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VETS7004 Veterinary Epidemiology I
Credit points: 3
Teacher/Coordinator: Program Academic Supervisor: Dr Jenny-Ann Toribio. Instructor: Dr Jenny-Ann Toribio
Session: Semester 1b Mode: Online Assessment: Participation of the student in the weekly online discussions and other learning activities in the online classroom; a group assignment; an individual assignment; online quiz. Note: Elective Units of Study offered online will not normally be run with less than 6 participants. All units offered are subject to class size limitations. This is a core unit in the Veterinary Public Health and Veterinary Public Health Management programs and an elective unit in the generic Veterinary Studies program.

After completing the Veterinary Epidemiology I unit students will be able to: discuss epidemiology and the work of epidemiologists in relation to other disciplines; apply the concepts of epidemic theory and herd immunity appropriately to animal disease control issues; contribute to investigations of disease outbreaks and low productivity in animal populations; calculate and interpret the measures of disease frequency and measures of association; select an appropriate epidemiological study design for a specific research question; identify and minimise sources of bias and error in study designs; select appropriate diagnostic tests and interpret their results (at individual and herd level).

Textbooks
Dohoo I. Martin W. Stryhn H. Veterinary Epidemiologic Research. 2003

VETS7005 Veterinary Epidemiology II
Credit points: 3
Teacher/Coordinator: Program Academic Supervisor: Dr Jenny-Ann Toribio. Instructor: Prof. Michael Ward
Session: Semester 1 Mode: Online (Semester 1, weeks 1 - 7) Prerequisites: VETS7004 Veterinary Epidemiology I Assessment: Participation of the student in the weekly online discussions and other learning activities in the online classroom; group assignment; an individual assignment. Note: Elective Units of Study offered online will not normally be run with less than 6 participants. All units offered are subject to class size limitations. This is a core unit in the Veterinary Public Health and Veterinary Public Health Management programs and an elective unit in the generic Veterinary Studies program.

After completing Veterinary Epidemiology 2, students will be able to design an appropriate epidemiology study to investigate a specific research question, including: sampling procedure; data collection tools; database for data storage and manipulation; statistical procedures; methods to manage confounders, clustering and collinearity.

Textbooks
Cameron A. Survey Toolbox for Livestock Diseases. ACIAR, Canberra 1999
Dohoo I. Martin W. Stryhn H. Veterinary Epidemiologic Research 2003

VETS7008 Hazards to Human and Animal Health
Credit points: 3
Teacher/Coordinator: Program Academic Supervisor: Dr Jenny-Ann Toribio Instructor(s): Dr Robert Dixon, Dr Stephen Page
Session: Semester 1a Mode: Online (Semester 1, weeks 1 - 7) Assessment: Assessment in the Hazards to Human and Animal Health unit of study will include: participation in online class; an individual report; a group assignment. Note: Elective Units of Study offered online will not normally be run with less than 6 participants. All units offered are subject to class size limitations. This is a core unit in the Veterinary Public Health and Veterinary Public Health Management programs and an elective unit in the generic Veterinary Studies program.

After completing Hazards to Human and Animal Health, students will be able to: describe the key elements of risk assessment and the concepts of hazard analysis and critical control point (HACCP) intervention; list sources of chemical contamination of food of animal origin and describe how to detect, monitor and prevent these; explain how the national residue survey works; discuss the microbial hazards in food of animal origin and the means by which they affect humans, and identify critical control points; summarise key points of the current antibiotic
resistance debate concerning the implications for public health of antibiotic use in animals; describe critical aspects of important zoonotic diseases acquired by humans by ingestion of animal products and other routes of exposure and identify possible means of prevention; analyse the factors that influence the emergence of new diseases and discuss changes that need to be implemented in animal and human health surveillance; list the notifiable animal diseases (endemic and emergency) in Australia and discuss the rationale and process for notification and control; describe global trends in livestock disease distribution - both in time and space; describe the disease control programs for a range of current animal diseases and discuss their health, welfare and political ramifications.

Textbooks
No specific textbook is essential for this unit of study.

VETS7009 Animal Health Economics
Credit points: 3
Teacher/Coordinator: Program Academic Supervisor: Dr Jenny-Ann Toribio Instructor(s): Dr Richard Shepherd
Session: S2a Mode: Online (Semester 1, weeks 8-14) Assessment: Assessment of the Animal Health Economics unit of study will include: participation of the student in the weekly online discussions and other learning activities in the online classroom; online quizzes; a report, done in pairs. Note: Note: Elective Units of Study offered online will not normally be run with less than 6 participants. All units offered are subject to class size limitations. This is a core unit in the Veterinary Public Health and Veterinary Public Health Management programs and an elective unit in the generic Veterinary Studies program.

After completing Animal Health Economics, participants will be able to: discuss the importance of animal diseases in efficiency of animal production, consumers' perceptions of animals and animal products, and global trade; analyse economic problems using basic methods such as partial budgeting, cost-benefit analysis and decision analysis; detail the critical steps in systems analysis and choose appropriate modelling types and techniques; describe the uses of linear and dynamic programming, and Markov chain and Monte Carlo simulations; discuss the basic principles of risk analysis; explain the basic steps in the decision-making process and the role of risk analysis in this process; explain the role of decision support systems in animal health management and demonstrate their profitability; build and interpret spreadsheet models for economic analyses in MS EXCEL; discuss the importance of Animal Health Economics in decision making, implementation and evaluation of animal health programs, and policy development and implementation processes.


VETS7010 Animal Health Policy Development
Credit points: 3
Teacher/Coordinator: Program Academic Supervisor: Dr Jenny-Ann Toribio Instructor: Dr Kevin Doyle
Session: S2b Mode: Online Assessment: Assessment in the Principles of Animal Health Policy Development unit of study includes: participation in online class; a group assignment; an individual report. Note: Note: Elective Units of Study offered online will not normally be run with less than 6 participants. All units offered are subject to class size limitations. This is an elective unit in the Veterinary Public Health and Veterinary Public Health Management programs and an elective unit in the generic Veterinary Studies program.

After studying the Principles of Animal Health Policy Development unit, students will be able to: describe the structure and role of Australia's Veterinary Service; outline the process of law making and policy development in relation to public health and animal health in Australia; outline current policy issues relating to veterinary public health and animal health in Australia; discuss strategies used to resolve conflicts among stakeholders and to address the economic, political, technical and social issues that may arise; discuss the means whereby veterinary public health and animal health policy is monitored and enforced; discuss evaluation and improvement strategies for animal health policy.
VETS7011 Data Analysis for Policy Making
Credit points: 3
Teacher/Coordinator: Program Academic Supervisor: Dr Jenny-Ann Toribio Instructor: Dr Ben Madin
Session: S2a Mode: Online Assessment: Participation in weekly online discussions and learning activities; group assignment; individual assignment. Note: Elective Units of Study offered online will not normally be run with less than 6 participants. All units offered are subject to class size limitations. This is a core unit in the Veterinary Public Health and Veterinary Public Health Management programs and an elective unit in the generic Veterinary Studies program.
In this course, students will work with existing data. Issues of developing a study design will not be dealt with. Students will however consider the impact of a particular study design on the interpretation of the data generated. After studying this unit students will be able to: identify potential sources of data and their strengths and weaknesses; identify and apply appropriate analytical and statistical methods for different purposes; analyse data using commonly available software programs; identify and manage potential bias and confounding in data; describe and interpret the results of data analysis; Incorporate the outcomes of data analysis in policy development.
Textbooks Thrusfield M. Veterinary Epidemiology. 3rd edn. 1997 Sergeant ESG. Cameron A. Baldock FC. Epidemiological Problem Solving. 2004

VETS7012 Wildlife Epidemiology
Credit points: 3
Teacher/Coordinator: Program Academic Supervisor: Dr Jenny-Ann Toribio Instructor: Dr Hume Field
Session: S1b Mode: Online Prerequisites: VETS7004 Assessment: Participation in weekly online discussions and learning activities; group assignment; individual assignment. Note: Note: Elective Units of Study offered online will not normally be run with less than 6 participants. All units offered are subject to class size limitations. This is an elective unit in the Veterinary Public Health and Veterinary Public Health Management programs and an elective unit in the generic Veterinary Studies program.
After studying the Wildlife Epidemiology unit, you will be able to: apply epidemiological concepts to wildlife populations, explain the concept of disease ecology, discuss issues relevant to disease determination in wildlife populations and explain the associated diagnostic challenges, discuss alternate study methodologies and design a valid observational study for a wildlife population, discuss design and analysis issues relevant to wildlife disease studies, identify sources of wildlife animal health data and discuss wildlife health information systems, critically review published literature on wildlife disease studies. This unit is offered in alternate years to VETS7014 Aquatic Animal Epidemiology.

