

MC-SCIBIT Master of Biotechnology

Year and Campus:	2011 - Parkville
CRICOS Code:	062189B
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Level:	Graduate/Postgraduate
Duration & Credit Points:	200 credit points taken over 24 months full time. This course is available as full or part time.
Coordinator:	Professor David K. Gardner
Contact:	<p>Melbourne Graduate School of Science Faculty of Science The University of Melbourne Victoria 3010</p> <p>Tel: + 61 3 8344 6128 Fax: +61 3 8344 3351</p> <p>Web: http://graduate.science.unimelb.edu.au/ (http://graduate.science.unimelb.edu.au/) Email: graduate-science@unimelb.edu.au</p>
Course Overview:	<p>Biotechnology is the use and manipulation of living organisms, or substances obtained from these organisms, to make products of value to humanity. Biotechnology has become a fundamental area of applied science and covers a diversity of specialist fields. Disciplines in Biotechnology include; molecular biology, biochemistry, cell biology, microbiology, plant and environmental sciences, engineering, drug development, nanofabrication, reproductive sciences, stem cells, genetically modified organisms (GMOs) and pollution control. Modern medicine, agriculture, animal breeding, pharmaceuticals, food production and processing etc., all utilise various Biotechnology tools.</p> <p>This core discipline will focus on advances in key technologies, and will give the student the necessary skills base to go from 'molecules to medicine'. Together with developing an understanding of the actual scientific technologies involved in modern biotechnology, areas such as Trial Design, Regulatory Affairs, Quality Management and GMP will be covered, together with the actual scientific technologies involved in modern biotechnology.</p> <p>This professional entry program offers students the opportunity to undertake core science studies as well as professional tools modules, which provide high-level training in the areas of business, communications and science application.</p> <p>As this program does not contain an independent research component, it is not a pathway to research higher degree studies eg. PhD at The University of Melbourne</p>
Objectives:	<p>Upon completion of this course, students should have:</p> <ul style="list-style-type: none"> # a detailed understanding of advanced tools, resources and techniques in molecular biology; # an understanding of how these techniques are used to study gene and protein functions in cells and organisms; # an appreciation of how these techniques may be applied both in biotechnology and in advanced research; # an appreciation of the information resources available to assess the usefulness of a particular technique; and # acquired the knowledge to enable them to critically appraise new data arising from the use of these techniques and to interpret the implications of such data.
Course Structure & Available Subjects:	<p>Course structure (all subjects are 12.5 points, total points: 200)</p> <p>Discipline Core (62.5 points)</p> <p>Students must take:</p> <ul style="list-style-type: none"> # BIOL90001 (600-651) Microscopy for Biological Sciences # SCIE90002 (600-650) Metabolomics & Proteomics

- # BTCH90005 (600-606) Advanced Molecular Biology Techniques
- # SCIE90011 (654-604) From Lab to Life
- # BTCH90009 (600-608) Genomics and Bioinformatics

Discipline Elective (62.5 points)

All students must choose five of the following subjects with the following exception: Students who have not completed the equivalent of BCMB30002 (521-302) Functional Genomics and Bioinformatics or GENE30002 (652-302) Genes: Organisation and Function as part of their undergraduate studies will be directed at enrolment to enrol in one of BCMB30002 (521-302) or GENE30002 (652-302) in their first semester of study. For these students, this 62.5 point component of their course will therefore consist of BCMB30002 (521-302) or GENE30002 (652-302) and four of the following subjects:

- # BTCH90006 (600-607) Bioprocess Engineering
- # BTCH90010 (600-609) Genetically Modified Organisms
- # BTCH90008 (600-652) Tissue Engineering and Stem Cells
- # PHRM30009 (534-313) Drugs in Biomedical Experiments
- # FOOD90011 (208-747) Food Biotechnology
- # FOOD90008 (208-743) Food Safety and Quality
- # BCMB30002 (521-302) Functional Genomics and Bioinformatics
- # GENE30002 (652-302) Genes: Organisation and Function
- # other approved electives can be selected in consultation with the Course Coordinator

Professional Skills Core (50 points)

Students must take:

- # MAST90044 (600-615) Thinking and Reasoning with Data
- # BUSA90403 (600-614) Business Tools: Money, People and Processes
- # BUSA90471 (600-622) Business Tools: The Market Environment
- # SKIL90004 Project Management in Science

Professional Skills Elective (25 points)

Students must choose two of the following subjects:

