Programme Specification and Curriculum Map for MSc Cancer Biology & Therapeutics

1. Programme title	MSc Cancer Biology & Therapeutics
2. Awarding institution	Middlesex University
3. Teaching institution	Middlesex University
4. Programme accredited by	
5. Final qualification	MSc/PgDip/PgCert Cancer Biology & Therapeutics, PgCert Biomedical Sciences
6. Academic year	2019/2020 Updated 2020/2021
7. Language of study	English
8. Mode of study	Full-time and Part-time

9. Criteria for admission to the programme

Candidates must meet at least one of the first two criteria below.

i. They must have either a minimum of 2:2 or an equivalent qualification in an appropriate subject

ii Applicants with other qualifications and / or substantial work experience in biomedical science will also be considered under the Accreditation of Prior Experiential Learning (APEL) scheme. Past learning or experience will be mapped against existing programme modules within the programme and the mapping will be considered at the accreditation board.

iii Overseas Candidates should also be competent in English and have achieved, as a minimum, one of the following standards: IELTS-6.5; TOEFL – 84.

The programme team have experience of adapting teaching provision to accommodate a range of disabilities and welcome applications from students with disabilities.

10. Aims of the programme

The programme aims to prepare students for independent research careers in academia, diagnostic laboratories or the biotechnology sector in cancer diagnostics and treatments field. The PgDip or MSc programme aims to:

- Equip students with a mastery of the fundamental principles and recent advances in cancer diagnostics and anti-cancer drug delivery.
- Give students a thorough grounding in the fundamental mechanisms underpinning the major pathological processes in common malignancies.
- Provide students with sufficient detailed information about the modern technologies used in cancer diagnostics and research to enable them to apply these to complex problem solving in the investigation of cancers.
- Enable students to understand and use the principles of laboratory management, safety, quality control, research and statistical methods in their professional lives.
- Enable students to critically evaluate legal requirements for human and animal experiments and ethical issues relating to cancer research with human subjects and human tissue.
- Provide students with the tools to acquire the essential facts, concepts, principles and theories relevant to their chosen research project.
- Give students the ability to critically evaluate current research literature in cancer diagnostics and management, and an acquisition of the skills for lifelong learning

- Allow students to develop mastery of management, leadership and communication skills, teamwork, writing and presentation skills.

In addition, on completion of the MSc the successful student will:

- Have acquired the design, critical analysis and practical skills necessary to carry out an individualised experimental research project.
- Have developed the skills to evaluate literature in context to their current cancer research and propose new hypotheses relevant to their research.

11. Programme outcomes

A. Knowledge and understanding On completion of this programme the successful student will have acquired mastery of: 1. The aetiology and pathology and treatment of common malignancies 2. Ethics and legal issues in biomedical science 3. Diagnostic techniques in various cancers 4. Research methods 5. Leadership and laboratory management	**Teaching/learning methods** Students gain knowledge and understanding through online recorded and live lectures, seminars and laboratory work where possible and supplemented by virtual laboratory simulations, self-study (both directed and self-directed) and online learning. **Assessment Method** Students' knowledge and understanding is assessed by both summative and formative assessments, which include seminar

	presentations, written assignments including laboratory reports, seen practical examinations and time limited online assessments.
B. Skills *Cognitive (thinking) skills* On completion of the PgDip or MSc programme the successful student will be able to: 1. Develop ideas through the evaluation of appropriate literature, concepts and principles 2. Design a research project 3. Analyse, present, judge, interpret and critically evaluate biomedical data 4. Debate ethical and legal issues in biomedical science 5. Develop a research project 6. Critically assess health risk factors associated with working in a research or diagnostic laboratory **In addition, on completion of the MSc the successful student will be able to** 7. Propose new hypotheses relevant to discipline 8. Critically evaluate of their research findings in the context of the literature research	**Teaching/learning methods** Students learn cognitive skills through analysis of research literature and undertaking a research project that they have designed themselves, including consideration of the inherent ethical and health and safety implications. **Assessment Method** Students' cognitive skills are assessed by written work, examinations, presentations and a research project

