

Bachelor of Agriculture

First-year subjects

202-110 Land Resources

Availability: Dookie campus

Credit points: 12.5

Coordinator: Dr Tony Weatherley

Prerequisites: As for 202-106 Land Resources

Contact: As for 202-106 Land Resources (*Semester 1*).

Description: As for 202-106 Land Resources.

Assessment: As for 202-106 Land Resources.

208-122 Biological Systems

Credit points: 12.5

Coordinator: Mr Chris Laird

Prerequisites: Nil

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

Description: The subject covers areas including:

- animal growth and development - physiology and growth of carcass tissues - muscle, bone and fat; development of mammary tissue; wool growth; embryo and semen properties, storage and handling;
- processes - nutrition, reproduction and lactation, health;
- animal products - meat, wool and milk - composition and quality issues; science of production and processing;
- animal genetics - single gene traits of economic importance - mutation type, inheritance and mode of action, gene frequency and selection; quantitative genetics; inbreeding and outcrossing; heritability and heterosis;
- plant growth and development - tissues and parts including flowers, monocotyledon and dicotyledon differences, differentiation, primary and secondary growth, cellular respiration pathways;
- processes - water and nutrient absorption and transport, soil plant atmosphere continuum, photosynthesis, pathways, radiation, environmental impacts;
- plants in the agricultural system and landscape, their management and products;
- plant breeding - a brief introduction.

Assessment: Mid-semester examination (10%), final examination (70%), practicals (20%), pass in practical component required.

Prescribed texts: N Campbell and J Reece, *Biology*, Benjamin Cummings, 2002.

208-123 Agricultural Engineering

Credit points: 12.5

Coordinator: Mr Graham Brodie

Prerequisites: Nil

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

Description: The content includes: material science, hydraulics and irrigation technology, mechanical power systems and machines, electrical power systems, modern data acquisition systems, spatial data analysis and system modelling.

This subject encompasses particular generic skills. On completion of the subject, students should be able to:

- understand and integrate generic scientific concepts;
- participate effectively as a member of a team;
- utilise appropriate methods for the storage and management of data.

Assessment: A three-hour examination (60%), practical/tutorial reports of up to 2000 words in total (10%) and a major case study of 3000 words (30%).

208-126 Mathematics and Scientific Communication

Availability: Dookie campus

Credit points: 12.5

Coordinator: Ms Cathy Botta

Prerequisites: Nil

Contact: Twenty-four hours of lectures and 36 hours of tutorials/workshops (*Semester 1*).

Description: This subject provides students with the mathematical knowledge and communication skills needed for other Land and Food Resources subjects and for entry to industry as a skilled professional. It has two main objectives:

- to develop the mathematical knowledge and skills required to model and solve problems in agriculture, science and business contexts
- to introduce the key components of scientific communication including writing reports and literature reviews and presenting scientific seminars.

The teaching emphasis in mathematics will be upon the solution of relevant examples, with technology used to support mathematical activity.

Mathematical topics studied include common area and volume formulae; Pythagoras' theorem and right-angle trigonometry; introductory probability and statistics; straight-line graphs: correlation and regression; function notation - linear graphs; non-linear functions - polynomial, exponential and logarithm functions; average and instantaneous rates of change; integral calculus and areas under graphs.

The scientific communication program will include lecture and tutorial sessions. Tutorial sessions will focus on the practical application of lecture material and are designed to give students the necessary skills to complete the assignments. Students will develop skills in information literacy, scientific writing styles and presenting scientific information orally to a range of audiences. Students will also be encouraged to develop communication skills necessary for teamwork and successful group assignment work.

Assessment: A three-hour final examination (50%), three mathematics tests in Weeks 4, 8 and 12 (15%), and assignments in scientific communication, including a 3000-word literature review (25%) and an oral presentation (10%).

208-125 Review of Australian Agriculture

Availability: Dookie campus

Credit points: 12.5

Coordinator: Ms Ros Gall

Prerequisites: Nil

Contact: Twenty-four hours of lectures and 48 hours of practicals/tutorials (*Semester 1*).