- # MAST90045 (600-617) Systems Modelling and Simulation
- # SCIE90006 (600-619) Scientists, Communication and the Workplace
- # SCIE90005 (600-618) Ethics & Responsibility
- # SCIE90007 (615-505) e-Science
- # SCIE90004 (600-616) Science in Context
- # MULT90012 (600-611) Industry Project in Science (quota to apply, SKIL90004 Project Management in Science to be pre/corequisite)

Subject Options:

Discipline Core

Subject	Study Period Commencement:	Credit Points:
BIOL90001 Microscopy for Biological Sciences	Semester 1	12.50
SCIE90002 Metabolomics and Proteomics	Semester 2	12.50
BTCH90005 Advanced Molecular Biology Techniques	Not offered 2011	12.50
SCIE90011 From Lab to Life	Semester 1	12.50
BTCH90009 Genomics and Bioinformatics	Semester 1	12.50

Discipline Elective

Subject	Study Period Commencement:	Credit Points:
BTCH90006 Bioprocess Engineering	Not offered 2011	12.50

BTCH90010 Genetically Modified Organisms	Semester 1	12.50
BTCH90008 Tissue Engineering and Stem Cells	Semester 2	12.50
PHRM30009 Drugs in Biomedical Experiments	Semester 1, Semester 2	12.50
FOOD90011 Food Biotechnology	Semester 1	12.50
FOOD90008 Food Safety and Quality	Semester 2	12.50
BCMB30002 Functional Genomics and Bioinformatics	Semester 1	12.50
GENE30002 Genes: Organisation and Function	Semester 1	12.50

Professional Skills Core

Subject	Study Period Commencement:	Credit Points:
MAST90044 Thinking and Reasoning with Data	Semester 1	12.50
BUSA90403 Business Tools: Money People & Processes	Semester 2	12.50
BUSA90471 Business Tools: The Market Environment	Semester 1	12.50
SKIL90004 Project Management in Science	Not offered 2011	12.50

Professional Skills Elective

Subject	Study Period Commencement:	Credit Points:
MAST90045 Systems Modelling and Simulation	Semester 1	12.50
SCIE90006 Scientists, Communication & the Workplace	Not offered 2011	12.50
SCIE90005 Ethics and Responsibility in Science	Semester 2	12.50
SCIE90007 E-Science	Not offered 2011	12.50
SCIE90004 Science in Context	Not offered 2011	12.50
MULT90012 Industry Project in Science	Not offered 2011	12.50

Entry Requirements:

A bachelor degree with a major in a Life Science or Chemistry and at least 65% in the major or equivalent. As part of their degree studies, applicants must have completed an appropriate sequence of genetics or biochemistry related subjects or equivalent to at least second year level.

Core Participation Requirements:

The Master of Biotechnology welcomes applications from students with disabilities. It is University and degree 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 degree. The Master of Biotechnology requires all students to enrol in subjects where they will require: (1) the ability to comprehend complex science and technology related information; (2) the ability to clearly and independently communicate a knowledge and application of science, and technology principles and practices during assessment tasks; (3) the ability to actively and safely contribute in clinical, laboratory, and fieldwork/excursion activities. Students must possess behavioural and social attributes that enable them to participate in a complex learning environment. Students are required to take responsibility for their own participation and learning. They also contribute to the learning of other students in collaborative learning environments, demonstrating interpersonal skills and an understanding of the needs of other students. Assessment may include the outcomes of tasks completed in collaboration with other students. There may be additional inherent academic requirements for some subjects, and these requirements are listed within the description of the requirements for each of these subjects. Students who feel their disability will impact on meeting this requirement are encouraged to discuss this matter with the relevant Subject Coordinator and the Disability Liaison Unit: <http://www.services.unimelb.edu.au/disability/>

Graduate Attributes:	Graduates will:have the ability to demonstrate advanced independent critical enquiry, analysis and reflection; have a strong sense of intellectual integrity and the ethics of scholarship; have in-depth knowledge of their specialist discipline(s); reach a high level of achievement in writing, project activities, problem-solving and communication; be critical and creative thinkers, with an aptitude for continued self-directed learning; be able to examine critically, synthesise and evaluate knowledge across a broad range of disciplines; have a set of flexible and transferable skills for different types of employment; be able to initiate and implement constructive change in their communities, including professions and workplaces.
Generic Skills:	
Links to further information:	http://graduate.science.unimelb.edu.au