



UNIVERSITY OF
PORTSMOUTH

COURSE SPECIFICATION

MSc Medical Biotechnology

Quality Assurance, Academic Standards and Quality and Partnerships
Department of Student and Academic Administration

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COURSE SPECIFICATION

Course specification for *MSc Medical Biotechnology*

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Course Title	<i>MSc Medical Biotechnology</i>
Final Award	<i>MSc Medical Biotechnology</i>
Exit Awards	<i>Postgraduate certificate in Medical Biotechnology, Postgraduate diploma in Medical Biotechnology.</i>
Course Code / UCAS code (if applicable)	<i>P2667FTC/PTC.</i>
Mode of study	<i>Full and part time.</i>
Mode of delivery	<i>Campus based delivery.</i>
Normal length of course	<i>1 year full time, 2 years part time.</i>
Cohort(s) to which this course specification applies	<i>September 2022 intake onwards.</i>
Awarding Body	<i>University of Portsmouth.</i>
Teaching Institution	<i>University of Portsmouth.</i>
Faculty	<i>Faculty of Science</i>
School/Department/Subject Group	<i>School of Pharmacy and Biomedical Science</i>
School/Department/Subject Group webpage	https://www.port.ac.uk/about-us/structure-and-governance/organisational-structure/our-academic-structure/faculty-of-humanities-and-social-sciences
Course webpage including entry criteria	https://www.port.ac.uk/study/courses/msc-biotechnology
Professional and/or Statutory Regulatory Body accreditations	<i>No accrediting bodies at present</i>
Quality Assurance Agency Framework for Higher Education Qualifications (FHEQ) Level	<i>Level 7</i>

This course specification provides a summary of the main features of the course, identifies the aims and learning outcomes of the course, the teaching, learning and assessment methods used by teaching staff, and the reference points used to inform the curriculum.

This information is therefore useful to potential students to help them choose the right course of study, to current students on the course and to staff teaching and administering the course.

Further detailed information on the individual modules within the course may be found in the relevant module descriptors and the Course Handbook provided to students on enrolment.

Please refer to the [Course and Module Catalogue](#) for further information on the course structure and modules.

Educational aims of the course

General aims

- An integrated, systems based critical analysis, of a range of physiological measurements and laboratory test data for healthy subjects and a range of clinical conditions.
- A comprehensive, critical understanding of the genetic and cellular level of disease processes including the advances in biotechnology approaches to diagnose and monitor patient conditions.
- Confidence, proficiency, independence and good laboratory practice in a range of advanced therapeutic and diagnostic Medical Biotechnology techniques.
- A conceptual understanding that enables the critical appraisal of published literature from a variety of sources, and ability to evaluate and critique the methodologies used.
- Proficiency and high-level skills in research design, ethical considerations, regulation governing Biomedical research and data analysis, including quantitative or qualitative statistical interpretation.
- Formulate sound judgements in order to communicate conclusions and future research directions to specialist and non-specialist audiences.
- Independence, self-direction, the ability to solve complex problems and take personal responsibility when planning and executing a research project.
- Advanced transferable skills necessary for careers and further postgraduate study within the healthcare, industry or research setting.
- An understanding of the importance and willingness to engage with continued professional development, to ensure current knowledge and understanding of specialist scientific disciplines.

Subject Specific Aims

- To provide a challenging learning environment informed by professional practice, current research and advanced laboratory techniques.
- To develop students' critical, analytical and interpretation skills necessary for a career in the Medical Biotechnology, Bioscience and Pharmaceuticals sectors.
- Develop and enhance capacity for independent and creative scientific endeavour.
- Develop an in depth understanding of the molecular basis of disease and molecular medicine.
- Develop a comprehensive scientific understanding of the causes of human disorders and how medical biotechnology can be applied to the diagnosis of disease and the therapeutic monitoring of patients.
- To produce graduates with the ability to work as independent scientists to maximise career and further postgraduate opportunities.

Course Learning Outcomes and Learning, Teaching and Assessment Strategies

The [Quality Assurance Agency for Higher Education \(QAA\)](#) sets out a national framework of qualification levels, and the associated standards of achievement are found in their [Framework for Higher Education Qualifications](#) document.

The Course Learning Outcomes for this course are outlined in the tables below.

