MAST40001 Research Philosophies and Statistics

Credit Points:	12.5
Level:	4 (Undergraduate)
Dates & Locations:	2016, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus.
Time Commitment:	Contact Hours: Twenty-four hours lectures, 24 hours tutorials Total Time Commitment: 170 hours
Prerequisites:	None
Corequisites:	None
Recommended Background Knowledge:	One introductory statistics subject at undergraduate level recommended before enrolling in this subject
Non Allowed Subjects:	None
Core Participation Requirements:	It is University policy to take all reasonable steps to minimise the impact of disability upon academic study, and reasonable adjustments will be made to enhance a student's participation in the University's programs. This course requires all students to enrol in subjects where they must actively and safely contribute to field excursions and laboratory activities. Students who feel their disability will impact on meeting this requirement are encouraged to discuss this matter with the Subject Coordinator and Disability Liaison http://services.unimelb.edu.au/disability/ students email: disability-liaison@unimelb.edu.au
Coordinator:	Dr Peter Ades, Prof Roger Cousens
Contact:	Dr Peter Ades **petera@unimelb.edu.au (https://mce_host/faces/htdocs/ petera@unimelb.edu.au%20)** Prof Roger Cousens **rcousens@unimelb.edu.au (mailto:rcousens@unimelb.edu.au)**
Subject Overview:	This subject should give students knowledge of a range of research methodologies and underlying philosophies, and sophisticated statistical tools to design laboratory and field experiments and field surveys, and effectively and appropriately analyse these data sets in agriculture, horticulture and land management. Upon completion of the subject, students should be able to: # formulate research questions and hypotheses, and implement hypotheses testing, to satisfy research needs in different disciplines, including field research and economics; # recognise, understand and apply concepts of study design (such as observational studies versus designed experiments, confounding, replication, randomisation, and blocking), and discuss the effect of design concepts on the interpretation of results; # determine the appropriate statistical methodology to use, including parametric and non-parametric methods, and confirm that data sets meet the underlying assumptions of the statistical model chosen; # display an understanding of the purpose and limitation of inference, and be able to use the main tools of inference to analyse and interpret data; and # interpret statistical program outputs in agricultural, horticultural and land management contexts
Learning Outcomes:	The objectives of this subject are to provide students with: # a basic understanding of how to ask and answer questions in experimental biology; # familiarity with the kinds of data generated in biological and environmental research;

	# skills to design efficient sampling programs and experiments in biological science; # an understanding of the statistical models and analyses that can be applied to different kinds of biological data; # be able to interpret and present results of statistical analyses.
Assessment:	A 2-hour examination (50%), one integrated assignment of up to 3,000 words initially submitted in week 8 (30%) then resubmitted in week 11 after feedback (20%).
Prescribed Texts:	None
Recommended Texts:	Biostatistical Analysis (JH Zar), 5th edn, 2008
Breadth Options:	This subject is not available as a breadth subject.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	* A profound respect for truth, intellectual and professional integrity, and the ethics of scholarship * Capacity for independent critical thought, rational inquiry and self-directed learning and research * An ability to derive, interpret and analyse social, technical or economic information from primary and other sources * Awareness of and ability to utilise appropriate communication technology and methods for the storage, management and analysis of data * Capacity for creativity and innovation, through the application of skills and knowledge * Ability to integrate information across a relevant discipline to solve problems in applied situations * Highly developed computer - based skills to allow for effective on-line learning and communication. * Highly developed written communication skills to allow informed dialogue with individuals and groups from industry, government and the community * Highly developed oral communication skills to allow informed dialogue and liaison with individuals and groups from industry, government and the community. * Ability to plan work, use time effectively and manage small projects
Related Course(s):	Bachelor of Agriculture (Degree with Honours)
Related Majors/Minors/ Specialisations:	Bachelor of Environments (Honours) Environmental Geography Bachelor of Environments (Honours) Landscape Management Conservation and Restoration Conservation and Restoration Geography Honours Program - Agricultural Science Honours Program - Animal Science and Management Honours Program - Food Science Honours Program - Forest Science Honours Program - Geography Honours Program - Veterinary Bioscience Tailored Specialisation Tailored Specialisation