208-302 Molecular Biology and Breeding

Credit Points:	12.50
Level:	3 (Undergraduate)
Dates & Locations:	2009, This subject commences in the following study period/s: Semester 1, - Taught on campus.
Time Commitment:	Contact Hours: Thirty hours of lectures, 30 hours of other activities (assignments, computer searches of gene and patent data bases, breeding case histories) Total Time Commitment: Not available
Prerequisites:	202-103 Biology for Land and Food Resources and 202-101 Chemistry for Land and Food Resources. 650-142 Genetics and the Evolution of Life is desirable but not essential.
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	None
Core Participation Requirements:	For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Student Support and Engagement Policy, academic requirements for this subject are articulated in the Subject Overview, Learning Outcomes, Assessment and Generic Skills sections of this entry. 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. Students who feel their disability may impact on meeting the requirements of this subject are encouraged to discuss this matter with a Faculty Student Adviser and Student Equity and Disability Support: http://services.unimelb.edu.au/disability
Coordinator:	Prof Prem Bhalla
Subject Overview:	On completion of this subject students should: # understand the principles and methodology of crop and animal breeding, and the contribution of genes to development of quantitative traits; and # have basic understanding of molecular biology, genetic engineering and its impact on agriculture (plant and animal), horticulture, forestry and the food industry. Topics include nature of genes and regulation of gene expression at the molecular level; introduction to gene manipulation and recombinant technology for production of improved food and forest plants, crops and food animals; management of transgenic plants, crops and animals in agricultural systems; risks and concerns regarding environmental release of transgenic organisms, and safety criteria for transgenic food; principles and methodology of crop and animal breeding, basic population genetics and genetic development of quantitative traits; evolutionary processes and genetic variability of plant populations; world-wide distribution and conservation of plant genetic resources; methods of breeding self- and cross-pollinating plants, development of hybrids, chromosome manipulation and polyploidy; methods for breeding disease and insect resistance in agricultural plants; molecular markers for DNA fingerprinting, genetic diversity, marker-assisted selection; and special techniques in plant breeding, somatic hybridisation and tissue culture.
Assessment:	Two-hour end-of-semester examination (50%), 1-hour mid-semester test (25%), written project report (4000 words, 25%).
Prescribed Texts:	None
Recommended Texts:	Information Not Available

Breadth Options:	This subject potentially can be taken as a breadth subject component for the following courses: # **Bachelor of Arts (https://handbook.unimelb.edu.au/view/2009/D09)** # **Bachelor of Commerce (https://handbook.unimelb.edu.au/view/2009/F04)** # **Bachelor of Environments (https://handbook.unimelb.edu.au/view/2009/A04)** # **Bachelor of Music (https://handbook.unimelb.edu.au/view/2009/M05)** You should visit **learn more about breadth subjects (http://breadth.unimelb.edu.au/breadth/info/index.html)** and read the breadth requirements for your degree, and should discuss your choice with your student adviser, before deciding on your subjects.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	Information Not Available
Related Course(s):	Bachelor of Agricultural Science Bachelor of Agricultural Science Bachelor of Animal Science and Management Bachelor of Horticulture Bachelor of Horticulture (Honours) Graduate Diploma in Agricultural Science