VETS7013 Risk Analysis
Credit points: 3
Teacher/Coordinator: Program Academic Supervisor: Dr Jenny-Ann Toribio Instructor: Dr Sam Beckett
Session: S2b Mode: Online Assessment: Participation in weekly online discussions and learning activities; group assignment; individual assignment. Note: Elective Units of Study offered online will not normally be run with less than 6 participants. All units offered are subject to class size limitations. This is an elective unit in the Veterinary Public Health and Veterinary Public Health Management programs and an elective unit in the generic Veterinary Studies program.
After studying Risk Analysis you will be able to: apply the terminology and major concepts, principles, tools and techniques used in risk management in an animal health context; analyse and evaluate the main approaches to risk management in animal health (including veterinary
public health) and trade; evaluate the strengths and weaknesses of some of the tools used in risk management; synthesise the tasks and issues associated with risk management with your knowledge of animal and public health; approach risk communication with an understanding of the different methods of good risk communication and the relationship between risk perception and risk communication.

Textbooks There is no single textbook that covers all of the topics explored in this unit. The unit does, however, draw heavily on the Australian and New Zealand Standard for Risk Management, AS/NZS:4360. 2004 and it is recommended that you are familiar with this document. The unit also draws on the OIE Handbook on Import Risk Analysis for Animals and Animal Products: Vols 1 & 2. 2004. As the name suggests, this reference document provides detail about import (or quarantine) risk analysis, but also some discussion about the application of risk analysis in broader field of animal health.

VETS7014 Aquatic Animal Epidemiology (Not offered in 2011)
Credit points: 3
Teacher/Coordinator: Program Academic Supervisor: Dr Jenny-Ann Toribio Instructor(s): Dr Ed Peeler & Dr Sophie St-Hilaire
Session: Semester 1b Mode: Online Co requisites: VETS7005 Assessment: Participation in weekly online discussions and learning activities; group assignment; individual assignment. Note: Elective Units of Study offered online will not normally be run with less than 6 participants. All units offered are subject to class size limitations. This is an elective unit in the Veterinary Public Health and Veterinary Public Health Management programs and an elective unit in the generic Veterinary Studies program.

After studying the Wildlife Epidemiology unit, you will be able to: apply epidemiological concepts to farmed and wild aquatic animals; explain the requirements of import risk analysis for aquatic animals and identify sources of aquatic animal health data; explain the requirements of aquatic animal disease surveillance and targeted surveys; design analytic epidemiological studies; explain sources of bias in aquatic animal systems; contribute to investigations of fish kills. Textbooks Thrusfield M. Veterinary Epidemiology. 2nd revised reprint. Blackwell Science, Oxford. 1997. Dohoo I. Martin W. Stryhn H. Veterinary Epidemiologic Research. Charlottetown PEI: 2003.

VETS7015 Surveillance, Preparedness & Response
Credit points: 3
Teacher/Coordinator: Program Academic Supervisor: Dr Jenny-Ann Toribio Instructor: Dorothy Geale
Session: Semester 2a Mode: Online Assessment: Participation in weekly online discussions and learning activities; group assignment; individual assignment. Note: Elective Units of Study offered online will not normally be run with less than 6 participants. All units offered are subject to class size limitations. This is an elective unit in the Veterinary Public Health and Veterinary Public Health Management programs and an elective unit in the generic Veterinary Studies program.

After studying Surveillance, Preparedness & Response you will be able to: explain how surveillance contributes to the assessment and management of risks that affect public health, animal health, or trade; provide advice on the development of a surveillance strategy to meet defined objectives; describe a preferred framework for managing animal health emergencies. Textbooks Thrusfield M. Veterinary Epidemiology. 2nd revised reprint. Oxford: Blackwell Science 1997 Salman MD. Animal disease surveillance and survey systems: methods and applications. 1st edn. Iowa State Press 2003

VETS7016 Animal Health Data Management
Credit points: 3
Teacher/Coordinator: Program Academic Supervisor: Dr Jenny-Ann Toribio Instructor: Dr John Morton
Session: Semester 1b Mode: Online Assessment: Participation in weekly online discussions and learning activities; group assignment; individual assignment. Note: Elective Units of Study offered online will not normally be run with less than 6 participants. All units offered are subject to
class size limitations. This is an elective unit in the Veterinary Public Health and Veterinary Public Health Management programs and an elective unit in the generic Veterinary Studies program.

After studying this unit students will be able to: describe the important characteristics of the main epidemiological data types; develop a data-collection form for an epidemiological study; design a simple relational database for recording animal health-related data; manage data in a computer spreadsheet, including importing, exporting, recoding, transforming and summarising data; undertake descriptive analysis of data using computer spreadsheets or other appropriate software; undertake descriptive analysis of data using computer spreadsheets or other appropriate software.

Textbooks
Cameron A. Sergeant ESG. Baldock FC. Data management for animal health. 2004

VETS7017 Food Safety
Credit points: 3
Teacher/Coordinator: Academic Supervisor: Dr Jenny-Ann Toribio Instructor: Dr Gary Muscatello Dr Stephen Page
Session: Semester 2a Mode: Online Assessment: Participation in weekly online discussions and learning activities; group assignment; individual assignment. Note: Elective Units of Study offered online will not normally be run with less than 6 participants. All units offered are subject to class size limitations. This is an elective unit in the Veterinary Public Health and Veterinary Public Health Management programs and an elective unit in the generic Veterinary Studies program.

After completing Food Safety participants will be able to describe the respective roles and recent initiatives in food safety of the various government and industry organisations that make up the global, national and regional regulatory system for the safety of food of animal origin; describe and critically analyse the key elements in food safety risk assessment and management and critically apply this to the analysis of a total quality management food safety system; describe the critical aspects of the epidemiology, pathogenesis, management and prevention of the well-recognised bacterial food-borne pathogens; identify emerging food-borne pathogens of animal origin and describe the critical aspects of the epidemiology that make them a particular public health concern; describe the principles used in newer microbiological diagnostic tests and their application in food safety programs; discuss the elements required for an effective national antimicrobial resistance management program; list the potential sources of and critically assess the potential public health threats posed by the presence of natural toxins and environmental contaminants in food of animal origin.


VETS7018 Research Paper A
Credit points: 6
Teacher/Coordinator: Program Academic Supervisor: Dr Jenny-Ann Toribio Research Coordinator: Dr Navneet Dhand Instructor: Supervision on arrangement
Session: S1 or S2 Intensive Mode: Supervised project. Online Seminar. Co-requisites: VETS7005 Assessment: Dissertation; and participation in online Seminar; progress Reports.
Note: Department permission required for enrolment. This is a core unit in the Veterinary Public Health and Veterinary Public Health Management Masters programs.
Completing the research project will enable you to execute research in a professional and ethical manner. A six credit point project should equate to at least 150 hours work.

