The University Of Sheffield.

Programme Specification

A statement of the knowledge, understanding and skills that underpin a taught programme of study leading to an award from The University of Sheffield

1	**Programme Title**	Biomedical Science
2	**Programme Code**	BMST31 / BIST05
3	**JACS Code / HECoS Code**	C760 / 100948
4	**Level of Study**	Postgraduate
5a	**Final Qualification**	MSc
5b	**QAA FHEQ Level**	7
6a	**Intermediate Qualification(s)**	PG Dip, PG Cert
6b	**QAA FHEQ Level**	7
7	**Teaching Institution** (if not Sheffield)	Not applicable
8	**Faculty**	Science
9	**Department**	School of Biosciences
10	**Other Departments providing credit bearing modules for the programme**	None
11	**Mode(s) of Attendance**	Full-time
12	**Duration of the Programme**	1 year
13	**Accrediting Professional or Statutory Body**	Not applicable
14	**Date of revision**	August 2023

15. Background to the programme and subject area

Biomedical Science is focused upon our understanding of the human body in health and disease. It is the basic science that underpins medicine. Breakthroughs in Biomedical Science feature regularly in the news, from radical new treatments for cancer patients to innovative advances in reproductive technologies and regenerative medicine. Over the last twenty years, research into the human genome and molecular processes has revolutionised our understanding of biological systems.

A research-led MSc degree in Biomedical Science is for those who have a strong interest in modern biology and who are keen to study at the forefront of the discipline. The demand for skills in biomedicine are increasing as the academic research base broadens and industry begins to adopt the new technologies associated with this area. Consequently, employability and further training opportunities (PhD) for graduates with training in this knowledge base and skills are high. Biomedical science is about understanding our bodies and our ability to control them during health and disease. It's the basic science that underpins medicine. Our MSc programme offers practical and theoretical training in areas associated with the understanding of the human body in health and disease and designing strategies to find novel treatments. Students entering the programme will have the possibility to choose between two pathways and their specialised training: stem cell and regenerative medicine or cell biology and drug development. Students will carry out a research project drawn from the forefront of biomedical research which is undertaken within our School.

In the governmental review of higher education in the UK, the School of Biosciences was awarded top scores for both research and teaching: in the 2021 Research Excellence Framework (REF 2021) the School of Biosciences was placed 4th nationally for research in biological sciences and was awarded Silver in the last Teaching Excellence Framework (TEF). We are located in a central position within the University campus and offer excellent research and teaching facilities. Students on our MSc programme study a range of modules that provide detailed theory and specific practical skills within the area of Biomedical Science. Additionally, students have the opportunity to undertake an individual research project in one of our laboratories to provide further practical experience and training in research methods in this area. The research project and associated literature review, seminar programmes and taught modules provide a range of subject specific and transferable skills pertinent to a career in academia or in industry.

Further information about the programme may be found at:
https://www.sheffield.ac.uk/postgraduate/taught/courses/2022/biomedical-science-msc

16. Programme aims

For all its taught postgraduate programmes the School aims to:

- develop in students an independence of thought, intellectual curiosity and critical approach to evidence, theories and concepts;
- encourage students to maximise their academic potential in all aspects of their programme;
- encourage an understanding of, and commitment to, life-long learning;
- provide stimulating and enjoyable teaching that is informed and invigorated by the research and scholarship of its staff;
- provide a supportive environment for students and access to specialist central services as required;
- prepare students for further postgraduate work and/or a professional career in biomedical science and related areas.

The specific aims for the Certificate in Biomedical Science are to provide students with an opportunity to:

- obtain a detailed knowledge base of some areas relevant to Biomedical Science.

In addition candidates completing the PGDip will:

- obtain more comprehensive knowledge of areas in Biomedical Science acquire more extensive training in specific practical skills related to this area.

In addition candidates completing the MSc will:

- conduct an individual research project in a laboratory working within this area;
- acquire transferable skills relevant to a career in academia or the biosciences industry.

17. Programme learning outcomes

Knowledge and understanding: C*andidates completing the Certificate (learning outcomes from 60 credits from those available) and the PGDip (learning outcomes from 120 credits from those available) will have:*	
K1	an in-depth knowledge of specific subject areas and topics in Biomedical Science.
K2	a critical understanding of how research advances biological knowledge and its applications.
K3	an understanding of how research projects can be designed.
K4	an understanding of uncertainty and variability in biological information and the importance of this in drawing conclusions from data.
K5	a critical knowledge of research techniques and methods in Biomedical Science.
K6	a detailed knowledge of theory behind practical techniques and their application in Biomedical Science.
K7	a working knowledge of the terminology and language of the biomedical sciences.
K8	a knowledge of a range of presentation methods, including numerical, graphical, written and oral.
K9	an understanding of how the postgraduate experience can be applied to career development in industry or academia.
K10	a knowledge of the process of research and its relationship to application for research funding.
K11	a detailed, critical knowledge of the retrieval and evaluation of scientific information.
In addition, candidates completing the MSc will have:	
K12	a detailed knowledge of the topic studied for their research project.
K13	knowledge of experimental design, execution and analysis of outcomes.
K14	a critical understanding of original research findings in relation to current literature.