Description: On completion of this subject, students should have gained a practical understanding of the management operations and options of summer and autumn components of the production cycle of the main agricultural industries of south-eastern Australia, and be conversant with the limitations, constraints and impacts which influence these. Topics covered include:

- history and development of Australian agriculture;
- annual production cycle;
- sustainability of these industries from economic, social, environmental and system-wide perspectives;
- introduction to and practice of the basic farm operational skills as they apply to the various agricultural enterprises and protected areas, including broadacre, dairy, production horticulture and pigs, and areas of conservation significance;
- an understanding of the interactions throughout the value chain, including the input, production processing and retailing sector;
- an introduction to the importance of trade and issues relating to international trade of agricultural and related products; and
- the place of agriculture in rural communities and factors affecting sustainability.

Group learning activities relating to enterprise practices will cover critical selection criteria (performance and efficiency measurements, machinery operations cultivation practices, harvesting distributing, handling, processing and storage).

Students will be involved in practical work on the Dookie Estate and visits to appropriate industry facilities that will reflect the operations at different levels of the value chain.

Assessment: A 3-hr theory examination (60%), practicals, excursions (to feedlots, processing facilities, dairy farms, research stations), literature review and reports (40%). Students will also have to pass a hurdle requirement relating to safe operation of equipment and machinery.

208-124 Biology

Availability: Dookie campus

Credit points: 12.5

Coordinator: Mr John Wellman

Contact: Twenty-four hours of lectures and 36 hours of tutorials/workshops (*Semester 1*).

Description: The subject covers areas including:

- cell structure and function - membranes, transport, organelles, dehydration and hydrolysis; complex molecules; food groups; carbon, nitrogen cycles; catabolism and anabolism, cytoplasm; organelles - structure and function; cell control and organisation; communication; adhesion and connection, differentiation; mitosis, meiosis;
- organic molecules - monomers and polymers, enzymes;

- respiration and fermentation - chemical processes; aerobic, facultative and anaerobic; substrates and products;
- micro-organisms - structure; simple classification; adaptation and survival; energy processes, products of fermentation and respiration; replication, binary fission; virus;
- animal structure and function - tissues, circulation, nutrition, gas exchange, excretion, reproduction, coordination, Immune system and disease resistance, animal growth (briefly);
- growth and development - surface area, organisation, specialisation; zygote to embryo; differentiation; hypertrophy, hyperplasia and accretion; early developmental stages- various species; algometric growth; pregnancy in placental;
- plant structure and function: roots, stems, leaves, meristems, flowers and seeds; plant cells and tissues, anatomical diversity; transpiration and translocation; nutrient uptake; primary and secondary growth;
- introduction to biodiversity and evolution: populations, communities and ecosystems; adaptation; phylogeny and evolution (brief introduction only);
- practicals: will emphasise the handling and identification of biological material and the use of microscopes and other instruments;
- inheritance: protein synthesis and gene expression; brief description of DNA, RNA, the double helix, recombination and mutation; Mendelian genetics.

Assessment: Mid-semester examination (20%), final examination (60%), practicals (20%), pass in practical component required.

Prescribed texts: N Campbell and J Reece, *Biology*, Benjamin Cummings, 2002.

202-102 Chemistry for Land and Food Resources

Availability: Dookie campus

Credit points: 12.5

Coordinator: Mr Robert Edis

Prerequisites: As for 202-101 Chemistry for Land and Food Resources

Contact: As for 202-101 Chemistry for Land and Food Resources (*Semester 2*).

Description: As for 202-101 Chemistry for Land and Food Resources.

Assessment: As for 202-101 Chemistry for Land and Food Resources.

207-114 Land, Food and Resource Economics

Credit points: 12.5

Coordinator: Ms Ros Gall

Contact: As for 207-101 Land, Food and Resource Economics (*Semester 2*).

Description: As for 207-101 Land, Food and Resource Economics.

Assessment: As for 207-101 Land, Food and Resource Economics.

Prescribed texts: J Gans, S King and Mankiw, *Principles of Microeconomics*, 2nd edn, Harcourt Brace, 2004.

Second-year subjects

202-209 Soil and Water Resources

Credit points: 12.5

Coordinator: Dr Robert Edis

Prerequisites: 202-102 Chemistry

Contact: As for 202-203 Soil and Water Resources (*Semester 2*).

Description: As for 202-203 Soil and Water Resources.

Assessment: As for 202-203 Soil and Water Resources.

