

1. Programme Title(s):

MSc. Cancer Molecular Pathology and Therapeutics
PGCert. Molecular Pathology and Therapeutics of Cancer (exit award only)

2. Awarding body or institution:

University of Leicester

3. a) Mode of study

Full time or part time. Part time study is taken on a module-by-module basis over the period of registration with breaks in study as appropriate.

b) Type of study

Campus-based

4. Registration periods:

The normal period of registration is 12 months full time (27 months part time)

The maximum period of registration is 24 months full time (48 months part time)

5. Typical entry requirements:

First or second-class honours (2.1 or 2.2) degree in a relevant bioscience subject including biology, molecular biology, biochemistry, biotechnology, pharmacology.

Qualifications recognised as equivalent to a British University lower second-class degree (2.2) will also be considered, as will applicants with significant relevant industrial or professional experience, on a case by case basis. Applicants with a BTech and relevant industrial or professional experience and medically qualified applicants with a strong background in molecular biology and/or cell biology may also apply and will be considered on a case-by-case basis.

English language requirements: IELTS, overall score minimum of 6.5; TOEFL iBT, minimum score of 90; Pearson Test of English (PTE), minimum score of 61.

6. Accreditation of Prior Learning:

No Accreditation of Prior Learning will be accepted for exemptions from modules on this programme.

7. Programme aims:

The programme aims to:

- Advance the knowledge and understanding of the molecular and biological basis of cancer development and treatment through subject and technical teaching at the forefront of the discipline.
- Develop students' research skills within a variety of specialist laboratory classes and during an extended project within a University research laboratory or equivalent external laboratory. (MSc only)
- Foster a positive environment and joint approach to learning where students actively participate in their academic development.

- ❑ Develop students' critical engagement with current research within the disciplines of cancer detection, prevention and treatment
- ❑ Enhance students' employment prospects as scientists by either direct entry or by further study.

At the end of the course, students should be able to:

- ❑ Show core knowledge of cancer cell and molecular biology and the application of this knowledge, to cancer diagnosis, prognosis, therapy and prevention.
- ❑ Use research skills including the ability to design experiments, show knowledge of molecular techniques, analyse data, and review literature critically.
- ❑ Show good laboratory skills including the application of molecular techniques and statistical methods to cancer research.
- ❑ Use transferable skills in oral presentations, report writing, and the use of information technology.
- ❑ Demonstrate experience of research during an extended project placement with a University research laboratory or equivalent external research laboratory (e.g. research laboratory at another academic institution; government or pharmaceutical company research laboratory.) (MSC only)

8. Reference points used to inform the programme specification:

Framework for Higher Education Qualifications issued by QAA

[Leicester University Learning and Teaching Strategy](#)

Leicester University Employability Strategy

External Examiners' Reports

Periodic Developmental Review

9. Programme Outcomes:

| Intended Learning Outcomes | Teaching and Learning Methods | How Demonstrated? |
|---|--|--|
| (a) Subject and Professional skills | | |
| Knowledge | | |
| Demonstrate core knowledge of the molecular, genetic and cell biology of cancer and application to biomarker discovery, validation and use, cancer risk and prevention, cancer therapy, cancer drug target discovery and clinical testing. | Lectures, directed reading, laboratory classes, tutorials, seminars. | Laboratory reports, tutorial performance, oral presentations and course examinations (including on-line assessment). |
| Concepts | | |
| Describe and critically appraise the role of molecular biology & pathology in understanding and treating cancer. Demonstrate a critical understanding of the key concepts in the diagnosis, prognosis and treatment of cancer. Demonstrate an ability to design/execute experiments and interpret data. | Lectures, tutorials, laboratory classes, oral presentations. Independent research project. | Laboratory reports, tutorial performance, oral presentations and course examinations (including on-line assessment). |

