

ASTON UNIVERSITY PROGRAMME SPECIFICATION 2012-2013

Programme Title	MSc in Biotechnology
UCAS/JACS Code	NA
School/Subject Area	LHS/Biological Sciences
Final Award	MSc
Interim Award(s)	Diploma Certificate
Mode(s) of Study	FT/PT
Normal Length of Programme	1 year FT, 2 yrs PT
Total Credits	180
Programme Accredited By	Not to be accredited by a Professional Institution
Dates Programme Specification Written and Revised	August 2010

Educational Aims of the Programme	<p>Programme aims: The Postgraduate taught MSc Biotechnology programme aims to:</p> <ol style="list-style-type: none"> 1. provide students with a high level of scientific knowledge and understanding of the cellular and molecular basis of biotechnology. 2. enable students to develop an informed and critical appreciation of recent scientific developments in relation to biotechnology. 3. enable students to gain, through a research project, additional specialist knowledge and practical expertise. 4. produce students who will be able to contribute to a broad spectrum of career opportunities spanning academic, commercial, industrial and healthcare applications of biotechnology.
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Relevant Subject Benchmark Statements and other External and Internal Reference Points used to inform programme outcomes	<p>There are no specific benchmark statements for MSc course relating to the Biotechnology area. We have been guided by feedback and comments from the External Examiner and External Adviser of the MSc Biomedical Sciences programme. In setting programme outcomes we have considered feedback from students – informal and formal - via structured questionnaires, feedback from lecturers, practising regulatory experts and employers.</p>
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Programme Structures and Requirements: Levels, Modules and Credits				
Module Title	Credits	Level	Module Code	Core/ Elective
Research Methods	10	7	BI4002	Core
Introductory Molecular Biology	10	7	BI4034	Core
Cell Biology & Cell Culture	20	7	BI4018	Core
Enzyme Technology	20	7	BI4021	Core
Protein Engineering & Production	20	7	BI4019	Core
Fermentation & Bioreactors	10	7	BI4050	Core
Bioinformatics	10	7	BI4033	Core
Stem Cell Biology & Tissue Engineering	20	7	BI4048	Core
Research Project	60	7	BI4023	Core
TOTAL	180			

Programme Outcomes, Learning and Teaching and Assessment Strategies			
<u>A. Knowledge and Understanding</u>			
	On successful completion of their programme, students are expected to have knowledge and understanding of:	Learning, Teaching and Assessment Strategies to enable outcomes to be achieved and demonstrated	
		Learning and Teaching Methods	Assessment Methods
1a	The necessary constituents and presentation style for written and oral academic presentations	Lecture Seminar Group Discussion Directed and independent study in both individual and group formats	Research abstract Poster presentation Critical review Lecture Handout
1b	Appreciation of and sensitivity to needs/objectives of undergraduate teaching and assessment		
1c	The requirements and processes involved in publishing research		
2	The key basics of molecular biology	Lecture Directed reading	Examination CAL assessment
3	Theory and practice of cell culture; overview of gene technologies used to modify eukaryotic cells	Lecture Practical Directed reading	Examination Practical reports

4	The applications of enzymes to research and industry	Lecture Practical Directed reading	Examination Practical reports
5	Applications of genetic engineering	Lecture Practical Directed reading	Examination Practical reports CAL assessment
6	Principles and application of industrial biotechnology	Lecture Practical Directed reading	Examination Practical reports
7	Bioinformatics and its application in biotechnology	Lecture Directed reading	Examination CAL exercises
8	Stem cells and their relevance to modern biotechnology	Lecture Tutorial Directed reading	Examination Continuous assessment
9	Principles and application of tissue engineering	Lecture Tutorial Directed reading	Examination Continuous assessment
10	Data generation and interpretation	Research project	Project report

B. Intellectual Skills

	On successful completion of their programme, students are expected to be able to:	Learning, Teaching and Assessment Strategies to enable outcomes to be achieved and demonstrated	
		Learning and Teaching Methods	Assessment Methods
1	Synthesise knowledge from a variety of disciplines	Lectures Practicals	Examination
2	Identify and develop appropriate methods to be used and data to be acquired	Practicals	Research Projects
3	Use and apply good laboratory practice	Practicals	Practical reports
4	Analyse data and apply statistics	Practicals	CAL Practical reports

C. Professional Skills

	On successful completion of their programme, students are expected to be able to:	Learning, Teaching and Assessment Strategies to enable outcomes to be achieved and demonstrated	
		Learning and Teaching Methods	Assessment Methods

1	Operate across the discipline boundaries in the field of biotechnology.	Lectures Practicals	Examination Research projects Practical reports
2	Demonstrate grant writing skills, conduct a risk assessment, and complete an ethics proposal for submission to a review board	Seminar Group discussion Group and independent study	Mini-grant Ethics Proposal Oral Interview
3	Communicate effectively to other academics and to students.	Seminar Group discussion Directed and independent Study at an individual level, project	Research Abstract Poster Presentation Lecture Handout
4	Recognise and appreciate the commercial aspects of biotechnology	Lectures	Examination

D. Transferable Skills

	On successful completion of their programme, students are expected to show:	Learning, Teaching and Assessment Strategies to enable outcomes to be achieved and demonstrated	
		Learning and Teaching Methods	Assessment Methods
1	Effective written communication	Essay Lecture, group discussion, directed and independent study at an individual level, project	Examination Essay Project report Poster presentation Research Abstract
2	Effective oral communication	Seminar Lecture, group discussion, directed and independent study at an individual level	Seminar Oral interview Lecture
3	Independent study, including good time management	Directed reading (all modules and project).	Assessed in all submitted coursework.
5	IT Skills / Powerpoint presentation	CAL classes Seminar Group discussion Independent Study	Lecture

Entry Requirements	<p>The course is open to suitably qualified international and UK graduates. Prospective students must possess a good honours degree (minimum lower 2nd class) in Biochemistry, Biotechnology, Biology, Chemistry, Chemical Engineering, Genetics, Materials Science, Medicine, Microbiology, or a related field, from a recognised university or an overseas degree recognised by Aston University, plus two references. Students whose first language is not English must demonstrate a satisfactory command of written and spoken English. For International students this is demonstrated by an IELTS score of 6.5 or higher overall, but with no score below a 6.0.</p>
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Programme Regulations	<p>The programme is governed by the General Regulations for Postgraduate Taught Programmes.</p>
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Further Information	
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This specification provides a concise summary of the main features of the programme and the threshold learning outcomes that a student might normally be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. **The individual modules included in the programme may differ from those included in this programme specification as our programmes are subject to continuous review.** Information on admissions requirements and career opportunities is available in the relevant prospectus. More detailed information on the learning outcomes, content and teaching, learning and assessment methods of each module can be found in the appropriate module guides and programme handbook(s) which are available to students on enrolment.