VETS7019 Research Paper B
Credit points: 6
Teacher/Coordinator: Program Academic Supervisor: Dr Jenny-Ann Toribio Research Coordinator: Dr Navneet Dhand Instructor: Supervision on arrangement
Session: S1 or S2 2 Intensive Mode: Supervised project. Online Seminar. Co-requisites: VETS7018 Assessment: Dissertation; and participation in online Seminar; progress Reports.
Note: Department permission required for enrolment. This is an elective unit in the Veterinary Public Health and Veterinary Public Health Management Masters programs.
Completing the research project will enable you to execute research in a professional and ethical manner. A 12 credit point project should equate to at least 300 hours work.

**VETS7020 Diagnostic Tests**
**Credit points:** 3
**Teacher/Coordinator:** Program Academic Supervisor: Dr Jenny-Ann Toribio Instructor: Prof Ian Gardner
**Session:** S2b **Mode:** Online **Prerequisites:** VETS7005 Veterinary Epidemiology 2 **Assessment:** Participation in online class; Group assignment; Individual assignment. 
*Note: Elective Units of Study offered online will not normally be run with less than 6 participants. All units offered are subject to class size limitations. This is an elective unit in the Veterinary Public Health and Veterinary Public Health Management programs and an elective unit in the generic Veterinary Studies program.*

After completing this unit, students will be able to: understand and describe the biologic principles of common tests and how their inherent characteristics affect their accuracy and precision; analyse and summarise data from a test evaluation or test comparison study; critique published test evaluation studies and describe their strengths and weaknesses considering design and analysis guidelines in the veterinary medical literature; incorporate quantitative test results in clinical decision making about an individual animal's disease status; interpret test results from prevalence estimation studies involving single and multiple animal; populations, from risk factor studies and from disease surveillance systems; plan a disease surveillance system or disease survey and select a diagnostic test(s) (considering its strengths and weaknesses) to meet specified surveillance or survey objectives.

*Textbooks*
Dohoo I. Martin W. Stryhn H. Veterinary Epidemiologic Research. 2003

**VETS7021 Data Analysis for Epidemiology Research (Not offered in 2011)**
**Credit points:** 3
**Teacher/Coordinator:** Program Academic Supervisor: Dr Jenny-Ann Toribio Instructor(s): Dr Navneet Dhand
**Session:** Semester 2b **Mode:** Online **Assessment:** Participation in online discussions, online quizzes, assignment. 
*Note: Elective Units of Study offered online will not normally be run with less than 6 participants. All units offered are subject to class size limitations. This is a core unit in the Veterinary Public Health, an elective unit in the Veterinary Public Health Management programs and an elective unit in the generic Veterinary Studies program.*

This Unit of Study, delivered by distance education using an online classroom, will using four case studies introduce students to the application of three statistical procedures (linear regression, logistic regression, survival analysis) in epidemiological research for animal health and public health. Approaches to account for the impact of confounding, effect modification and clustering suitable for these statistical procedures will be discussed.

*Textbooks*

**VETS7025 Leadership, People and Organisations**
**Credit points:** 6
**Teacher/Coordinator:** Program Academic Supervisor: Dr Jenny-Ann Toribio Instructor: Judith MacCormick and Greg Cartan
**Session:** Semester 1 **Mode:** Residential and Online. 5-day Residential session in February, Online classes. **Assessment:** Assessment of the Leadership, People &; Organisations unit of study will include: a case study analysis done in a group; an individual action learning review; participation in a range of activities during the residential week and online. 
*Note: Elective Units of Study offered online will not normally be run with less than 6 participants. All units offered are subject to class size limitations. This is a core unit in the Veterinary Public Health, Veterinary Public Health Management and Animal Science (Animal Breeding Management) programs and an elective unit in the generic Veterinary Studies program.*
After completing the Leadership 1 unit students will be able to: apply leadership concepts in the context of animal health management; assess how individual human traits, behaviour and values interact with leadership; use and explain the principles of action learning; explain the effects of group dynamics in work teams; discuss how power and influence impact on success at work.

Textbooks Please refer to website for details.

**VETS7026 Leadership: Managing Change**

**Credit points:** 3  
**Teacher/Coordinator:** Program Academic Supervisor: Dr Jenny-Ann Toribio  
Instructor: Ms Shashanna Evans  
**Session:** Semester 1  
**Mode:** Residential and online. 3-day Residential session in February, Online classes.  
**Prerequisites:** VETS7025  
**Assessment:** Group assignment, individual assignment, participation in online classroom and residential.  
**Note:** Elective Units of Study offered online will not normally be run with less than 6 participants. All units offered are subject to class size limitations. This is a core unit in the Veterinary Public Health, Veterinary Public Health Management and Animal Science (Animal Breeding Management) programs and an elective unit in the generic Veterinary Studies programs.

This unit looks at change on many levels, beginning with a micro focus on the individual and culminating with a more macro view of the whole organisational system. It balances practical skill building with a solid foundation of theoretical understanding. In this unit of study students will explore managing change around three central concepts: the change agent; change perspectives; change and organisations.

**Textbooks** Barbara Senior. Jocelyne Fleming. 2006 Organizational Change.

**VETS7027 Project Management**

**Credit points:** 6  
**Teacher/Coordinator:** Program Academic Supervisor: Dr Jenny-Ann Toribio  
Instructor: Juergen Oschadleus  
**Session:** Semester 2  
**Mode:** Residential and Online. 3-day Residential session in July, Online classes.  
**Assessment:** Assessment of the Project Management unit of study will include: a case study analysis done in a group; an individual action learning review; participation in a range of activities during the residential week and online.  
**Note:** Elective Units of Study offered online will not normally be run with less than 6 participants. All units offered are subject to class size limitations. This is a core unit in the Veterinary Public Health and Veterinary Public Health Management programs and an elective unit in the Animal Science (Animal Breeding Management), and the generic Veterinary Studies programs.

This unit of study is an introduction to project management for students whose main objective is to develop a range of skills in the field of Veterinary Public Health Management. The unit of study is limited to a 3-day residential and distance education, together totalling 150 hours. As a result not every area of project management can be covered in depth. The unit concentrates on the project management processes and deliverables in order to give the student a solid grounding in project management. Obviously project management also involves other areas such as leadership, "soft skills" and the strategic aspects of projects. While some soft skills specific to project management are covered, other leadership and team management aspects are not covered in this unit of study. They are however covered in the Leadership units of study that are core to the Veterinary Public Health Management Program.


**VETS7028 Leadership Skills**

3 credit points  
**Program Academic Supervisor:** Professor Chris Moran  
**Instructor(s):** Shashanna Evans  
**Mode:** Online.  
**Offered:** Semester 1b.  
**Classes:** 7 weeks of online classes.  
**Assessment:** Online participation, individual assignment, group assignment.  
**Overview:** This unit of study seeks to enable the development of key managerial skills. Draft topic areas include:
Organisational systems that support effective managerial practice; strategic planning and management; financial management; marketing; stakeholder and communication management; reflection on managerial strengths to plan for the future. **Learning outcomes:** By the end of this unit of study, you should be able to: Describe a successful management system, based on a knowledge of organisational systems that support effective managerial practice; Plan, implement, communicate and manage medium and long term strategy. **Degree:** Note: **Elective Units of Study offered online will not normally be run with less than 6 participants. All units offered are subject to class size limitations.** This is an elective unit in the Veterinary Public Health and the Veterinary Public Health Management programs. This unit is core in the Animal Breeding Management stream of the Postgraduate Program in Animal Science.