Skills and other attributes: C*andidates completing the Certificate (learning outcomes from 60 credits from those available) and the PGDip (learning outcomes from 120 credits from those available) will be able to:*	
S1	critically analyse, synthesize and summarise published information.
S2	formulate relevant questions.
S3	demonstrate independent thinking.
S4	analyse and interpret data in a critical, reliable and objective manner.
S5	present information in a manner appropriate to the audience and in a critical and informative manner.
S6	take responsibility for their own learning.
S7	work effectively as part of a team.
S8	work in a safe, risk-free way with consideration for others, taking due account of statuary requirements.
S9	demonstrate understanding of, and competency in the use of, laboratory equipment and techniques.
S10	demonstrate the ability to plan and manage their own time effectively.
In addition, candidates completing the MSc will be able to:	
S11	apply and potentially adapt the advanced research techniques and practical skills obtained throughout their research project.
S12	demonstrate awareness of the uncertainties and limitations of the research techniques, data and conclusions of their research project and modify their experimental approach as necessary.
S13	demonstrate appreciation of the need for effective communication of scientific issues, research findings and their consequences to the general public and other interested parties including funding agencies.
S14	retrieve scientific information and analyse it critically.

18. Teaching, learning and assessment

Development of the learning outcomes is promoted through the following teaching and learning methods:

Candidates on this programme will have a good degree from a relevant area of bioscience and as such will be expected to be relatively sophisticated learners.

Practical skills will be acquired through demonstration and practice, usually in research laboratories, practical class laboratories or computer rooms. Theoretical information will be provided during lectures, seminars, reading lists and through tutorials. In addition, students are expected to undertake a significant amount of independent learning using the University Library and appropriate web resources. Tutorials, seminars, debate and individual meetings with staff will provide opportunities for discussion and feedback.

Opportunities to demonstrate achievement of the learning outcomes are provided through the following assessment methods:

Learning outcomes are carefully matched to the method of assessment (e.g. oral presentation skills are assessed via two independent markers of the presentation). Formative assessment occurs at several stages including meetings with supervisors, coursework and through web materials. The linkage between the main teaching, learning and assessment methods adopted for each learning outcome are tabulated below.

	Teaching and Learning					Assessment methods			
LEARNING OUTCOME abbreviated – (see Section 17 for full text)	Lectures	Seminars	Tutorials	Laboratory classes	Individual project	Written examinations	On-going assessments (including: essays, poster and oral presentations)	Laboratory reports & individual project	Self / peer assessment*
For Certificate and PGDip candidates:									
K1	√		√	√		√	√	√	√
K2	√	√	√			√	√		√
K3	√	√	√	√		√	√	√	√
K4	√	√	√	√	√	√	√	√	√
K5		√		√	√			√	√
K6	√	√		√	√	√	√	√	√
K7	√	√	√	√	√	√	√	√	√
K8		√	√	√	√		√	√	√
K9			√		√		√		√
K10	√	√	√		√	√	√	√	√
K11	√		√		√	√	√	√	√
In addition, for MSc candidates:									
K12			√		√	√	√	√	√
K13									
K14									
For Certificate and PGDip candidates:									
S1			√		√	√	√	√	√
S2		√	√	√	√			√	√
S3		√	√	√	√	√	√	√	√
S4		√	√	√	√	√	√	√	√
S5		√	√		√	√	√	√	√
S6			√	√	√			√	√
S7			√	√	√		√	√	√
S8				√	√			√	√
S9				√				√	√
S10				√	√			√	√

(a) In addition, for MSc candidates									
S11				√	√			√	√
S12		√	√	√	√		√	√	√
S13	√	√	√	√	√	√	√	√	√
S14			√		√	√	√	√	√

* Students are encouraged and expected to continually review and reflect on their performance. Self and peer assessment is included here for completeness, although it is generally designed to aid students' learning rather than to contribute to the final degree classification.

19. Reference points

The learning outcomes and programme content have been developed with reference to existing PGT (QAA FHEQ Level 7) provision within the School of Biosciences. In agreement with the University's Learning and Teaching Strategy, the programme has been designed to benefit from our excellent research-led teaching, and the programme-level approach ensures that students will develop broad skills which cut across individual modules and result in the development of deeper knowledge and understanding. In accordance with the vision set out in The Sheffield Masters' Graduate, the programme is designed to allow students to deepen their discipline-based knowledge while at the same time gaining the confidence to apply this knowledge within local, national, and international contexts, and to encourage creative and strategic problem-solving skills which transcend the component disciplines.

20. Programme structure and regulations

The programme is offered as full-time study only and consists of 105 credits of core modules, including a Research Project (60 credits), a Literature review (15 credits), and two MSc skills modules (Advanced scientific skills and Critical analysis of current science), 15 credits of practical module in this specialist field and 60 credits of lecture or practical modules (optional).

Details to be included in the Regulations

Detailed information about the structure of programmes, regulations concerning assessment and progression and descriptions of individual modules are published in the University Calendar available on-line at http://www.sheffield/calendar/.

21. Student development over the course of study

The programme is designed to run as a 180 credit MSc, however the 60 credit Certificate or 120 credit Diploma are available as exit qualifications for students who fail to meet satisfactory levels of attainment.

The Certificate will provide a largely theoretical background to Biomedical Science. The Diploma includes more opportunities for acquisition of practical skills, a literature review project and a more comprehensive theoretical training. The distinguishing feature of the MSc is that is contains a 60 credit individual laboratory research project combined with a literature review project that builds on theory and practical modules and provides the candidate with opportunities to design, execute, interpret and present original scientific results.

22. Criteria for admission to the programme

Candidates will normally have a good (upper second class or better) degree in a relevant area of Bioscience or Medical Science. In addition, international students where English is not their first language or who have not been taught in English will also have an IELTS mean of 6.5 (with a minimum of 6.0 in all 4 components).

23. Additional information

Sheffield combines the advantages of a top-quality University, an outstanding Students' Union, a large city and a pleasant location close to the Peak District National Park. The School of Biosciences is one of the major centres of biological excellence in the UK.
This specification represents a concise statement about the main features of the programme and should be considered alongside other sources of information provided by the teaching department(s) and the University. In addition to programme specific information, further information about studying at The University of Sheffield can be accessed via our Student Services web site at http://www.shef.ac.uk/ssid.