Prescribed texts: R E White, *Principles and Practice of Soil Science*, 4th edn, Blackwell Science, 2005.

208-211 Plant Communities in Action

Availability: Dookie

Credit points: 12.5

Coordinator: Mr John Wellman

Contact: Twenty-four hours lectures, 36 hours practicals/tutorials (*Semester 1*).

Description: This subject should provide students with a basic understanding of the physiological principles and processes that underpin the performance of plant communities (native and crop) particularly in response to their edaphic environment. The basic mechanisms underlying nutrient, water and carbon acquisition will be considered as well as growth co-ordination at a plant and community level. The impact of abiotic and biotic stresses on the performance of plants and communities will also be considered in relation to current and future stresses such as climate change.

These principles of plant community operation should be demonstrated to students through field measurements of the productivity and limiting factors of crops and native communities.

On completion of this subject students should have developed a knowledge of plants and how they act in communities, and an ability to analyse the behaviour of plants and plant communities in the field in relation to natural and managerial intervention and recommend actions.

Assessment: A three-hour examination (50%), a practical report equivalent to 2000 words (25%) and an assignment of 2000 words (25%).

Prescribed texts: B Atwell, P Kriedemann and C Turnbull (eds), *Plants in Action*, McMillan, Melbourne, 1999.

208-212 Agribusiness Marketing

Availability: Dookie campus

Credit points: 12.5

Coordinator: Ms Ros Gall

Prerequisites: 207-114 Land, Food and Resource Economics

Contact: Block mode over one week in the mid-semester break, with subsequent in-semester reading and assessment (*Semester 2*).

Description: This subject approaches agribusiness marketing by ensuring students are familiar with the relationship of the Australian agribusiness sector with the global environment, and the importance of these relationships and international trade to the sector and the economy. Students thus develop an understanding of the complex system required to supply food products to the final consumer. Building on economic concepts, this subject introduces students to the economic importance of marketing activities.

The subject includes:

- the evolution of marketing and its impact on the marketing of agricultural products (from commodity marketing to branded product);
- basic marketing concepts of price, promotion, place and product, with marketing developed as the physical distribution and economic link between producers and consumers;
- the potential of marketing to add value by providing form, place, time and possession utility;
- environmental analysis of the factors, both internal and external, that impact on the success of the agribusiness firm;
- marketing channels, including the factors contributing to marketing efficiency, an awareness of the alternative channels for marketing food and fibre products, and the impact of power relationships in the agribusiness channel;
- the importance of quality and grading/classification to agricultural marketing;
- analysis of consumer needs as well as consumer and industrial buyer behaviour in food marketing; and
- contemporary issues in marketing of Australia's major food and fibre products, including food safety, genetically modified foods, and ethically and socially responsible production and marketing.

Assessment: A three-hour examination (60%), and two assignments equivalent to 3000 words (each worth 20%).

Prescribed texts: D J Schaffner, W R Schroder and M D Earle, *Food Marketing: An International Perspective*, McGraw-Hill, 1998.

208-249 Landscape Information Systems

Credit points: 12.5

Coordinator: Mr Graham Brodie

Prerequisites: 208-152 Agricultural Technology

Contact: Twenty-four hours of lectures and 24 hours of tutorials/workshops (*Semester 2*).

Description: This subject should provide students with an understanding of the principles associated with the acquisition, storage and interpretation of spatial and temporal data associated with landscapes, ranging from sub-paddock to catchment scale.

The subject will introduce students to: mapping techniques, global positioning systems, automatic data acquisition, passive and active remote sensing technologies and Geographic information systems (GIS).

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

- describe the major techniques available for capturing data associated with land and biological resources;
- observe, sample and record data in field situations;
- interpret results using appropriate tools and techniques; and
- understand how to apply them in a landscape management context.

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

208-276 Introduction to Business and Finance**Credit points:** 12.5**Prerequisites:** Nil**Contact:** Twenty-four hours of lectures and 24 hours of tutorials and practicals (*Semester 1*).**Description:** Introduction to Business and Finance is designed to provide non-accounting specialists with the skills to make effective financial decisions and plans. It aims to develop the tools necessary for strategic business and personal decision making and planning. The unit develops basic skills in recording financial transactions, measuring profit, net cash flows, budgeting, evaluation and analysis of strategies as well as an understanding of the legal framework of businesses and taxation.