VETS7030 Special Topics in Veterinary Public Health

**Credit Points:** 3  
**Teacher/Coordinator:** Program Academic Supervisor: Dr Jenny-Ann Toribio  
**Instructors:** Internal supervisors on arrangement  
**Session:** Semester 1 or Semester 2  
**Mode:** Supervision  
**Co-requisites:** Departmental Permission Required  
**Assessment:** Tutorial-seminar period involving 1 assessment task (20%), supervised self-study with assessment task/tasks of one written piece of work, 4,800 words or equivalent (80%)  
**Classes:** Supervised. Tutorials, seminars, essays and directed reading  

This unit will allow students to be supervised in specific areas of study that are not covered in any existing postgraduate units. The purpose of this unit may include: interest in specific practical skill area, allowing greater depth of skill development following from core units of study at Graduate Certificate level; interest in enhanced knowledge of a particular subject matter; additional learning required to support a research project. Students must discuss learning outcomes, methods for achieving them, assessment and assessment criteria with their supervisor and submit documentation to the Associate Dean, Postgraduate Coursework by the census date of the relevant semester. At the end of this Unit of Study, students will be able to: discuss the major issues associated with their subject area; interpret and critically evaluate scientific material or information in their subject area; make informed decisions in their subject area and implement them; clearly communicate understanding of their subject area.

This unit is an elective in the Postgraduate Programs in Veterinary Public Health, Veterinary Public Health Management and Veterinary Studies.

VETS7038 Research Paper C  
**Credit points:** 6  
**Teacher/Coordinator:** Program Academic Supervisor: Dr Jenny-Ann Toribio  
**Research Co-ordinator:** Dr Navneet Dhand  
**Instructors:** Supervision on arrangement  
**Session:** S1 Intensive, S2 Intensive  
**Mode:** Supervision  
**Co-requisites:** VETS7018 and Departmental Permission Required  
**Assessment:** Dissertation/treatise; Progress Reports  
**Note:** Department permission required for enrolment. Completing the research project will enable you to execute research in a professional and ethical manner. Each six credit points should equate to at least 150 hours work. This unit of study is for candidates of the MVPHMgt and the MVPH who wish to complete further research towards honours.

VETS7039 Research Paper D  
**Credit points:** 6  
**Teacher/Coordinator:** Program Academic Supervisor: Dr Jenny-Ann Toribio  
**Research Co-ordinator:** Dr Navneet Dhand  
**Instructors:** Supervision on arrangement  
**Session:** S1 Intensive, S2 Intensive  
**Mode:** Supervision  
**Co-requisites:** VETS7038 and Departmental Permission Required  
**Assessment:** Dissertation/treatise; Progress Reports  
**Note:** Department permission required for enrolment. Completing the research project will enable you to execute research in a professional and ethical manner. Each six credit points should equate to at least 150 hours work. This unit of study is for candidates of the MVPHMgt and the MVPH who wish to complete further research towards honours.
VETS8002 Genetic Evaluation and Breeding Program Design  
Credit points: 6  
Teacher/Coordinator: Program Academic Supervisor: Prof Chris Moran Instructor: Prof Julius van der Werf  
Session: Semester 2 Mode: Residential and Online Prerequisites: VETS8004 Co-requisites: Departmental Permission Required Assessment: Online participation, 5,000 - 6,000 words of formal, written assignments. Note: Department permission required for enrolment. Note: All units offered are subject to class size limitations. This is a core unit in the Animal Breeding Management stream of the Postgraduate Program in Animal Science.  
This unit of study builds on the knowledge gained in VETS8004 Advanced Animal Genetics to enable students to enhance their understanding of quantitative genetics and apply them to animal breeding programs. The unit will be taught online with one short residential session in Armidale and is a core unit of study in the Animal Breeding Management course. After completing Genetic Evaluation and Breeding, students will be able to: apply quantitative genetic principles in animal breeding programs; explain commonly used genetic evaluation methods; discuss the issues involved in breeding program design; discuss the potential influence of new reproductive and genetic technologies on animal breeding programs; Independently solve common animal breeding problems.  
Textbooks  

VETS8003 Advanced Applications of Animal Breeding  
Credit points: 6  
Teacher/Coordinator: Program Academic Supervisor: Prof Chris Moran Instructor: Prof Julius van der Werf  
Session: Semester 1 Mode: Mode: Residential and online Prerequisites: VETS8004 Assessment: Online participation, 5,000 - 6,000 words of formal written assignments Note: All units offered are subject to class size limitations. This Unit of Study is core in the Animal Breeding Management stream of the Postgraduate Program in Animal Science. By completing this unit of study, students should be able to: apply skills in quantitative genetics in simulated cases based in each of the major industry groupings; develop optimal breeding objectives and design effective breeding programs, both within and across farming units.

VETS8004 Advanced Animal Genetics  
Credit points: 6  
Teacher/Coordinator: Program Academic Supervisor: Professor Chris Moran Instructor(s): Professor Chris Moran, Dr Sally Isberg  
Session: Semester 1 Mode: On-campus or online. On-campus Mode: Lectures, practical classes. Online classes: Online learning activities. Prohibitions: ANSC5002 Assessment: Examination, assignments. Online participation, quiz, assignments. Note: All units offered are subject to class size limitations. This unit is core in the Animal Genetics and Animal Breeding Management streams of the Postgraduate Program in Animal Science and elective in the generic Veterinary Studies program.  
This unit will cover: principles of population genetics and the concepts of relationship and inbreeding, and adverse effects of this inbreeding; the principles of quantitative genetics including the concepts of genetic variance, heritability and repeatability, and methods for the identification and selection of superior livestock; the use of multitrait selection procedures to increase the overall economic value of populations of animals; the constraints to production gains using genetic selection programmes and advantages obtained through crossbreeding; the practical
application of selection and crossing in animals; the genetical implications of reproductive
technology such as embryo sexing, splitting and cloning, artificial insemination and MOET.

VETS8005 Advanced Animal Biotechnology
Credit points: 6
Teacher/Coordinator: Program Academic Supervisor: Prof Chris Moran Instructor: Prof Chris Moran, Dr Imke Tammen, Dr Kathy Belov, Prof. Herman Raadsma, Assoc Prof Peter Williamson, Dr Chris Grupen
Session: Semester 2 Mode: On-campus or online. On-campus Classes: Lectures, practical classes. Online classes: Online learning activities. Prohibitions: ANSC3005 Assessment: Examination, assignments. Online: online participation, quiz, assignments. Note: All units offered are subject to class size limitations. This unit is core in the Animal Genetics and Reproduction streams of the Postgraduate Program in Animal Science and an elective in the Animal Breeding Management stream. It is elective in the generic Veterinary Studies program.

At the end of this unit of study, students will demonstrate an understanding of: the application of biotechnology to animal productivity, disease control, the development of new products from animals and the impact of altered micro-organisms and plants on animals; molecular biology and recombinant DNA technology, with an emphasis on relevance in animals; regulation of gene expression in vivo and in expression systems; monitoring of gene expression including microarrays and proteomics, gene mapping, genomics and gene discovery in contexts relevant to domestic animals; genetic modifications of animals including transgenesis and gene knockout, and methods for achieving these modifications including cloning by nuclear transfer; basic skills in bioinformatics; legal methods of protecting intellectual property; ethics & animal biotechnology.

VETS8006 Advanced Animal Nutrition
Credit points: 6
Teacher/Coordinator: Program Academic Supervisor: Prof Chris Moran Instructor(s): Dr Alex Chaves
Session: Semester 2 Mode: On-campus lectures, tutorials, laboratory sessions and field work. Prohibitions: ANSC3001 Assessment: Examination, assignments. Note: All units offered are subject to class size limitations. This unit is core in the Animal Nutrition stream of the Postgraduate Program in Animal Science and an elective in the generic Veterinary Studies program.

