UNIVERSITY OF LEICESTER

# Programme Specification (Postgraduate)

**Date amended: 30th November 2018**

**For 2019/20 entry**

## 1. Programme title(s):

MSc in Cancer Cell and Molecular Biology
Postgraduate Certificate in Cancer Cell and Molecular Biology **(available as an Exit award only**)

## 2. Awarding body or institution:

University of Leicester

## 3. a) Mode of study:

Full time

**b) Type of study:**

Campus based

## 4. Registration periods:

The normal period of registration for the MSc in Cancer Cell and Molecular Biology is 12 months full time.

The maximum period of registration for the MSc in Cancer Cell and Molecular Biology is 24 months full time.

## 5. Typical entry requirements:

Candidates with a first, upper second or lower second class honours degree (or equivalent) in a biological science or related discipline will be considered.

Graduates/non-graduates with several years' appropriate industrial/professional research experience are also encouraged to apply.

Non-UK students are required to demonstrate English proficiency to comply with the University's Regulations. Students are required to achieve a score of 90 in the Test of English as a Foreign Language (TOEFL) or 6.5 in the International English Language Testing System (IELTS).

## 6. Accreditation of Prior Learning:

Accreditation of Prior Learning (APL) for exemption from modules is not accepted on this course

## 7. Programme aims:

The programme aims to:

- Respond to the national and international need for trained cancer researchers.
- Develop students' critical engagement with current areas of cancer research.
- Give students direct experience of research during a 6-month research placement project in a University research laboratory.
- Enhance students' employment prospects as scientists through the development of current research skills.

## 8. Reference points used to inform the programme specification:

- University of Leicester Learning and Teaching Strategy 2011-2016
- University of Leicester Periodic Developmental Review Report
- External Examiners' reports (annual)
- Student feedback by course representatives and surveys

## 9. Programme Outcomes:

Unless otherwise stated, programme outcomes apply to all awards specified in 1. Programme title(s).

| Intended Learning Outcomes | Teaching and Learning Methods | How Demonstrated? |
|---|---|---|
| *(a) Discipline specific knowledge and competencies* | | |
| **Knowledge** | | |
| Demonstrate core knowledge of the molecular and genetic basis of cancer and the application of molecular and cell biology techniques to cancer research and the strategies used for cancer treatment. | Lectures, seminars, directed reading, practical classes, project supervision (MSc only) and tutorials. | Written reports, tutorial performance, seminar presentation, research project (MSc only), dissertation (MSc only), essay, problem-based written examination, computer-based multiple choice question examination, short-answer question examination. |
| **Concepts** | | |
| Demonstrate an in-depth knowledge of our current understanding of the molecular mechanisms underlying the development and treatment of cancer. | Lectures, seminars, directed reading, practical classes, project supervision (MSc only) and tutorials. | Written reports, tutorial performance, seminar presentation, research project (MSc only), dissertation (MSc only), essay, problem-based written examination, computer-based multiple choice question examination, short-answer question examination. |
| **Techniques** | | |
| Apply a range of molecular and cell biology techniques to investigate biological problems. Have a working knowledge of laboratory safety procedures. | Seminars, practical classes, project supervision (MSc only). | Research project (MSc only), problem-based written examination, computer-based multiple choice question examination, short-answer question examination. |
| **Critical analysis** | | |
| Critically appraise experimental data and critically analyse and review the literature. | Practical classes, project supervision (MSc only) and tutorials. | Essay, Research project (MSc only), problem-based written examination, computer-based multiple choice question examination, short-answer question examination. |
| **Presentation** | | |
| Present experimental data and participate in scientific discussion. | Lectures, seminars, project supervision (MSc only). | Written reports, seminar presentation, research project (MSc only), dissertation (MSc only) and problem-based written examination. |
| **Appraisal of evidence** | | |
| Demonstrate competency in data searching, data analysis and data interpretation. | Lectures, seminars, practical classes and project supervision (MSc only). | Written reports, seminar presentation, research project (MSc only), dissertation (MSc only) and problem-based written examination. |

