and two assignments equivalent to 3000 words (25% each).

206-312 Garden History and Contemporary Design

Availability: Burnley campus.

Credit points: 12.5

HECS-band: 2

Coordinator: Dr Ruth Beilin

Contact: 3 hours per week (*Semester 1*).

Description: The objectives of this unit are intended to extend the participant's ability to:

- apply design principles to small scale landscapes;
- identify design styles of historical and contemporary garden landscapes and their relationships;
- demonstrate an understanding of colour, form and texture in planting design;
- demonstrate and describe the garden design process;
- and demonstrate an understanding of the maintenance implications of different landscape styles and detailing.

The content includes:

- design theory for small-scale landscapes includes classical and contemporary examples of garden design;
- an overview of historical garden design provides a stepping stone to 20th C. design;
- contemporary designers present their work;
- students will become familiar with design principles and apply these to a small design project;
- and presentation of a design brief, site analysis and planning, hard and soft material selection and planting design.

Assessment: A major report equivalent to 4000 words (40%), a mid-semester theory test (30%), and three tutorial assessments.

Prescribed texts: Alexander, R. and Batstone, K., *A Handbook for Garden Designers*, 1994, Ward Lock: London.

206-313 Graphic Studies

Availability: Burnley campus.

Credit points: 12.5

HECS-band: 2

Coordinator: Dr Ruth Beilin

Contact: 3 hrs per week (*Semester 1*).

Description: The objectives of this unit are intended to extend the participant's ability to:

- experience the range of graphic materials and methods used in producing landscape drawings and recommend their uses;
- demonstrate basic competency in the use of the more common drawing tools and graphic media;
- prepare a series of drawings for a small scale landscape;
- demonstrate competency in basic elements of design work presentation;
- and produce drawings suitable for client presentation.

The topics covered in this unit include:

- all facets of the drawing and design process associated with a small-scale landscape project;
- and exercises teaching basic skills in reading the scale, lettering, concept drawing, site inventory and analysis, preliminary plans, section elevations, shade and shadowing, using colour media and basic perspective drawing.

Assessment: A major report equivalent to 5000 words (50%) and studio assignments (totaling 50%).

Prescribed texts: Reid, G.W., *Landscape Graphics*, Architectural Press. London, 1987.

206-314 Social Research Methods

Availability: Burnley campus.

Credit points: 12.5

HECS-band: 2

Coordinator: Dr Kathryn Williams

Prerequisites: 202-202 Experimental Design/Statistical Methods.

Semester: Semester 1

Description: This subject develops understanding and skills in social research in rural and industry settings with a focus on social research methods relevant to human use of natural resources and the environment.

Topics include:

- quantitative and qualitative methods in social and market research;
- theory of social measurement; measurement of beliefs and attitudes;
- surveys as a form of data collection;

- the appropriateness of different research techniques for given social or market research problems;
- sampling procedures;
- sampling and measurement error;
- interviewing techniques for individual and group settings;
- communication skills relevant to interviewing; group dynamics;
- data coding, processing and analysis;
- social and psychological bases of responses to land degradation problems;
- influencing human behaviour related to the environment;
- and market research and consumer behaviour. New issues in social research methodology.

Assessment: A three-hour examination 3000 words (50%), an assignment, a field project, class exercises and seminar, written and practical tests (totaling 50%).

Prescribed texts: de Vaus D.A., *Surveys in Social Research. 4th ed.*, Allen and Unwin, 1995. • Robson, C., *Real World Research*, Blackwell, 1993. • Gardner, G.T. and Stern, P.C., *Environmental Problems and Human Behavior*, Allyn and Bacon, 1996.

206-315 Landscape Construction

Availability: Burnley campus.

Credit points: 12.5

HECS-band: 2

Coordinator: Mr Ian Winstone

Contact: 36 hrs lectures, 24 hrs tutorials (*Semester 1*).

Description: The aim of this subject is to extend the participant's ability to:

- understand the fundamental principles of soil mechanics and the relevance to built structures in the urban landscape;
- understand the functional roles and fundamental design and construction principles for a range of hard landscape construction elements including concrete and masonry structures and pavements;
- understand water infiltration, movement and retention in urban soils and how this relates to the management of water in the urban landscape;
- and understand the application and construction methods for understand the fundamental construction techniques of formal and free form water features and field rock in the landscape.