The Unit is broadly divided into four sections, namely: Estimating the nutritive value of feeds; Estimating the nutrient requirements of animals; Diet formulation; Errors in feeding. The focus is on coming to an understanding of the assessment of nutritional adequacy and the avoidance and solving of nutritional problems, with a particular emphasis on animals used in agricultural production systems. The basis of successful feeding management is an understanding of the following: the composition of feeds; the digestibility and efficiency of utilisation of nutrients by the animal; the requirements of the animal for nutrients; interactions between nutrients that influence health and production; And following from this an ability to: formulate diets to meet animal requirements for a variety of purposes and under a variety of constraints; identify deficiencies, excesses and imbalances in diets and so avoid a decline in productive efficiency and/or a decline in health.

VETS8008 Advanced Animal Reproduction
Credit points: 6
Teacher/Coordinator: Program Academic Supervisor: Prof Chris Moran Instructor(s): Dr Chris Grupen
Session: Semester 1 Classes: On-campus lectures, tutorials, laboratory sessions and field work. Prohibitions: ANSC3002 Assessment: Examination, assignments. Note: This unit is core in the Animal Reproduction stream of the Postgraduate Program in Animal Science and an elective in the generic Veterinary Studies program.

A comprehensive program on basic and applied male and female reproductive biology with particular emphasis on domestic animals. The unit of study includes reproductive cycles, sexual
differentiation, fertilization, development, gestation and parturition. Applied aspects include tuition on: Semen collection and processing, control and management of reproduction, artificial insemination, embryo transfer, pregnancy diagnosis, and induction of parturition. Tuition is given on campus in Sydney and at the University Farms, Camden.

**VETS8013 Special Topics in Animal Science**

Credit points: 6  
**Teacher/Coordinator:** Program Academic Supervisor: Prof Chris Moran  
**Instructor(s):** Supervisors on arrangement.  
**Session:** Semester 1, Semester 2  
**Mode:** Supervised. Tutorials, Seminars, essays and directed reading.  
**Co-requisites:** Departmental Permission Required  
**Assessment:** 6,000 words or equivalent.  
**Note:** Department permission required for enrolment.  
**Note:** This unit is an elective in the Postgraduate Program in Animal Science.

This unit will allow students to be supervised in specific areas of study that are not covered in any existing postgraduate units. The purpose of this unit may include: interest in specific practical skill area, allowing greater depth of skill development following from core units of study at Graduate Certificate level; interest in enhanced knowledge of a particular subject matter; additional learning required to support a research project. Students must discuss learning outcomes, methods for achieving them, assessment and assessment criteria with their supervisor and submit documentation to the Associate Dean, Postgraduate Studies by the census date of the relevant Semester. At the end of this Unit of Study, students will be able to: Discuss the major issues associated with their subject area; Interpret and critically evaluate scientific material or information in their subject area; Make informed decisions in their subject area and implement them; Clearly communicate understanding of their subject area.

**VETS8014 Advanced Anatomy and Physiology A**

Credit points: 6  
**Teacher/Coordinator:** Program Academic Supervisor: Prof Chris Moran  
**Instructor(s):** Assoc Prof Rosanne Taylor, Prof David Fraser, Assoc Prof David Evans, Dr Melanie Collier, Dr Jane Stevenson  
**Session:** Semester 1  
**Mode:** Lectures, tutorials, practical sessions, workshops, computer-based  
28 learning.  
**Prohibitions:** ANSC3003  
**Assessment:** Dissection project, examination, assignments.  
**Note:** This unit is an elective in the Postgraduate Program in Animal Science and in the generic Veterinary Studies program.  

This unit of study provides an integrated study of the structure and function of animals, with a detailed coverage of topics of particular importance to agricultural scientists, such as reproduction, digestion, animal welfare and behaviour.

**VETS8017 Technologies of Animal Reproduction**

Credit points: 6  
**Teacher/Coordinator:** Program Academic Supervisor: Prof Chris Moran  
**Instructor:** Dr Chris Gruppen  
**Session:** Semester 1a Intensive  
**Mode:** Residential: One month intensive starting one week before Semester 1 to week 3. About 50% practical tuition at Camden, and a practical field trip to Arthursleigh, with remainder a mix of self-directed (on-line) learning, case studies and presentations.  
**Assessment:** Participation, learning journal and case reports, written report, oral presentation.  
**Note:** This unit is an elective in the Postgraduate Program in Animal Science and in the generic Veterinary Studies program.

This Unit of Study is designed specifically for students wishing to extend their skills and knowledge of artificial breeding technologies, and will particularly suit students intending to work in the artificial breeding industries, or in rural mixed practice, and students interested in pursuing research in reproduction and biotechnology. The practical work will primarily focus on sheep and cattle, but the Unit of Study will be of interest to those wishing to work with other species, including companion animals, pigs, laboratory animals and wildlife. The Unit of Study will integrate the disciplines of quantitative and molecular genetics, animal health, nutrition, and reproduction, including advanced reproductive technologies as applied to managed breeding and assisted reproduction programs. Students will gain practical skills in artificial insemination,
embryo transfer, gamete preservation and banking, pregnancy diagnosis, molecular genetics (proof of parentage, marker assisted selection), selection of breeding stock, and management of breeding programs. By the end of this unit students will be able to: Advise on implementation and management of artificial breeding programs in production animals, companion animals, and wildlife; Demonstrate proficiency in the legal, ethical and animal welfare aspects in managing artificial breeding programs; Design and manage an artificial breeding program in sheep or cattle, including appropriate selection of breeding stock; Perform breeding soundness examinations on sheep and cattle; Perform artificial insemination, embryo recovery and transfer, and pregnancy diagnosis in sheep and cattle; Advise on appropriate nutritional regimes for breeding stock; Advise on health requirements and management for breeding stock, and on the international transfer of semen and embryos; Students will also be able to describe: Artificial breeding techniques applicable to pigs, companion animals and wildlife; Techniques of gamete and embryo preservation and banking; Advanced biotechnology techniques applicable to the AB industries.

VETS8018 Advanced Anatomy and Physiology B
Credit points: 6
Teacher/Coordinator: Program Academic Supervisor: Prof Chris Moran Instructor(s): Dr Melanie Collier, Assoc Prof Rosanne Taylor, Assoc Prof Paul McGreevy, Prof David Fraser, Dr Jane Stevenson
Session: Semester 2 Mode: On campus lectures, tutorials, practical sessions, workshops, computer-based learning. Prerequisites: VETS8014 Prohibitions: ANSC3004 Assessment: Dissection project, examination, assignments. Note: This unit is an elective in the Postgraduate Program in Animal Science and in the generic Veterinary Studies program.
This unit of study provides an integrated study of the structure and function of livestock animals, covering topics which were not covered in VETS8014. It will build on the concepts which were introduced and skills acquired in the VETS8014 unit of study and extend students’ knowledge of the structure and function of the urinary tract, nerve, muscle, bone and skin, cardiovascular system and nervous system, avian structure and function, aquaculture and deer production. The concepts developed will be applied to analysis and resolution of problems in animal production.

VETS8021 Animal Science Research Project A
Credit points: 6
Teacher/Coordinator: Program Academic Supervisor: Prof Chris Moran Instructor(s): Prof Chris Moran
Session: Semester 1, Semester 2 Mode: By supervision Assessment: Dissertation, progress reports. Note: This unit is core in the Postgraduate Program in Animal Science.
In this Unit of Study, participants will learn to conduct animal science research in a professional and ethical manner.