Topics include: Business structures; Control, recording and reporting systems; Accounting basics and preparation of financial statements; Cash flow statements and budgeting; Capital budgeting and planning methods; Sources of business finance; Taxation.

Assessment: A 3-hour end-of-semester examination (50%), a mid-semester written test (25%) and a written assignment (25%).**Prescribed texts:** W Obst, et al, *Agribusiness: Financial Management*, The Federation Press, 1999.

208-277 Statistical Methods**Credit points:** 12.5**Coordinator:** Mr John Pilkington**Prerequisites:** 208-126 Mathematics and Scientific Communication**Contact:** Twenty-four hours of lectures and 36 hours of tutorials and practicals (*Semester 1*).**Description:** This subject provides students with an introduction to a number of statistical techniques which are frequently used in agriculture, science and business situations. Course content will be set within the context of practical problems. Technology will be used to support statistical calculations.

Topics include an introduction to sampling techniques and experimental design; descriptive treatment of sample data; introduction to elementary probability and distributions; estimation and hypothesis testing of means and proportions; the chi-square distribution; simple and multiple regression and correlation; one-factor and two-factor analysis of variance; and use of statistical computer packages.

Assessment: A three-hour final examination (60%), a mid-semester test in Week 6 (10%), and three assignments, each equivalent to 1000 words, due in Weeks 4, 8 and 12 (30%).**Prescribed texts:** D G Rees, *Essential Statistics*, 4th edn, Chapman and Hall, 2001.

Third-year subjects

202-308 Human Resource Management**Availability:** Dookie campus**Credit points:** 12.5**Coordinator:** Ms Ros Gall**Prerequisites:** 207-114 Land, Food and Resource Economics**Contact:** As for 202-302 Human Resource Management (*Semester 1*).**Description:** As for 202-302 Human Resource Management.**Assessment:** As for 202-302 Human Resource Management.

208-334 Supply Chain Management

See full subject details on page 2.

Year-long subjects

202-313 Agricultural Systems Analysis**Credit points:** 12.5**Coordinator:** Prof David Chapman**Contact:** As for 202-304 Agricultural Systems Analysis (*Semester 2*).**Description:** As for 202-304 Agricultural Systems Analysis.**Assessment:** As for 202-304 Agricultural Systems Analysis.

202-005 Industry Placement#**Availability:** Dookie campus**Coordinator:** Mr Rowan Reid**Prerequisites:** As for 202-001 Industry Placement#.**Contact:** As for 202-001 Industry Placement# (*Year long*).**Description:** As for 202-001 Industry Placement#.**Assessment:** As for 202-001 Industry Placement#.

202-307 Industry Project**Availability:** Dookie campus**Credit points:** 25**Coordinator:** Mr Rowan Reid**Prerequisites:** All 100 and 200 core subjects**Contact:** As for 202-301 Industry Project (*Year long*).**Description:** As for 202-301 Industry Project.**Assessment:** As for 202-301 Industry Project.

202-309 Industry Project**Availability:** Dookie campus**Credit points:** 25**Coordinator:** Dr Chris Weston**Prerequisites:** As for 202-303 Industry Project.**Contact:** As for 202-303 Industry Project (*Semester 1, repeat 2*).**Description:** As for 202-303 Industry Project.**Assessment:** As for 202-303 Industry Project.

Fourth-year subjects (Honours)

208-415 Research Philosophies and Statistics**Availability:** Dookie campus**Credit points:** 12.5**Coordinator:** Dr Dennis O'Brien**Prerequisites:** Eligibility for Honours; 202-277 Statistical Methods**Contact:** As for 208-411 Research Philosophies and Statistics (*Semester 1*).**Description:** As for 208-411 Research Philosophies and Statistics.**Assessment:** As for 208-411 Research Philosophies and Statistics.

207-414 Social Research Methods

See full subject details on page 4.

220-404 Methods for Forest & Ecosystem Research

See full subject details on page 3.

Year-long subjects

202-410 Honours Research Project**Availability:** Dookie campus**Credit points:** 62.5**Coordinator:** Prof Roger Cousens**Prerequisites:** Eligibility for Honours**Contact:** As for 202-401 Honours Research Project (*Year long*).**Description:** As for 202-401 Honours Research Project.**Assessment:** As for 202-401 Honours Research Project.