Practical skills On completion of the programme the successful student will be able to: 1. Competently perform advanced biomedical laboratory techniques in accordance with health and safety guidelines Ability to fully meet this PLO will be dependent on Covid-19 restrictions in place with regard to lab access. If lab access is restricted, students will be supported to demonstrate knowledge of how to meet this PLO 2. Recognise and respond to moral, ethical and safety issues, which directly pertain to the biomedical science 3. Correctly perform quality control and assurance procedures Ability to fully meet this PLO will be dependent on Covid-19 restrictions in place with regard to lab access. If lab access is restricted, students will be supported to demonstrate knowledge of how to meet this PLO **In addition, on completion of the MSc the successful student will be able to** 4. Carry out research experiments Ability to fully meet this PLO will be dependent on Covid-19 restrictions in	**Teaching/learning methods** Where possible students learn practical skills through laboratory practical classes, and undertaking a research project. Virtual laboratory simulations and recorded laboratory sessions will also be used to develop knowledge of practical skills where covid restrictions restrict on campus attendance. **Assessment Method** Students' practical skills are assessed by laboratory reports and dissertation.

place with regard to lab access. If lab access is restricted, students will be supported to demonstrate knowledge of how to meet this PLO *Professional Skills* On completion of this programme the successful student will be able to: 1. Demonstrate effective communication and presentation skills 2. Demonstrate leadership and managerial skills 3. Competence in the use of information technology 4. Demonstrate high level of numeracy and problem solving skills 5. Manage a research project and use a range of research skills	**Teaching/learning methods** Students acquire graduate skills through lectures, seminars, practical laboratory work, where possible and supplemented by online laboratory simulations, literature searches, peer presentations, videos and online presentations, research project **Assessment method** Students' graduate skills are assessed by presentations, self-assessment and project work.

12. Programme structure (levels, modules, credits and progression requirements)

12. 1 Overall structure of the programme

The programme can be studied over either one-year full time or two years part time. Full time PgDip and MSc students will take eight 15-credit level 7 modules, including 4 core modules, over one academic year. In addition, the MSc students will take a 60-credit point level 7 research project module over the summer term. Students cannot start their projects until they have passed all taught modules.

Part time PgDip or the MSc students will take no more than 90 credit points in one year. MSc students will take the research project module after they have passed all taught modules.

Students, who are obliged to terminate their studies early, will be eligible for a PgCert if they have successfully obtained a total of 60 credits from any combination of modules excluding BMS4997. Students, who pass all four specialist modules (BMS4507, BMS4227, BMS4327 and BMS4547) will be eligible for a PgCert in Cancer Biology and Therapeutics. Other students, who exit with passes in any other combination (a mixture of any four modules from four core modules and four specialist modules), will be awarded a PgCert in Biomedical Science.

12.2 Levels and modules

Level 7

COMPULSORY	OPTIONAL	PROGRESSION REQUIREMENTS
All students must take the following for the PgDip: BMS4677 BMS4777 BMS4887 BMS4977	For PgDip in Cancer Biology & Therapeutics, students should also take the four modules listed below: BMS4507 BMS4227 BMS4327 BMS4547	Successful completion of all modules

All students must take the following for the MSc. BMS4677 BMS4777 BMS4887 BMS4977 BMS4997	For MSc in Cancer Biology & Therapeutics, students should also take the four modules listed below: BMS4507 BMS4227 BMS4327 BMS4547	Successful completion of all modules

12.3 Non-compensatable modules (note statement in 12.2 regarding FHEQ levels)	
Module level	***Module code***
7	*All modules*

13. A curriculum map relating learning outcomes to modules

See Curriculum Map attached.

14. Information about assessment regulations

The assessment regulations are the general university regulations.

15. Placement opportunities, requirements and support

Non-applicable

16. Future careers

Masters degree is increasingly becoming a requirement for progression via a PhD into a research career. Masters degree is also an important means for health care professionals to develop the skills necessary to progress from specialist practitioner (currently BMS2) to higher specialist practitioner (currently (BMS3).

17. Particular support for learning (if applicable)

Where possible students will have access to specialist laboratory facilities for the development of practical skills. Our new laboratories for research and postgraduate teaching are based at Hendon. These include Molecular biology lab for techniques such as DNA sequencing, real-time PCR, electrophoresis, high-performance liquid chromatography, mass spectrometry, as well as a fully equipped Proteomics facility. Knowledge of practical skills will also be developed through carrying out research experiments where possible

Access to specialist journals in this programme will be provided by Middlesex University Library. For ease of access for students based at Hendon, the library has facilities for inter-library photocopying of any articles required. Other articles may be obtained from the British Library in London where a similar arrangement for photocopying articles exists.