| Intended Learning Outcomes | Teaching and Learning Methods | How Demonstrated? |
|---|---|---|
| *(b) Transferable skills* | | |
| **Research skills** | | |
| Solve biological problems, analyse and interpret data and perform statistical analysis of their experimental data | Lectures, seminars, practical classes and project supervision (MSc only). | Written reports, tutorial performance, seminar presentation, research project (MSc only), dissertation (MSc only), essay, problem-based written examination, computer-based multiple choice question examination, short-answer question examination. |
| **Communication skills** | | |
| Write scientific reports competently, devoid of plagiarism, and deliver an effective oral presentation of their data. | Lectures, seminars, practical classes and project supervision (MSc only). | Written reports, seminar presentation, research project (MSc only), dissertation (MSc only) and essay. |
| **Data presentation** | | |
| Effectively use statistical tests, perform image analysis and use presentation and graphical software for data presentation. | Lectures, seminars, practical classes and project supervision (MSc only). | Written reports, seminar presentation, research project (MSc only), dissertation (MSc only) and essay. |
| **Information technology** | | |
| Demonstrate competency in the use of general computing, standard and specialised computing software. | Lectures, seminars, practical classes and project supervision (MSc only). | Written reports, seminar presentation, research project (MSc only), dissertation (MSc only) and essay. |
| **Problem solving** | | |
| Demonstrate the ability to solve both general biological and laboratory-based mathematical problems. | Lectures, seminars, practical classes and project supervision (MSc only). | Written reports, tutorial performance, seminar presentation, research project (MSc only), dissertation (MSc only), problem-based written examination, computer-based multiple choice question examination, short-answer question examination. |
| **Working relationships** | | |
| Demonstrate the capacity to manage a project, time-management and organizational skills and be able to work effectively in a group/team. | Practical classes and project supervision (MSc only). | Written reports, research project (MSc only), dissertation (MSc only), problem-based written examination, computer-based multiple choice question examination, short-answer question examination. |
| **Managing learning** | | |
| Have confidence in their ability to develop new practical skills, manage information and develop specialization and interests. | Lectures, practical classes, Library and IT skills workshops and project supervision (MSc only). | Written reports, essay, research project (MSc only), dissertation (MSc only), |

| Intended Learning Outcomes | Teaching and Learning Methods | How Demonstrated? |
|---|---|---|
| **Career management** | | |
| At the end of the course students will be capable of producing a professional cv, writing applications, giving presentations and be confident in applying for positions for either employment or further study. | Workshop by the Career services unit at the University, Study skills support, advice from Personal tutors and project supervisors. | Student feedback and student destination surveys. |

**10. Special features**

6-month laboratory-based research project.

**11. Indicators of programme quality**

Student feedback

External Examiners reports

Annual development review

External examiners comments for 2017-18

"This is a well-managed and well-received Masters course. There is evidence that all aspects of the teaching, training and assessment are of high standard. The course delivers teaching and training in key laboratory and analytical skills relevant to entry level research in molecular biology and cancer fields. The students receive opportunities for training and experience that equip them for PhD level laboratory research or employment in the biosciences sector".

"The course design achieves a good balance of analytical and practical research skills. The practical elements (60 credits) allow rigorous assessment of the students and (combined with the progression rules) ensures that students reach the required level of competence prior to embarking on the research project (120 credits)".

"The course provides opportunities for students to gain experience in standard and state of the art technologies e.g. ddPCR, CRISPR CAS9 genome editing etc. The students clearly enjoy the opportunity to make substantive contributions to advance research and benefit from an excellent range of research projects".

**12. Scheme of Assessment:**

As defined in Senate Regulation 6: Regulations governing taught postgraduate programmes of study with 60 taught credits and 120 credits for the Masters research project.

**13. Progression points**

As defined in Senate Regulation 6: Regulations governing taught postgraduate programmes of study.

In cases where a student has failed to meet a requirement to progress he or she will be required to withdraw from the course and a recommendation will be made to the Board of Examiners for an intermediate award where appropriate (students will be eligible for a Postgraduate certificate as an exit award if they have obtained 60 credits in Semester 1 but are unable to undertake or complete the research project in Semester 2).

**14. Rules relating to re-sits or re-submissions:**

As defined in Senate Regulation 6: Regulations governing taught postgraduate programmes of study.

**15. Additional features** (e.g. timetable for admissions)

The course commences in September each year. Overseas students are encouraged to submit their applications as early as possible and before the end of July.

**Appendix 1: Programme structure** (programme regulations)

The MSc degree in Cancer Cell and Molecular Biology comprises 180 credits and is organized in two phases: MB7001-MB7004 (Taught phase-Semester 1) and MB7006 (Research project-Semester 2).

| Module code | Module title | Credits |
|---|---|---|
| MB7001 | Introduction to Molecular Techniques | 15 |
| MB7002 | Research methods in Cell Biology | 15 |
| MB7003 | Research Methods in Cancer Biology | 15 |
| MB7004 | Advanced Topics in Cancer Biology | 15 |
| MB7006 | Masters Research Project | 120 |

All modules are compulsory

**Appendix 2: Module specifications**

See module specification database http://www.le.ac.uk/sas/courses/documentation