202-416 Honours Research Project (MYE)**Availability:** Dookie campus**Credit points:** 50**Coordinator:** Prof Roger Cousens**Prerequisites:** Eligibility for Honours**Contact:** As for 202-403 Honours Research Project (MYE) (*Semester 1, repeat 2*).**Description:** As for 202-403 Honours Research Project (MYE).**Assessment:** As for 202-403 Honours Research Project (MYE).

Elective Subjects

First Year - Summer semester

208-244 Australia in the Wine World**Availability:** Dookie campus**Credit points:** 12.5**Coordinator:** Mr. Geoff Bath**Prerequisites:** As for 208-205 Australia in the Wine World.**Contact:** As for 208-205 Australia in the Wine World (*Summer semester*).**Description:** As for 208-205 Australia in the Wine World.

Assessment: As for 208-205 Australia in the Wine World.

Second-year

208-206 Vineyard & Winery Operations S-A

See full subject details on page 5.

208-243 Ecology & Management of Grazing Systems

Availability: Dookie campus

Credit points: 12.5

Coordinator: Prof David Chapman

Prerequisites: As for 208-203 Ecology & Management of Grazing Systems.

Contact: As for 208-203 Ecology & Management of Grazing Systems (*Semester 1*).

Description: As for 208-203 Ecology & Management of Grazing Systems.

Assessment: As for 208-203 Ecology & Management of Grazing Systems.

208-263 Animal Science and Nutrition

See full subject details on page 3.

208-245 Animal Management and Production

Availability: Dookie campus

Credit points: 12.5

Coordinator: Dr Sarah Chaplin

Prerequisites: 208-122 Biological Systems

Contact: As for 208-207 Animal Management and Production (*Semester 2*).

Description: As for 208-207 Animal Management and Production.

Assessment: As for 208-207 Animal Management and Production.

208-275 Plant Production

Credit points: 12.5

Coordinator: Dr Ken Young

Prerequisites: 208-211 Plant Communities in Action

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

Description: Plant production appraises plant growth in relation to the environment with an emphasis on parameters that affect plant production from both a yield and quality aspect.

This subject includes:

- an appraisal of the crop production enterprises - the location, scale and nature of crop production enterprises and their contribution to the national economy; with emphasis on southern Australia;
- growth, development and yield in crop production - definitions and relations between growth and development attributes, yield and yield components, measurement of crop yields, biological and economical yield and harvest index (complemented by field exercises);
- environmental constraints limiting productivity - climate and growing season, water and nutrient availability;
- agronomic management to optimise production and product quality, including water and nutrient management, soil management and rotations;
- nutrient cycling; and assessment of crop requirements; and
- problems and prospects of both rain fed and irrigated crop production within farm systems, comparative cost-return analysis, marketing strategies.

Assessment: Three-hour examination (50%), a practical test (10%) one assignment equivalent to 2500 words (20%) and a plant collection (20%).

Prescribed texts: R S Loomis and D J Connor, *Crop Ecology: Productivity and Management in Agricultural Systems*, CUP, 1992.

208-107 Vineyard & Winery Operations W-S

See full subject details on page 6.

208-338 Special Studies

Credit points: 12.5

Coordinator: Mr Chris Laird

Prerequisites: This subject is available to students who have completed all 100 and 200 level core subjects of their course.

Contact: Thirty-six hours lectures, 36 hours tutorials and presentations or equivalent (*Summer semester*).

Description: The subject encourages independent, critical thought and self-directed enquiry. Students should develop their ability to plan work and use available time effectively. This is an individualised subject, which enables

students to pursue studies in areas of agriculture and related fields, not otherwise covered in the normal subjects offered within the degree structure.

Students who complete this subject should be able to demonstrate:

- in-depth knowledge of a specific contemporary topic in agriculture and land management;
- the ability to analyse and report on the topic in a manner appropriate to the methodology developed; and
- an advanced capability for development of processes for acquisition, management, analysis, integration and interpretation of data and information.

Assessment: The assessment structure for each student is specified in the study proposal and must be approved by the subject coordinator. It would normally consist of two assignments (each 5000 words) and an oral report (30 minutes) on a completed activity or investigation.