A student may undertake a research project at their workplace where relevant and possible; supervisors there should hold the FIBMS qualification or equivalent and can access the Laboratory Mentorship programme at Middlesex University to help them support the student.

Applicants with a disability can enter the programme following an assessment of their needs, and where necessary to determine if they can work safely in the laboratory. The programme team have experience of adapting the programme to accommodate a range of disabilities in students on the biomedical science programmes and welcome applications from such students.

LRS facilities at Middlesex including CAL suite and internet access.

Access to English learning and Language Support.

Support for modules available on My Learning.

18. JACS code (or other relevant coding system)	N/A

19. Relevant QAA subject benchmark group(s)	Biomedical Science

20. Reference points

The following reference points were used in designing the programme:

Internal Documentation:

i. Middlesex University (2006) *Learning Framework Document*. London, MU
ii. Middlesex University (2011) *Middlesex University Regulations.* London, MU
iii. Middlesex University (2011) *CLQE Handbook.* London, MU
iv. School of Health and Social Sciences (2008) *Assessment Policy and Strategy*. HSSC
v. Biomedical Science Programmes (2007) *Learning, Teaching and Assessment Strategy*

External Documentation:

1. IBMS (2009) *Criteria and Requirements for the Accreditation and Re-accreditation of MSc degrees in Biomedical Science.* London, IBMS
2. Quality Assurance Agency (2008) *Framework for Higher Qualifications,* London, QAA
3. Quality Assurance Agency (2007) *QAA Subject Benchmarking Group: Biomedical Science.* London, QAA

Curriculum map for MSc Cancer Biology & Therapeutics

This section shows the highest level at which programme outcomes are to be achieved by all graduates, and maps programme learning outcomes against the modules in which they are assessed.

Programme learning outcomes

Knowledge and understanding		Practical skills	
A1	Aetiology and pathology of common diseases	C1	Competently perform advanced biomedical laboratory techniques in accordance with health and safety guidelines
A2	Ethics and legal issues in biomedical science	C2	Recognise and respond to moral, ethical and safety issues, which directly pertain to the biomedical science
A3	Diagnostic techniques	C3	Correctly perform quality control and assurance procedures
A4	Research methods	C4	Carry out research experiments
A5	Leadership and laboratory management		
Cognitive skills		Professional skills	
B1	Develop ideas through the evaluation of appropriate literature, concepts and principles	D1	Demonstrate effective communication and presentation skills

B2	Design a research project	D2	Demonstrate leadership and managerial skills
B3	Analyse, present, interpret and critically evaluate biomedical data	D3	Competence in the use of information technology
B4	Debate ethical and legal issues in biomedical science	D4	Demonstrate high level of numeracy and problem solving skills
B5	Develop a research project	D5	Manage a research project and use a range of research skills
B6	Critically assess health risk factors associated with working in a research or diagnostic laboratory		
B7	Propose new hypotheses relevant to discipline		
B8	Critically evaluate of their research findings in the context of the literature research		

	Module Code by Level	Programme outcomes																									
		A1	A2	A3	A4	A5		B1	B2	B3	B4	B5	B6	B7	B8		C1	C2	C3	C4		D1	D2	D3	D4	D5	
Leadership and Management	BMS4677					x		x		x	x		x					x					x				
Biomedical Ethics and Law	BMS4777		x					x			x							x									
Experimental Design and Statistics	BMS4887				x				x	x		x						x	x			x		x		x	
Advanced Bioanalytical Techniques	BMS4977			x						x			x				x										
Research Project	BMS4997				x				x	x		x	x	x	x					x		x			x	x	
Advances in Tumour Diagnostics	BMS4507	x		x				x		x												x					
Cancer	BMS4227	x		x				x		x							x					x					
Haemato- oncology	BMS4327	x	x	x				x		x	x						x										
Cancer therapeutics	BMS4547	x		x				x		x	x		x														

MSc Cancer Biology & Therapeutics

Programme outcomes																							
A1	A2	A3	A4	A5		B1	B2	B3	B4	B5	B6	B7	B8		C1	C2	C3	C4		D1	D2	D3	D4	D5	
Highest level achieved by all graduates																									
7	7	7	7	7		7	7	7	7	7	7	7	7		7	7	7	7		7	7	7	7	7	