VETS8022 Animal Science Research Project B
Credit points: 6
Teacher/Coordinator: Program Academic Supervisor: Prof Chris Moran Instructor(s): Prof Chris Moran
Session: Semester 1, Semester 2 Mode: By supervision Co-requisites: VETS8021 Assessment: Dissertation, progress reports. Note: This unit is core in the Postgraduate Program in Animal Science.
In this unit of study, participants will learn to conduct animal science research in a professional and ethical manner.

VETS8023 Animal Science Research Project C
Credit points: 6
Teacher/Coordinator: Program Academic Supervisor: Prof Chris Moran Instructor(s): Prof Chris Moran Session: Semester 1, Semester 2 Mode: By supervision Co-requisites: VETS8022 Assessment: Dissertation, progress reports. Note: This unit is elective in the Postgraduate Program in Animal Science.
In this unit of study, participants will learn to conduct animal science research in a professional and ethical manner.

VETS8024 Animal Science Research Project D
Credit points: 6
Teacher/Coordinator: Program Academic Supervisor: Prof Chris Moran Instructor(s): Prof Chris Moran
Session: Semester 1, Semester 2 Mode: By supervision Co-requisites: VETS8023
Assessment: Dissertation, progress reports. Note: This unit is elective in the Postgraduate Program in Animal Science.

In this unit of study, participants will learn to conduct animal science research in a professional and ethical manner.

VETS8031 Advanced Animal Health and Disease
Credit points: 6
Teacher/Coordinator: Program Academic Supervisor: Prof Chris Moran Instructors: Dr Wendy Muir, Dr Jenny-Ann Toribio, Dr Robert Dixon, Dr John House
Session: Semester 1 Mode: On-campus lectures, tutorials Co-requisites: Department permission required for enrolment Assumed knowledge: All core Units of Study in Years 1, 2 and 3 of BAnVetBioSc degree or equivalent Assessment: examination, assignments, oral presentation, compulsory 2 day excursion Note: Department permission required for enrolment. Note: This unit is an elective in the Postgraduate Program in Animal Science and the generic Veterinary Studies program.

This Unit of Study describes the major constituents of the immune system and how they interact to protect animals from infection. Some major microbial, viral and parasitic infections of commercial consequence to animal production are detailed as well as the range of management and interventional strategies that are currently in use to minimize their impact. Textbooks

Students are advised to consult lecturers for recommended texts

VETS8032 Advanced Dairy Production & Technology
Credit points: 6
Teacher/Coordinator: Program Academic Supervisor: Prof Chris Moran Instructor(s): Dr Yani Garcia, Dr Pietro Celli, Mr Tony Dowman, Mr Kim McKean
Session: Semester 1 Mode: On-campus lectures, tutorials Co-requisites: Department permission required for enrolment. Assumed knowledge: All core Units of Study in Years 1, 2 and 3 of BAnVetBioSc degree or equivalent. Assessment: examination, practical report, milking and Ha cap report Note: Department permission required for enrolment. Note: This unit is an elective in the Postgraduate Program in Animal Science and the generic Veterinary Studies program.

This unit will explore the various aspects of dairy farming and the dairy industry from a scientific point of view. The lectures are a mix of the principles on which sound dairy farming is based and practical example of how this operates in practice. The course is not meant to provide a set of methods on dairying to be used as recommendations. An overall theme is the way the industry has been able to dramatically improve on farm production by adopting many labour saving and efficiency based innovations. Textbooks: Where appropriate, relevant reference material will be identified for specific areas of the course

VETS8034 Food Safety Assessment and Management
Credit points: 6
Teacher/Coordinator: Program Academic Supervisor: Prof Chris Moran Instructor(s): Dr Gary Muscatello
Session: Semester 1 Mode: lectures, tutorials, Seminars /workshops, field trips Co-requisites: Department permission required for enrolment. Assumed knowledge: All core Units of Study in Years 1, 2 and 3 of BAnVetBioSc degree or equivalent. Assessment: individual report, group assignment, written examination Note: Department permission required for enrolment. Note: This
unit is an elective in the Postgraduate Program in Animal Science and the generic Veterinary Studies program.

This Unit of Study focuses on the hazards to human and animal health associated with food safety. General food safety issues will be covered, including assessing the risk of microbial and chemical contamination. Zoonotic diseases and the concept of food of animal origin being the source of chemical and biological agents will be explored. Students will also be introduced to the key elements in food safety risk assessment and management, national and international animal and human health policy and surveillance initiatives and by the end of the unit have an awareness of the global situation for major food-borne diseases, surveillance and control programs.

Textbooks

VETS8035 Feed Technology
Credit points: 6
Teacher/Coordinator: Program Academic Supervisor: Prof Chris Moran Instructor: Dr Russell Bush
Session: Semester 1 Mode: lectures, tutorials, Seminars /workshops, laboratories, field work
Co-requisites: Department permission required for enrolment. Assumed knowledge: All core Units of Study in Years 1, 2 and 3 of BAnVetBioSc degree or equivalent. Assessment: attendance and participation; written class assignments; final exam Note: Department permission required for enrolment. Note: This unit is core in the nutrition stream of the Postgraduate Program in Animal Science. It is elective in the generic Veterinary Studies program.

Feed accounts for approximately 70% of the input costs associated with animal industries, including both monogastric (poultry and pigs, laboratory animals) ruminants (feedlot cattle and sheep) and caecal fermenters (horses, rabbits). The feed industry is described as the largest supporting industry for animal agriculture and is a major employer of graduates (undergraduate and postgraduate). Feed manufacturing is a vital part in enabling our animal industry to add value to nutrient sources that are routinely not consumed by humans and are an integral part in improving the overall sustainability of agriculture and food production. The course will provide in-depth understanding of the feed industry, our understanding of factors influencing ingredient variability and availability (physical and economical), methods and applications of processing of ingredients to increase nutrient intake, availability (digestibility), retention and reduce excretion. All facets of the production and regulation of feed production will be discussed relative to their importance in animal agriculture and food production.

Textbooks No specific textbook available is current

VETS8039 Aquatic Animal Health
Credit points: 6
Teacher/Coordinator: Program Academic Supervisors: Prof Richard Whittington, Prof Chris Moran Instructors: Dr Joy Becker, Prof Richard Whittington, Prof Chris Moran, Prof David Fraser
Session: Semester 1 Mode: lectures, tutorials, Seminars /workshops, laboratories, field work
Co-requisites: Department permission required for enrolment. Assumed knowledge: All core Units of Study in Years 1, 2 and 3 of BAnVetBioSc degree or equivalent. Assessment: written examination, written and/or oral assignment, written practical report Note: Department permission required for enrolment. Note: This unit is an elective in the Postgraduate Program in Animal Science and the generic Veterinary Studies program.