Third-year

208-308 Irrigation and Water Management

See full subject details on page 8.

208-337 Plant Protection Systems

Credit points: 12.5

Coordinator: Prof Jim Kollmorgen

Contact: Equivalent to 24 hours of lectures and 36 hours of practical work, consisting of lectures, tutorials and flexible delivery and a 4-day practical block at the Dookie campus during the mid-semester break (*Semester 2*).

Description: This subject provides information on, and stimulates investigation of, the most significant diseases, pests and weeds affecting plant production in the cropping, pastoral and horticultural industries of south-eastern Australia, in an industry context.

Topics covered include:

- identification and taxonomy of pathogens, diseases and invertebrate pests;
- crop loss assessment and the economics of control strategies;
- strategies to limit production losses;
- environmental effects and social implications of control measures;
- interactions among and between pathogens, pests and weeds;
- integrated crop protection systems; and
- industry-based case studies including practical work on the management of weeds, pests and diseases.

On completion of this subject, students should:

- have an understanding of the biology of the major biotic limitations to plant production;
- have the knowledge to choose appropriate control measures and make recommendations on the most economic crop protection systems;
- be able to explain and apply the principles of integrated crop protection systems;
- have the capacity to develop new approaches to plant protection as society and industry requirements change; and
- have communication skills to impart information on integrated plant protection to academia and industry.

Assessment: Three-hour end-of-semester examination (50%), four case-study reports (10% and maximum of 1000 words each) and oral presentation (10%).

207-328 Working with Community Groups

See full subject details on page 7.

208-316 Oenology

Availability: Dookie campus

Credit points: 12.5

Coordinator: Mr David Hayward

Prerequisites: 208-107 Vineyard and Winery Operations I and 208-206 Vineyard and Winery Operations II

Contact: Flexible delivery involving printed learning material. Students are expected to devote 12 hours per week to this subject as well as attend a one-week compulsory residential school (semester 2) (*Semester 2*).

Description: This subject gives detailed coverage of wine production and processing.

The subject content includes:

- history of viticulture and winemaking in Australia;
- production of wine in cool climate;
- characteristics, composition and technological importance of grape juice;
- chemistry and microbiology of wine production;
- fundamentals of winemaking;

- wine quality and defects and factors affecting;
- analytical and quality-control techniques;
- evaluation of wine types and styles; and
- waste management and by-product utilisation.

Assessment: Two assignments of 2000 words (25%), three practical reports (25%) and 3-hour final examination (50%).

208-329 Viticulture

Availability: Dookie campus

Credit points: 12.5

Coordinator: Dr Greg Dunn

Prerequisites: 208-107 Vineyard and Winery Operations I and 208-206 Vineyard and Winery Operations II

Contact: Flexible delivery involving printed learning material. Students are expected to devote 12 hours per week to this subject as well as attend a one-week compulsory residential school (*Semester 1*).

Description: Students completing this subject should be able to:

- demonstrate knowledge of the structure of the various parts of a grapevine;
- demonstrate an understanding of the function of various parts of a grapevine;
- evaluate the impact of management practices on grape composition and potential wine quality;
- design appropriate sampling strategies in order to accurately assess yield attributes and components of maturity and quality;
- formulate recording systems to enable ongoing management of grapevine development and to assess the response to interventions;
- integrate a knowledge and understanding of grapevine structure and function into current management practices;
- interpret basic vine physiology information as published within industry journals and apply it to vineyard management;
- critically analyse research papers in viticulture to assess the applicability of results to your own vineyard situation; and
- describe a range of field and laboratory procedures that will assist in monitoring grapevine performance.

Assessment: A two-hour examination (40%), Residential Block Practical Book (20%), and two assignments equivalent to 3000 words (each worth 20%).

Prescribed texts: M G Mullins, A Bouquet and L A Williams, *Biology of the Grapevine*, Cambridge University Press, 1992.

208-341 Fertiliser Management

Availability: Dookie campus

Credit points: 12.5

Coordinator: Dr Ken Young

Prerequisites: 208-275 Plant Production

Contact: As for 208-320 Fertiliser Management (*Semester 2*).

Description: As for 208-320 Fertiliser Management.

