

Overview

Programme Code	30535
Programme Title	Industrial Biotechnology
Awarding Institution	Liverpool John Moores University
Programme Type	Masters
Language of Programme	All LJMU programmes are delivered and assessed in English
Programme Leader	Femi Olorunniji
Link Tutor(s)	

Awards

Award Type	Award Description	Award Learning Outcomes
Target Award	Master of Science - MS	See Learning Outcomes Below
Alternative Exit	Postgraduate Diploma - PD	Demonstrate an enhanced level of understanding of practical and theoretical aspects of Industrial Biotechnology. Demonstrate a range of key skills including; communication skills, critical analysis, data analysis/interpretation, teamwork. Demonstrate a clear understanding of the current research methodologies and themes within biotechnology.
Alternative Exit	Postgraduate Certificate - PC	Demonstrate an enhanced level of understanding of practical and theoretical aspects of Industrial Biotechnology. Demonstrate a range of key skills including; communication skills, critical analysis, data analysis/interpretation, teamwork.

Alternate Award Names	
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External Benchmarks

Subject Benchmark Statement	
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Programme Offering(s)

Mode of Study, Mode of Delivery	Intake Month	Teaching Institution	Programme Length
Full-Time, Face to Face	September	LJMU Taught	1 Years

Aims and Outcomes

Educational Aims of the Programme

The overall aims of the programme are: 1. To provide students with specialist knowledge in areas of biotechnology including fermentation, recombinant DNA and cell technologies through a range of teaching and learning activities. 2. To enhance students' understanding of the instrumentation and their applications used in the field of biotechnology through both practical and theoretical lectures and workshops. 3. To provide students with opportunities to work within a research laboratory in an industrial/academic setting, so as to develop their practical research skills, good laboratory practice and risk assessment. 4. To develop the students employability and transferable skills including; written and verbal communication, IT, problem-solving, teamwork and time management skills.

Learning Outcomes

Code	Description
PLO1	Demonstrate an advanced understanding of concepts, principles and theories relevant to biotechnology.
PLO2	Apply appropriate practical techniques to the execution of biotechnology research projects.
PLO3	Employ a range bioinformatics databases to analyse, extract and process information.
PLO4	Provide oral and written technical presentations using a range of computational tools and packages.
PLO5	Convey findings to specialist and non-specialist audiences.
PLO6	Communicate effectively using a range of media.
PLO7	Demonstrate competency in the use of information technology to analyse, process, retrieve, prepare and present information.
PLO8	Demonstrate initiative and ability to work independently and as part of a team.
PLO9	Develop the organisational skills to manage resources and time.
PLO10	Learn to work under pressure, to deadlines and to make important decisions in an industrial/academic research setting.
PLO11	Develop relevant practical techniques applicable to the biotechnology sector.
PLO12	Develop understanding of the academic research environment within the broad field of biotechnology.

Code	Description
PLO13	Critically evaluate information and data from a variety of sources.
PLO14	Demonstrate originality in tackling and solving problems.
PLO15	Draw sound conclusions from information/data and communicate their findings clearly.
PLO16	Plan, develop and implement appropriate research methodologies.
PLO17	Critically evaluate experimental design.
PLO18	Plan, conduct, evaluate and report the results of a scientific research project while demonstrating good laboratory practice (GLP) and COSHH.

Programme Structure

Programme Structure Description

The taught component of the programme covers a period of seven months (September - May) and the research project four months (May - August). Four 20 credit modules are assessed by a combination of continuously assessed coursework and written examination. The other 20 credit modules (7105BTBMOL and 7108BTBMOL) are continuously assessed using a range of assessment methods including reports and presentations.

Intermediate awards are Postgraduate Certificate (all taught modules comprising a total of 60 L7 credits except the Research Project) and Postgraduate Diploma (all taught modules comprising a total of 120 L7 credits except the Research Project).

The programme offers a Certificate of Professional Development Award entitled Cell Technology (35905) which comprises module 7104BTBMOL.

Programme Structure - 180 credit points	
Level 7 - 180 credit points	
Level 7 Core - 180 credit points	CORE
[MODULE] 7103BTBMOL Advanced Biotechniques Approved 2022.02 - 20 credit points	
[MODULE] 7104BTBMOL Cell Technology Approved 2022.01 - 20 credit points	
[MODULE] 7105BTBMOL Bioprocessing and Fermentation Technology Approved 2022.02 - 20 credit points	
[MODULE] 7106BTBMOL Biomolecular Research Skills and Data Analysis Approved 2022.02 - 20 credit points	
[MODULE] 7107BTBMOL Principles and Applications of Synthetic Biology Approved 2022.02 - 20 credit points	
[MODULE] 7108BTBMOL Advanced Topics in Biotechnology Approved 2022.02 - 20 credit points	
[MODULE] 7109BTBMOL Research Project in Biotechnology Approved 2022.01 - 60 credit points	
Level 7 Optional - No credit points	OPTIONAL

Module specifications may be accessed at <https://proformas.ljmu.ac.uk/Default.aspx>

Teaching, Learning and Assessment

Knowledge acquisition will be achieved through a combination of interactive lectures, tutorial, workshops and seminars. Practical skills are developed by wet and dry practical activities, demonstrations, project work, external visits and seminars (external/internal speakers). The four month research project/placement serves to develop knowledge and understanding of concepts and theories applicable to the broad area of biotechnology. This is achieved through a combination of examination papers and coursework in the form of laboratory reports, essays, oral examination, poster presentation, research grant proposal, problem solving exercises, group work and project thesis. Intellectual skills are developed through the teaching and learning programme. Critical analysis and problem solving skills are embedded in all modules and are taught, developed and practised through workshops, tutorials (small group), formative assessment exercises and all forms of project work. Experimental, research and design skills are further developed and practised through a broad range of coursework activities, laboratory work and all project work. Individual feedback is given on all work submitted. Critical thinking and problem solving skills are normally assessed by examination and project report/paper/poster. Experimental research and design skills are assessed by essays, portfolio, oral presentations, group report and practical report write-up. Practical skills are taught and developed through the programmes experimental components which include practical sessions, mini-project work and research project. Experimental design is taught in the Research Methods module via lectures and workshops. Assessed in project thesis, mini-project, paper preparation, portfolio and practical report write-up. Transferable skills are taught, developed and practised through the teaching and learning programme. Specialist mathematical skills are taught on specific modules, more basic skills are normally practised on all modules Assessed primarily through written examination and coursework including reports, poster presentation, essays and oral presentations.

Opportunities for work related learning

The programme offers a 12 week work based learning in the project module (7109BTBMOL). Students will be offered a research project in biotechnology and related areas. The work may be undertaken in a large/SME organisation, Research Institute or University premises. All work offers students the opportunity to develop their critical reasoning and complex problem solving skills. Emphasis is also focused on the acquisition of new knowledge and skills that would secure future employment within the biotechnology and related sectors.

Entry Requirements

Type	Description
Other international requirements	Normally a good degree in biological or related sciences with a recognised English language qualification (IELTS score of 6.5 with a minimum of 5.5 in each category).
Alternative qualifications considered	Graduates: Normally entrants to the programme will have at least a lower second class degree (2:2) in biology or related science.

Extra Entry Requirements