Graduate Certificate in Biotechnology (LS66)

Year offered: 2010
Admissions: Yes
CRICOS code: 054278A
Course duration (full-time): 1 semester (0.5 year)
Course duration (part-time): 2 semesters (1 year)
Domestic fees (indicative): 2010: Full fee tuition $7,250 (indicative) per semester
International Fees (indicative): 2010: $11,250 (indicative) per semester
Domestic Entry: July (Note: Students commencing in July, enrol in Semester 2 units first) (Students are NOT able to commence LS66 in February)
International Entry: July (Students are NOT able to commence LS66 in February)
Total credit points: 48
Standard credit points per full-time semester: 48
Standard credit points per part-time semester: 24
Course coordinator: Dr Mark O’Brien
Campus: Gardens Point

Entry Requirements
A bachelor degree or equivalent, preferably but not necessarily in science, is advised. Please contact the course coordinator for further information on the entry requirements for this course.

Career Outcomes
Career opportunities include employment as research and support staff in the biotechnology industry - private or public biotechnology companies, universities, CSIRO, research institutes, government departments, pathology laboratories and hospitals.

Professional Recognition
Graduates are eligible to join the AusBiotech, the Australian Society for Biochemistry and Molecular Biology, and the Australian Society for Microbiology.

Course Design
LS66 Graduate Certificate in Biotechnology is a foundation program for those people without a science degree or for those who do not have a recent background in the biomolecular sciences. Fundamental aspects of cell and molecular biology, biochemistry and microbiology are covered in this first program which comprises 48 credit points of assessed coursework. Successful completion of this program allows students to then specialise in more advanced aspects of biotechnology. The Graduate Certificate in Biotechnology also allows students to gain essential generic skills and attributes for successful postgraduate research and learning. Students must commence in July and enrol in Semester 2 units first.

Advanced standing may be given for this foundation program if the student has a bachelor degree or equivalent with a recent and appropriate undergraduate-level knowledge and practical experience in the key areas of molecular biology, cell biology, biochemistry and/or microbiology at an advanced level. If advanced standing is granted, students can enrol directly in any of the more advanced biotechnology programs (LS76, LS86 or LS96) in their first semester.

Overview
LS66 Graduate Certificate in Biotechnology is the first of four nested postgraduate coursework programs in biotechnology offered by the School of Life Sciences. This particular course will suit anyone who has a recent undergraduate degree (preferably, but not necessarily in science) and who wishes to gain training in general biotechnology. LS66 Graduate Certificate in Biotechnology, a 6-month full-time foundation program, provides those students without a sound background in the biomolecular sciences the opportunity for direct entry into more advanced biotechnology streams. Science-based biomolecular science units emphasise both theoretical and laboratory skills and cover contemporary fundamental techniques underpinning the science of biotechnology.

Further Information
For further information about this course, please contact:
Mark O’Brien
Phone: +61 7 3138 2782
Email: enquiry.scitech@qut.edu.au

Course structure - Full-time

<table>
<thead>
<tr>
<th>Year 1, Semester 2 (MODULE 1)</th>
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<tbody>
<tr>
<td>LSN101 Molecular Biosciences</td>
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<tr>
<td>LSN102 Cellular Biosciences</td>
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<tr>
<td>LSN103 Postgraduate Learning and Research Skills</td>
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<tr>
<td>LSN483 Molecular Biology Techniques</td>
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Course structure - Part-time

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<th>Year 1, Semester 2 (MODULE 1)</th>
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<tr>
<td>LSN101 Molecular Biosciences</td>
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<tr>
<th>Year 2, Semester 2 (MODULE 1)</th>
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<tr>
<td>LSN103 Postgraduate Learning and Research Skills</td>
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</table>
LSN483 Molecular Biology Techniques

Potential Careers:
Biochemist, Biotechnologist, Medical Biotechnologist, Microbiologist, Molecular Biologist, Plant Biotechnologist, Research Assistant, Scientist, Virologist.

UNIT SYNOPSES

LSN101 MOLECULAR BIOSCIENCES
This unit explores the relationships between cellular components and provides a high level of understanding of cell and molecular biology suitable for students wishing to undertake further postgraduate studies. You will study: both informational and structural macromolecules found within the cell and relate their structure to function; cell metabolism; cell division, including DNA replication, transcriptional regulation in prokaryotes and gene regulation in eukaryotes; inheritance; and introductory bioinformatics.

Corequisites: LSN102, LSN483  Assumed knowledge: Students should enrol in either LSN102 or LSN483 in the same semester if not already completed  Credit points: 12  Contact hours: 5 hours  Campus: Gardens Point  Teaching period: 2010 SEM-2

LSN102 CELLULAR BIOSCIENCES
The unit examines the responses available to cells and tissues in normal growth and development and following exposure to injury or stress mechanisms. The role and control of these responses in a range of disease processes is considered. The unit is designed to present, at the level of cell and tissue systems, the effects of physical, chemical, biochemical and metabolic processes. Successful completion of this unit provides a fundamental understanding of cellular structure and function, and prepares students for further postgraduate studies in cell and molecular biology. Additionally, students gain an appreciation of contemporary methods for studying the structure and function of cells and tissues.

Corequisites: LSN101, LSN483  Credit points: 12  Contact hours: 4 per week  Campus: Gardens Point  Teaching period: 2010 SEM-2

LSN103 POSTGRADUATE LEARNING AND RESEARCH SKILLS
This unit assists you in developing of a range of generic and specific skills and attributes to be a successful postgraduate student. On completion of the unit, you will: (i) know how to manage information tools and resources effectively in order to advance your university study and become an independent and competent learner (ii) build and increase your knowledge and competence in using basic software applications and general knowledge of information communication technologies and (iii) develop key skills in project design and management. This unit consists of a series of workshops, seminars and on-line tutorials presented by a team of teaching and learning support staff from across the university.

Credit points: 12  Contact hours: 4 per week  Campus: Gardens Point  Teaching period: 2010 SEM-1 and 2010 SEM-2

LSN483 MOLECULAR BIOLOGY TECHNIQUES
This unit introduces students to the theory and practice of general molecular biology techniques for gene detection and analysis, gene isolation, cloning and amplification, and gene library construction and screening. The unit is designed with a significant emphasis on achieving technical expertise in a range of procedures for isolation, purification and genetic engineering of nucleic acids.

Corequisites: LSN101, LSN102  Assumed knowledge: Students should enrol in either LSN101 or LSN102 in the same semester if not already completed.

Equivalents: LQB483, LSB468  Credit points: 12  Contact hours: 5 per week  Campus: Gardens Point  Teaching period: 2010 SEM-2