A. Knowledge and understanding of:

LO number	Learning outcome	Learning and Teaching methods	Assessment methods
A1	The philosophical and ethical basis of molecular biotechnology in the context of medical diagnostics and therapeutics.	Students will develop a critical appreciation and understanding of the philosophical and ethical basis of research in molecular biology and medical biotechnology. The social and physiological aspects of a range of clinical conditions will also be considered, using a systems based approach, to provide a multi-disciplinary understanding of the diagnosis, monitoring and treatment of patients. Theoretical knowledge will be provided, with common clinical conditions being initially introduced in lectures and as topics for self-directed study supported by online resources. Practical laboratory classes will support and strengthen the theoretical knowledge gained from lectures and self-directed study and will provide students with skills in the medical biotechnology techniques associated with Biomedical research and the diagnosis and monitoring of patients. Group work and seminars which include problem based learning, small group tutorials, formative assessment and online support via the VLE will assist in the achievement of these outcomes.	To assess the knowledge and understanding attained through the taught lectures, laboratory classes, seminars, group work and self-directed study, students will be required to complete a mix of coursework and examinations. These assessments allow students to develop critical evaluation skills and engage in discussion of their own and published work to consolidate their knowledge and understanding of the pathophysiology and clinical management of common diseases. Formative assessment is included in all modules and includes feedback on draft essays, laboratory and project reports. The project proposal and dissertation will also be used to assess the students' attainment of these learning outcomes.
A2	The molecular and cellular pathophysiology, detection, monitoring and treatment of a number of common disease states.		
A3	The multi-disciplinary approach of physiological measurements and pathology results to aid in the diagnosis and monitoring of clinical conditions.		
A4	The social and physiological aspects of health.		
A5	Research design, methodology, and valid interpretation of experimental results.		

B. Cognitive (Intellectual or Thinking) skills, able to:

LO number	Learning outcome	Learning and Teaching methods	Assessment Methods
B1	Critically evaluate published data, literature and experimental methods.		
B2	Synthesise and plan a novel research project, critically discuss the regulation associated with Biomedical research.		
B3	Critically analyse, evaluate and integrate data from a range of sources to test hypotheses and inform decisions.		
B4	Appreciate the different physiological and pathology based disciplines involved in the management of		

LO number	Learning outcome	Learning and Teaching methods	Assessment Methods
	disease, including the medical biotechnology methodologies used.		
B5	Appraise complex information to reach sound conclusions and solve research and clinical problems.	Students will develop cognitive skills related to all of the listed learning outcomes through clinical practice or research based lectures and self-directed study. Facilitated small group work involving case studies and selected disease conditions will assist in the development of critical analysis, the appreciation of the multidisciplinary nature of disease diagnosis and monitoring, and advanced skills in identifying and rectifying problems. The development of a project proposal will enable students to plan and evaluate the regulation of Biomedical research and critically appraise current research including the use of different biotechnology methodologies (LO's B1, B2, B3, B5). Students will also be supported through small group tutorials, formative assessment and online support via Moodle.	Students' cognitive skills will be assessed through examinations, presentations and the completion of a research project proposal and dissertation. Completion of case based reports and portfolios will assess and demonstrate student's appreciation of the clinical disciplines involved in the diagnosis and monitoring of patients, the use of different medical biotechnology in clinical practice and how Biomedical research can inform future diagnostics and patient treatment. The written assessments and oral presentations develop the student's competence in scientific expression and confidence in scientific communication. Formative and summative assessment of a research project proposal and dissertation will measure the student's ability to identify a range of relevant research material, their critical evaluation skills and conceptual understanding of the subject area in order to problem solve and communicate significant study findings

C. Practical (Professional or Subject) skills, able to:

LO number	Learning outcome	Learning and Teaching methods	Assessment methods
C1	Apply critical analysis skills to novel clinical situations.		
C2	Interpret complex clinical and experimental data and respond appropriately if unexpected/abnormal results are generated.		
C3	Evaluate experimental methods and implement an M level research proposal.		
C4	Perform a variety of medical biotechnology methods used in the clinical diagnosis and monitoring of patients.		