Assessment: As for 208-320 Fertiliser Management.

208-342 Animal Production Systems

Availability: Dookie campus

Credit points: 12.5

Coordinator: Prof David Chapman

Prerequisites: 208-245 Animal Management and Production

Contact: As for 208-303 Animal Production Systems (*Semester 1*).

Description: As for 208-303 Animal Production Systems.

Assessment: As for 208-303 Animal Production Systems.

208-344 Studies in Advanced Breeding

Credit points: 12.5

Coordinator: Mr Chris Laird

Prerequisites: Either 208-275 Plant Production or 208-263 Animal Science and Nutrition

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

Description: This subject includes:

- methods of breeding and improvement in plants and animals including the impact of biotechnology;
- genetic environmental interactions;
- determining genetic traits in plants and animals;

- policies and regulations of genetic material in breeding programs and commercial development;
- methods of plant breeding including somatic hybridisation and tissue culture;
- seed and bulk commodity quality, freedom from contamination, genetic purity and fitness for purpose;
- case studies on quality parameters for wheat, barley, pulses, pigs, poultry, beef cattle and prime lambs; and genetics in conservation programs;
- quality testing procedures;
- plant breeders rights and variety development and commercialisation;
- estimating breeding values; and
- speciation, hybridisation, vegetation provenances.

Assessment: Mid-semester examination (20%), final examination (50%), and three case study assignments (each worth 10%). Pass in practical component required.

Fourth-year (honours)

207-413 Community Natural Resource Management

See full subject details on page 4.

207-415 Soil Management and Conservation

Availability: Dookie campus

Credit points: 12.5

Coordinator: Dr Tony Weatherley

Prerequisites: Eligibility for Honours

Contact: As for 207-401 Soil Management and Conservation (*Semester 1, repeat 2*).

Description: As for 207-401 Soil Management and Conservation.

Assessment: As for 207-401 Soil Management and Conservation.

208-413 Biological Systems Analysis

Availability: Dookie

Credit points: 12.5

Coordinator: Dr Ken Young

Prerequisites: Admission to honours or postgraduate degree

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

Description: This subject will examine the biophysical, biological and ecological processes in agricultural production, with an emphasis on plants and plant communities.

Case studies will be used as a framework for students to identify the major factors operating in agricultural systems, and their interrelationships. In each case study, lectures and tutorials will assist students to systematically build a conceptual model of how the system functions, identify key variables and response functions, and find data from literature to parameterise the variables and functions. Appropriate process-based models will be used to explore the behaviour of the system in response to changes in environment and management.

The subject should help students develop an understanding of the major driving factors and variables in biological systems, determine future research requirements and identify where management changes will have the greatest impact.

On completion of this subject students should be able to:

- recognise the complexity of a biological system and how components of biological systems interact at different levels;
- display an understanding of how models can be used to analyse biological factors and variables, and their interactions;
- identify research or management priorities from an understanding of biological systems; and
- formulate simple process-based conceptual models at different hierarchical levels.

Assessment: Two mid-semester assignments totalling up to 3000 words (20% each), an end-of-semester paper of up to 3000 words (40%) and a seminar presentation (20%).

208-414 Directed Reading in Land Resources

Availability: Dookie

Credit points: 12.5

Coordinator: Dr Dennis O'Brien

Prerequisites: Admission to honours or postgraduate degree

Contact: Fortnightly supervision session on designated readings with supervisor (*Semester 1, repeat 2*).

Description: This subject involves a supervised study of a single area of scholarship chosen by the student in consultation with an appointed supervisor and the subject and course co-ordinators.

A reading list will be developed and agreed during the semester as the reading proceeds, and the student will prepare a thematic written review of the selected discipline area.

This subject extends knowledge of a topic studied in other coursework subjects, or allows students to research a topic not otherwise treated within the course, and may complement but not overlap with an honours thesis topic or the honours thesis literature review. The subject should enhance the student's powers of independent inquiry, encourage initiative in self-directed research, and strengthen the student's capacities in theoretical analysis and argument.

Upon completion of this subject, students should be able to:

- express a deeper understanding of a specific area of choice;
- show a high level of interpretation and critical analysis of written material; and
- write clearly and precisely in a scientific manner.

Assessment: One or more written papers totalling 5000 words.