The unit of Study explores in detail aspects of commercial aquaculture, including global trends in aquaculture development. Other topics include water quality, feeding, management, health and disease, genetics and reproduction, environmental impact and economic constraints to production. The unit of study emphasises methods to improve aquacultural productivity. It builds on basic principles of anatomy, physiology, nutrition, genetics and health and disease. Textbooks To be advised in class
VETS8042 Advanced Sheep and Beef Production  
Teacher/Coordinator: Program Academic Supervisor: Prof Chris Moran  
Instructor: Dr Russell Bush  
Session: Semester 1  
Classes: Lectures 2hrs/wk, tutorials 1hr/wk, Practicals 2hrs/wk, field work 1 hr/wk  
Assessment: case study (10%), practical report (20%), meat grading (10%), excursion report (20%) and written exam (40%)  
Assumed Knowledge: Animal and Veterinary Bioscience years 1-3 OR Bachelor of Science in Agriculture years 1-3  
This unit introduces the concepts of sheep and beef cattle production in the Australian environment within the context of world food and fibre consumption and production. The key products and domestic and export markets for these are presented. The course then provides an historical perspective of the basis for each of these industries and then describes each of the production systems designed to meet the demand for these products. These will cover production in both the tropical and temperate regions of Australia and include the key elements of extensive grazing and intensive feedlot systems. Major issues will include breeds and breeding systems, basic nutrition and production practices and animal welfare issues as they affect the quality and quantity of product marketed. The concepts of first stage processing of both meat and fibre products in abattoirs and top-making plants respectively will be presented. The grading of products based on quality factors. The major factors that influence the quality of product and therefore market demand will be presented. Lecture material will be supported with a 5 day study tour to the Riverina to evaluate different commercial production systems, appropriate practical classes and student presentations.  
Textbooks: Anderson RS, Edney ATB 1991 Practical animal handling, Pergamon Press  
Battaglia RA 2001, Handbook of livestock management, Prentice Hall  
Ensminger, ME & Perry RC 1997, Beef cattle science, Interstate Publishers  
Temple, G 2000, Beef cattle handling and facilities design, Grandin Livestock Systems, Fort Collins, Colo  
Cottle, DJ 2000, Australian sheep and wool handbook, WRONZ Developments, Christchurch  
Massy, C 1990 The Australian merino, Viking O'Neil  

VETS8043 Advanced Pig and Poultry Production  
Credit points: 6  
Teacher/Coordinator: Program Academic Supervisor: Prof Chris Moran  
Instructor: Dr Jeff Downing  
Session: Semester 2  
Classes: Lectures 3 hrs/week, practicals 3 hrs/week  
Assessment: Written exam (50 %) (Poultry and Pigs 50:50), Practical report and in course evaluations (25% Pigs). Broiler growth study and in course evaluations (25% Poultry).  
Assumed Knowledge: ANSC3101, ANSC3102, ANSC3103, (Animal and Veterinary Bioscience years 1-3) OR (Bachelor of Science in Agriculture years 1-3)  
This unit of study is composed of two parts, a Poultry Production component and a Pig Production component. The course will provide students with a comprehensive overview of the production of eggs and poultry meat and pork. The individual components examine various aspects of the poultry and pig production systems important in maintaining efficiency and profitability. It investigates aspects of breeding, nutrition, housing, growth performance, heath, welfare, reproductive capability, waste management, marketing and current industry issues. This unit will expand on some aspects of previous year 3 units of study in animal structure and function, nutrition and reproduction.  
Textbooks: There is no single text that adequately covers in Australian pig industry and for this reason no formal text is required. There are many sites (industry, academic institutions and government departments) on the Web which provide excellent information. Links to these will be provided. Where appropriate, relevant reference material will be identified for specific areas of the course. Often poultry specific text books are obsolete very quickly, it would be important to learn to identify trade information (the library subscribes to breeder management guides and product expectations; equipment web-sites, etc) and scientific journals as resources.
Practical work: Visits to an intensive pig farm, feed mill and poultry production and processing units.

VETS8044 Advanced Animal Behaviour and Welfare Science
Credit Points: 6
Teacher/Coordinator: Program Academic Supervisor: Prof Chris Moran Instructor: Dr Greg Cronin
Session: Semester 1
Classes: 6 hrs/wk (including lectures, demonstrations, discussions and practical activities)
Mode: On-campus
Assessment: Assignments/presentations (50%), theory exam (50%).

Animal Behaviour and Welfare Science 3 builds on the understanding of animal form and operation that students have developed in prior Units. In Animal Behaviour and Welfare Science 3, the behavioural and physiological responses of mammals, birds and fish to stressors related to husbandry, housing, transport, slaughter, training and performance are explored in some detail. This Unit enables students to develop a three-dimensional appreciation of the responses of animals to common interventions that arise in the context of interacting with humans, including the domestication of livestock species and the management of wildlife. The principles of animal responses to stress are illustrated with production species as the main examples.

Contemporary approaches to the scientific measurement of animal stress and welfare, based on an appropriate selection of scientific disciplines including ethology, physiology and neuroscience, are assessed with an emphasis on livestock species. Genetic, environmental and evolutionary determinants of pain, stress and fear responses in animals are considered in the light of what is known about cognition and motivation in animals. Methods for assessing and enhancing animal environments and husbandry systems are examined and the impact on animal welfare of stockmanship and human personality is explored in the context of human-animal interactions. Finally, the design and conduct of scientific experiments are assessed with a focus on animal ethics and current welfare issues.

Animal Behaviour and Welfare Science 3 includes a compulsory library–based assignment that provides students with an opportunity to select one species on which they report a summary of scientific advances that may contribute to animal welfare.

Other assessment tasks involve the preparation of written or oral reports of the practical class activities. Students are expected to be familiar with press articles and scientific papers on the topic of animal welfare and to contribute to classroom discussions.

VETS9001 MVetStud Research Project A
Credit points: 6
Teacher/Coordinator: Program Academic Supervisor: Merran Govendir Instructor(s): Supervisor(s) in relevant discipline.
Session: Semester 1, Semester 2
Mode: Supervision. Assessment: 6,000 words or equivalent of publishable work. Note: This unit is core to the Master of Veterinary Studies.
To conduct and communicate the results of scientific veterinary investigation in a professional and ethical manner. Conduct of this research project may require veterinary qualifications registrable in NSW.

VETS9002 MVetStud Research Project B
Credit points: 6
Teacher/Coordinator: Program Academic Supervisor: Merran Govendir Instructor(s): Supervisor(s) in relevant discipline.
Session: Semester 1, Semester 2
Mode: Supervision Co-requisites: VETS9001 Assessment: 6,000 words or equivalent of publishable work. Note: This unit is core to the Master of Veterinary Studies.
To conduct and communicate the results of scientific veterinary investigation in a professional and ethical manner. Conduct of this research project may require veterinary qualifications registrable in NSW.

VETS9003 Special Topics in Veterinary Studies
Credit points: 6
Teacher/Coordinator: Program Academic Supervisor: Merran Govendir Instructor(s): Supervisor(s) in relevant discipline.
Session: Semester 1, Semester 2 Mode: Supervision. Co-requisites: VETS9001 Assessment: 6,000 words or equivalent. Note: This unit is an elective in the Postgraduate Program in Veterinary Studies and is core to the GradDipVetStud (Small Animal Clinical Studies).
This unit will allow students to be supervised in specific areas of study that are not covered in any existing postgraduate units in veterinary studies. The purpose of this unit may include: interest in specific practical or clinical subject area, allowing greater depth of learning following from core units of study at Graduate Certificate level; interest in enhanced knowledge of a particular discipline/species; additional learning required to support a research project or case report. Students must discuss learning outcomes, methods for achieving them, assessment and assessment criteria with their supervisor and submit documentation to the Associate Dean, Postgraduate Studies by the census date of the relevant Semester. At the end of this Unit of Study, students will be able to: Discuss the major issues associated with their subject area; Interpret and critically evaluate scientific material or information in their subject area; Make informed decisions in their subject area and implement them; Clearly communicate understanding of their subject area.

PUBH5018 Introductory Biostatistics
Credit points: 6
Teacher/Coordinator: Dr Petra Macaskill, Dr Timothy Dobbins
Session: Semester 1 Mode: 2x2hr lecture, 10x1hr lectures, 11x2hr tutorials, 2x1hr and 8x0.5hr statistical computing self directed learning tasks over 12 weeks Assessment: 1x4page assignment (30%) and 1x2.5hr open-book exam (70%) This unit aims to provide students with an introduction to statistical concepts, their use and relevance in public health. This unit covers descriptive analyses to summarise and display data; concepts 37 underlying statistical inference; basic statistical methods for the analysis of continuous and binary data; and statistical aspects of study design. Specific topics include: sampling; probability distributions; sampling distribution of the mean; confidence interval and significance tests for one-sample, two paired samples and two independent samples for continuous data and also binary data; correlation and simple linear regression; distribution-free methods for two paired samples, two independent samples and correlation; power and sample size estimation for simple studies; statistical aspects of study design and analysis. Students will be required to perform analyses using a calculator and will also be required to conduct analyses using statistical software (SPSS). It is expected that students spend an additional 2 hours per week preparing for their tutorials. This unit may be undertaken in face to face or online/distance mode. Computing tasks are self-directed.
Textbooks Course notes are provided.