The content covered in this subject includes:

- the principles of soil mechanics and their relevance to built structures;
- soil water retention and movement and the effect of landscape construction on drainage;
- surface and sub surface drainage systems;
- earthworks earth moving equipment and calculation of volumes;
- construction techniques for retaining walls concrete slabs and footings;
- pavement and steps for vehicular and pedestrian use;
- construction of formal and free form water features;
- and placement of field rock.

Assessment: A two-hour examination (40%) and three project reports equivalent to 2500 words (each 20%).

Prescribed texts: Davis, G., *Landscape Surveying*, (1990), Lorient Landscapes, Ryde. • Handreck, K.A. and Black, N.D., *Growing Media for Ornamental Plants and Turf*, (1989), New South Wales University Press, Kensington NSW. • McIntyre, K. and Jakobsen, B., *Drainage for Sportsturf and Horticulture*, (1998), Horticultural Engineering Consultancy, Kambah ACT.

206-316 Landscape Studies

Availability: Burnley campus.

Credit points: 12.5

HECS-band: 2

Coordinator: Dr Ruth Beilin

Contact: 24 hrs lectures, 36 hrs practical work (*Semester 1*).

Description: The objectives of this unit are intended to extend the participant's ability to:

- identify the conflicts inherent in the management of urban fringe and rural landscapes;
- consider the principles and practices of managing vegetation, land and water in these landscapes with emphasis on production, conservation and recreation values;
- describe techniques for the physical repair and management of degraded primary production landscapes;
- analyze policy and planning objectives affecting site management;
- and analysis of the socio-economic implications for effective site management within the context of the wider landscape.

The subject includes the theoretical and philosophical basis for managing large-scale landscape values such as in national parks and agricultural areas.

The characteristics of the urban-fringe, vegetation corridors, roadside conservation, and waterways management affecting these areas will be studied. Conflicting use patterns will be analyzed and potential solutions proffered with regard to revegetation and management of agricultural lands, coastal zones, national parks and mined landscapes. Students are involved in a hands-on urban-fringe project.

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

206-318 Management of Heritage Landscapes

Availability: Burnley campus.

Credit points: 12.5

HECS-band: 2

Coordinator: Dr Jan Schapper

Prerequisites: 206-105 Horticulture II or 206-205 Human Dimensions of Natural Resource Management.

Semester: Semester 1

Description: At the conclusion of the subject the student should be able to demonstrate:

- a critical understanding of the theory and tools for assessing cultural significance;
- skill in preparing appropriate conservation policies;
- and an understanding of suitable management and interpretation plans for significant natural and cultural landscapes.

Assessment: An individual assignment equivalent to 4000 words. (60%), and a group assignment equivalent to 2000 words (40%).

206-319 Plant Protection

Availability: Burnley campus.

Credit points: 12.5

HECS-band: 2

Semester: Semester 1

206-320 Processes in the Soil Environment

Availability: Parkville campus.

Credit points: 12.5

HECS-band: 2

Coordinator: Dr Tony Weatherley

Prerequisites: 206-201 Soil and Water Resources.

Semester: Semester 2

Description: The aim of this subject is to:

- develop an appreciation of the dynamic nature of the soil resource;
- acquire detailed knowledge of chemical, physical and biological processes in the soil environment, particularly those which impact directly on plant growth;
- and gain an understanding of how soils can be managed to optimise plant growth and minimize adverse effects on the environment.

Assessment: A three-hour examination, a practical test (10%), and two assignments equivalent to 2500 words (each 20%).

Prescribed texts: White, R.E., *Principles and Practice of Soil Science*, Blackwell Science, Oxford (3rd ed.) 1997.

206-321 Protected Cropping

Availability: Burnley campus.

Credit points: 12.5

HECS-band: 2

Coordinator: Mr Geoff Connellan

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

Description: On completion of this subject students should gain an understanding of:

- the design principles appropriate to the establishment of greenhouse facilities;
- the processes influencing the greenhouse climate and the interrelationships between crops and greenhouse environment;
- the technology and processes available to modify greenhouse environments;
- the techniques appropriate to the sizing and selection of environmental control systems;
- and the management of greenhouse facilities to achieve optimum use of the facilities.

Assessment: A two-hour examination (40%), one major assignment 4000 words (40%) and one minor assignment 2000 words (20%).

206-322 Irrigation for Intensive Horticult Mgt

Availability: Burnley and Dookie campuses.

Credit points: 12.5

HECS-band: 2

Coordinator: Mr Geoff Connellan

Contact: 24 hrs lectures and 36 hrs tutorials/practical sessions (*Semester 1*).