LO number	Learning outcome	Learning and Teaching methods	Assessment methods
C5	Perform/evaluate a variety of medical biotechnology methods and synthesise the results obtained to answer a research hypothesis.	Practical laboratory classes, demonstrations, group workshops and problem based learning sessions will allow students to apply critical analysis skills, perform a variety of medical biotechnology techniques and interpret complex experimental and clinical data. Successful completion of the Medical Biotechnology Research Skills and Project module will lead to the achievement of most of the learning outcomes listed.	Students' practical skills will be assessed by observation of their conduct in laboratory classes and during the completion of a laboratory based project, where possible. . Assessment of laboratory reports allows consolidation of practical skills and will provide practice in reflection and critical analysis of results and methodology. The research proposal builds on improving the student's ability to structure, synthesize and present findings. Ultimately this will culminate in the assessment of the mandatory research project which will be assessed by oral presentation in addition to submission of a dissertation. These assessments will be the culmination of the student's progress in critical thought, evaluation of results and showcase their ability to function as an independent investigator and effectively communicate their findings to others. Submission of practical reports, case studies and the project dissertation will demonstrate the ability to apply critical analysis and interpret complex clinical and research data.

D. Transferrable (Graduate and Employability) skills, able to:

LO number	Learning outcome	Learning and Teaching methods	Assessment Methods
D1	Develop independent thought and ability to solve complex problems and demonstrate effective time management.		
D2	Reflect on personal skills and make improvements where needed.		
D3	Successfully communicate scientific information in both written and oral forms.		
D4	Work effectively as an individual and as a member of a team.		

LO number	Learning outcome	Learning and Teaching methods	Assessment Methods
D5	Recognise, pursue and enhance employment opportunities and demonstrate the importance of, activities related to and a willingness to engage with continued professional development within the scientific field.	Transferable skills underpin each module of the course and students will be encouraged to reflect on their individual skills and progress during personal and group tutorials. Summative and formative assessments, poster and oral presentations with question and answer sessions, problem based learning and discussions will facilitate the development of independent thought, communication skills and effective time management. Group work required in several of the modules will improve the students' ability to work as an effective member of a team and solve complex scientific problems. Employability skills including the recognition of employment opportunities and the importance of maintaining scientific knowledge and skills will be provided in one to one and group tutorial sessions.	Throughout the course the students' transferable skills are assessed by means of posters, oral presentations and discussions with peers and academic members of staff. In many of these tasks students are required to work as a team and manage their own and others time efficiently. Self-reflection is a common theme in various formative assessments, however the skill is also discussed during personal tutorial sessions, where the importance of professional development and career opportunities are a key focus. The project module will assess the ability of a student to use time management, communication, practical and critical thinking skills to further scientific knowledge in a given subject. These skills are integral to the role of a competent scientist and the performance of the student in these assessments will be indicative of their capability to function as an independent career scientist and therefore of value in assessing suitability for future employment and/or further study.

Academic Regulations

The current University of Portsmouth [Examination and Assessment Regulations](#) will apply to this course.

Support for Student Learning

The University of Portsmouth provides a comprehensive range of support services for students throughout their course, details of which are available at the [MyPort](#) student portal.

Evaluation and Enhancement of Standards and Quality in Learning and Teaching

The University of Portsmouth undertakes comprehensive monitoring, review and evaluation of courses within clearly assigned staff responsibilities. Student feedback is a key feature in these evaluations, as represented in our [Policy for Listening to and Responding to the Student Voice](#) where you can also find further information.

Reference Points

The course and outcomes have been developed taking account of:

Insert additional reference points or delete as required

- [University of Portsmouth Curriculum Framework Specification](#)
- [University of Portsmouth Vision 2030 and Strategy 2025](#)
- [University of Portsmouth Code of Practice for Work-based and Placement Learning](#)
- [Quality Assurance Agency UK Quality Code for Higher Education](#)
- [Quality Assurance Agency Qualification Characteristic Statements](#)
- [The course aligns to the Quality Assurance Agency Subject Benchmark Statements for Biosciences \(2019\)](#)
- [Quality Assurance Agency Framework for Higher Education Qualifications](#)
- Vocational and professional experience, scholarship and research expertise of the University of Portsmouth's academic members of staff
- National Occupational Standards, level 7

Disclaimer

The University of Portsmouth has checked the information provided in this Course Specification and will endeavour to deliver this course in keeping with this Course Specification. However, changes to the course may sometimes be required arising from annual monitoring, student feedback, and the review and update of modules and courses.

Where this activity leads to significant changes to modules and courses there will be prior consultation with students and others, wherever possible, and the University of Portsmouth will take all reasonable steps to minimise disruption to students.

It is also possible that the University of Portsmouth may not be able to offer a module or course for reasons outside of its control, for example, due to the absence of a member of staff or low student registration numbers. Where this is the case, the University of Portsmouth will endeavour to inform applicants and students as soon as possible, and where appropriate, will facilitate the transfer of affected students to another suitable course.

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