WILD5001 Australasian Wildlife: Introduction
Credit points: 6
Teacher/Coordinator: Dr Mathew Crowther
Session: S1 Intensive Mode: Intensively taught unit, the remainder of the unit will involve personal study and project activity. See the Wildlife Health and Population Management website for dates. Assessment: assessments for each unit may include practical work, field studies, student presentations and written reports Note: Core This unit of study provides an introduction to the wildlife of Australasia, an overview of the present status of that wildlife, and an understanding of both conservation problems and management solutions. Issues in wildlife management are exemplified using a broad range of vertebrate species occupying different environments. Emphasis is placed on providing students with a coordinated and interdisciplinary approach to wildlife health and management, and on developing expertise in recognising and solving a broad range of problems in field populations. The unit integrates lectures, practical work and supervised study, and offers students the opportunity to work through real-world wildlife conservation problems relevant to their individual backgrounds.
WILD5002 Australasian Wildlife: Field Studies
Credit points: 6
Teacher/Coordinator: Dr Mathew Crowther Session: S1 Intensive Mode: Intensively taught unit. See the Wildlife Health and Population Management website for dates. Assessment: Assessments for each unit may include practical work, field studies, student presentations and written reports Note: Core
This unit of study provides a first-hand introduction to the wildlife of Australasia, a practical overview of the present status of that wildlife, and an understanding of both conservation problems and management solutions. Issues in wildlife management are exemplified using sampling and diagnostic methods on a broad range of vertebrate species occupying different environments. The unit follows on from WILD5001 and provides practical experience via a five day field trip.

WILD5003 Wildlife Health
Credit points: 6
Teacher/Coordinator: Assoc. Prof David Phalen Session: S1 Late Int Mode: A full-time week on the Camden campus, with one day spent on a field trip to Taronga Zoo. Assessment: The assessment of this unit occurs both in the full-time week and in individual written assignments done in the student’s own time. The full-time week contributes 40% of the total mark through a number of individual and syndicate tasks, with presentations to the group. The remaining 60% comes from two written assignments of 3,000 words (20%) and 5,000 words (40%) respectively. This unit of study provides an introduction to the health issues confronting wildlife in Australasia, an overview of the health status of that wildlife, and an understanding of both the investigation of health problems and the effective management of these. Issues in wildlife disease management are exemplified using a broad range of vertebrate species occupying different environments. Emphasis is placed on providing students with a coordinated and interdisciplinary approach to wildlife health, and on developing expertise in recognising and solving a broad range of health problems in field populations. The unit is taught intensively in a full-time week on the Camden campus, with one day spent on a field trip to Taronga Zoo. The unit integrates lectures, practical work and supervised study, and offer students the opportunity to work through real-world wildlife conservation problems relevant to their individual backgrounds. Textbooks Unit of Study Handbook is the primary reference.

WILD5004 Vertebrate Pest Management
Credit points: 6
Teacher/Coordinator: Adam Munn, Mathew Crowther, Tony Buckmaster Session: S2 Intensive Mode: The Unit is taught in a full-time week at the university farm "Arthursleigh" near Marulan NSW. There are lectures, tutorials, and a variety of practical classes. Assessment: The assessment of this unit occurs both in the full-time week and in individual written assignments done in the student’s own time. The full-time week contributes 40% of the total mark through a number of individual and syndicate tasks, with presentations to the group. The remaining 60% comes from two written assignments of 3000 words (20%) and 5000 words (40%) respectively. Note: Optional Vertebrate pests occur in many parts of the world, and can pose significant problems for management of habitat, agricultural productivity, human and wildlife health. This unit focuses on vertebrates that have been introduced to new environments, and considers in detail the impacts and management of pest vertebrates in Australia. Steps in pest management are reviewed, from problem analysis to acceptable levels of control, using case studies of cane toads, rabbits, house mice and red foxes. Traditional mortality methods of management are reviewed, and emphasis placed on developing methods based on fertility control. The Unit is taught in a full-time week at the university farm "Arthursleigh" near Marulan NSW. There are lectures, tutorials, and a variety of practical classes. The Unit is taught in a full-time week at the university farm "Arthursleigh" near Marulan NSW. There are lectures, tutorials, and a variety of practical classes. Textbooks Unit of Study Handbook is the primary reference.

WILD5005 In Situ Wildlife Management
**WILD5005 Wildlife Health and Population Management**

**Credit points:** 6  
**Teacher/Coordinator:** Dr Mathew Crowther  
**Session:** S1 Late Int  
**Mode:** Intensively taught unit. See the Wildlife Health and Population Management website for dates.  
**Assessment:** Assessments for each unit may include practical work, field studies, student presentations and written reports. Wildlife populations do not remain static, but change in size and composition over both time and space. The challenge for managers is to recognise when change in target populations exceeds acceptable limits and intervention is necessary. This unit of study develops skills in assessing population status and recognising differences between 'small populations' and 'declining populations'. It introduces methods used in population pattern analysis, demographic analysis, threat and resource assessment, and determination of health, emphasising the value of a coordinated and interdisciplinary approach to problem recognition and resolution.

**WILD5006 Ex Situ Wildlife Management**

**Credit points:** 6  
**Teacher/Coordinator:** Derek Spielman  
**Session:** S2 Late Int  
**Mode:** The Unit is taught in a full-time week at Western Plains Zoo in Dubbo, NSW.  
**Assessment:** The assessment of this unit occurs both in the full-time week and in individual written assignments done in the student's own time. The full-time week contributes 40% of the total mark through a number of individual and syndicate tasks, with presentations to the group. The remaining 60% comes from two written assignments of 3,000 words (20%) and 5,000 words (40%) respectively. Wildlife populations are under a variety of threats, most of which result from human activities. Modern conservation biology seeks practical solutions to these problems, using a wide variety of options. These options may include captive breeding and re-introduction programs, provided that a range of biological, ethical and politico-economic issues are addressed. This unit of study will provide students with the ability to evaluate the likely cost-effectiveness of such programs. It will also develop knowledge of the technologies available to capture and translocate wildlife, and of the planning required to ensure the best possible chance of success. The Unit is taught in a full-time week at Western Plains Zoo in Dubbo, NSW. The unit integrates lectures, tutorials, practical work and supervised study, and offers students the opportunity to examine real-world problems in the conservation and management of threatened wildlife populations using case studies relevant to their individual backgrounds.

**Textbooks** Unit of Study Handbook is the primary reference.

**WILD5009 Research Project**

**Credit points:** 12  
**Session:** Semester 1, Semester 2  
**Mode:** meetings throughout semester to be arranged with supervisor.  
**Assessment:** Independent research project.  
**Note:** Core for the Masters program  
A valuable opportunity to apply some of the knowledge gained from earlier coursework, WILD5009 comprises a research project on a topic with significant emphasis on wildlife health and/or population management, as arranged between the student and an appropriate supervisor. This research experience is highly valued by prospective employers as it shows a willingness and ability to undertake guided but independent research. The project is not conducted by way of contact hours per week for a semester. Instead the student is expected to work on the project full-time and in a continuous manner for the semester. This unit of study is available only to students enrolled in the Master of Applied Science (Wildlife Health and Population Management).

**Also available from School of Bioethics**

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