Description: On completion of this subject students will gain an understanding of the nature of:

- water sources available for irrigation and the role of catchment management on the quantity and quality of water available;
- the methods for the estimation of plant water use;
- the range of irrigation systems available for horticultural applications;
- the selection of the most appropriate water application equipment;
- and the hydraulics of water delivery systems and the efficient management of soil water including surface and subsurface drainage techniques.

Assessment: A two-hour examination (25%), a mid-semester test (25%) and one assignment 3000 words (25%).

206-323 Sustainable Catchments

Availability: Burnley campus.

Credit points: 12.5

HECS-band: 2

Coordinator: Dr Ruth Beilin

Contact: 2 hrs lecture, 1 tutorial/fieldwork oriented per week (*Semester 1*).

Description: The objectives of this unit are intended to extend the participant's ability to assess and manage issues relating to:

- systems approach to regional land management affecting soil and water use and conservation;
- management of conflicting values relating to natural resource production systems within catchment areas;
- and analysis of physical and socio-economic implications for catchment management.

Assessment: A three-hour examination (50%) and two assignments equivalent to 3000 words (each 25%).

211-330 Arboriculture

Availability: Burnley campus.

Credit points: 12.5

HECS-band: 2

Coordinator: Dr Greg Moore

Contact: 36 hrs Lectures, 24 hrs Practical, 12 hrs web based (*Semester 1*).

Description: The objectives of the subject are to extend the students' abilities to:

- describe the anatomy of trees, the nature of branch attachment and the structure of tree roots;
- identify the components of the compartmentalization system that exists within the tree;
- implement proper tree management strategies;
- relate root development to the soils in which they grow and root management practices;
- relate tree growth to plant propagation and the method of tree planting;
- climb trees safely using various ropes and harness techniques and tie the necessary knots;
- use appropriate tools safely in tree maintenance, both on the ground and in the tree;
- develop tree management strategies and replacement procedures for trees growing in cities;
- evaluate the monetary value of amenity trees using accepted methods and the Burnley method;
- use the relevant laws that apply to trees growing in urban and amenity contexts;
- use the latest technology to assess the vigour, condition and soundness of trees;
- quote the costs of arboricultural procedures;
- and implement specialist arboricultural techniques.

Assessment: A three-hour examination (50%), two assignments equivalent to 2500 words (20% each), and a practical assignment (10%).

211-331 Amenity Tree Assessment and Management

Availability: Burnley campus.

Credit points: 12.5

HECS-band: 2

Coordinator: Ms Denise Johnstone

Contact: 18 hrs lectures, 42 hrs practical, 12 hrs seminars (*Semester 2*).

Description: The aim of the subject is to provide students with a through understanding of the assessment and management of individual and groups of trees exotic and native, in urban settings. Students will evaluate and compare methods of tree assessment including the visual tree assessment (VTA) method. Students will gain an appreciation of the complexities of tree management for amenity sites. Common content would include:

- the evaluation and comparison of methods of tree assessment including the visual tree assessment (VTA) method;
- the evaluation and comparison of methods for the detection of decay and structural defects in trees;
- an appraisal of the management of amenity trees for different purposes, for example, street trees, historically significant trees, trees on private properties, trees in various other types of public open spaces;
- an appraisal of the management of amenity trees with different structural forms and anatomy, for example dicotyledonous trees versus monocotyledonous trees, decurrent versus excurrent trees;
- an appraisal of the management and protection of the tree roots of trees with different structural forms and tolerances, for example dicotyledonous trees versus monocotyledonous trees, *Quercus robur* versus *Quercus palustris*;
- an evaluation of tree pathology and tree health problems in a wide range of amenity trees and sites;
- tree selection principals as applied to street trees, private properties and public open spaces;
- an appraisal of safe arboricultural work practices and advanced techniques for gaining access to the canopies of trees, and rescuing workers from trees.
- and determining the safest and most efficient method of removing inappropriate trees.

Assessment: Major assignment 50% maximum 5 000 words, seminar presentation 20%, practical reports 30%.

Prescribed texts: Harris R.W., Clark, J.R. and Mathony, N.P., *Arboriculture: Integrated Management of Landscape Trees Shrubs and Vines*, (1999), Prentice Hall, New Jersey.

206-401 Advanced Plant Breeding & Biotechnology

See full subject details on page 602.

206-402 Soil Management and Conservation

See full subject details on page 602.