| Intended Learning Outcomes | Teaching and Learning Methods | How Demonstrated? |
|---|---|--|
| Techniques | | |
| Practical demonstration of implementing experimental methods; competent use of standard and specialized equipment; knowledge of safe laboratory procedures and safety assessment. | Laboratory classes, laboratory project supervision, practical demonstrations and lectures. | Laboratory reports. Project performance and dissertation (MSc. only). |
| Critical analysis | | |
| Critical analysis and interpretation of experimental results and the scientific literature. | On-line assisted teaching, laboratory and project supervision, tutorials. | Course examinations & assessments, laboratory reports. Literature review and analysis element of dissertation (MSc. only), research project progress and dissertation (MSc. only). |
| Presentation | | |
| Presentation of scientific data, and participation in scientific discussion showing evidence of critical thinking. | Tutorials, seminars, project supervision, journal club, independent research. | Poster & journal club presentations and project presentations (MSc. only). Written reports, written laboratory reports & dissertation (MSc only). |
| Appraisal of evidence | | |
| Critical appraisal, discussion and explanation of experimental data and the scientific literature. | Lectures and tutorials. Project supervision. | Course examinations, written report. Written laboratory reports, dissertation (MSc. only), literature review and analysis element of dissertation (MSc. only). |
| (b) Transferable skills | | |
| Research skills | | |
| Critical appraisal and analysis of scientific literature, experimental design, laboratory practical skills, data analysis, data interpretation and statistical analysis. | Tutorials, lectures, project supervision, independent research, laboratory practical classes, computer practical classes. | Tutorial performance, dissertation, written reports, laboratory reports, oral presentations, short answer examination. |
| Communication skills | | |
| Effective written and oral scientific communication; explain results and discuss data clearly, competently and comprehensively. | Tutorials, laboratory classes and presentation skills. | Tutorial performance, laboratory reports, dissertation (MSc. only), oral presentations, written reports, laboratory notebook. |
| Data presentation | | |
| Demonstrate skills in appropriate image presentation, image analysis, analytical and graphical methods, statistics. | Tutorials, laboratory classes, project supervision, independent research, computer practical classes. | Written reports, laboratory practical reports, oral presentations and dissertation. |

| Intended Learning Outcomes | Teaching and Learning Methods | How Demonstrated? |
|---|--|---|
| Information technology | | |
| Demonstrate data handling skills, information retrieval, preparation of slides for oral presentations, word processing and online database interrogation and use. | Workshops, tutorials and practical classes. | Written & laboratory reports, literature review element of dissertation (MSc. only) and oral presentations. |
| Problem solving | | |
| Show abilities to formulate and test hypotheses using appropriate methods and critically interpret the results in the context of the scientific literature. | Tutorials, problem solving, lectures, laboratory classes and project supervision (MSc. only). | Tutorial performance, dissertation (MSc. only). |
| Working relationships | | |
| Project management and organisation skills (MSc. only), time management, and team working. | Group practical classes, group problem solving, tutorials, research project supervision (MSc. only). | Tutorial performance, laboratory practical reports, dissertation (MSc. only). |
| Managing learning | | |
| Demonstrate effective study skills, information management, and show development of academic specialization and interests; show project management skills. | Tutorials, library and IT skills, study skills support and research project supervision (MSc. only). | Interviews, student feedback, tutorial performance, coursework. Research project assessment (MSc. only) |
| Career management | | |
| Produce a professional CV, write applications effectively and show knowledge of career pathways. | Workshops and study skills support. | Student feedback and student destination surveys. |

10. Special features:

Six-month laboratory-based research project.

11. Indications of programme quality:

The course is delivered and administered by the same teaching team that for more than 20 years provided the MSc. in Molecular Pathology & Toxicology, a programme noted for its academic rigour and administrative excellence.

“The clearly described programme learning outcomes are aligned with the QAA subject benchmarks for knowledge, understanding and skills relating to this field of biomedical science and also for the transferable skills associated with such a programme of study. The 120-credit research project allows students to demonstrate their ability to engage with the work and communicate their understanding and findings by both verbal and written assessments in an appropriate way. Written exams are used to assess knowledge and understanding of the three main subject areas relating to the programme aims, which is appropriate. The main component of the programme provides students with the opportunity to engage with a significant piece of cutting-edge research in a thriving research environment. The early part of the curriculum successfully prepares students for this challenge by

providing them with the background knowledge and confidence required to both select and engage effectively with the project and the laboratory environment. The Data Interpretation exam (Module 7401) is an excellent example of an assessment that allows students to use their acquired knowledge to understand a problem and work their way through a logical series of questions towards a final conclusion. It is very well designed and manages to effectively recreate the logical thought processes that students would use in real life.” External Examiner’s Comments, September 2016

12. Scheme of Assessment

The programme follows the scheme of assessment for programmes with 60 taught credits and a 120 credit research project as set out in [Senate Regulation 6](#).

A qualifying mark of 45% is required for both the MCQ exam (of MB7402/1) and the Data Interpretation Exam (of MB7401).

13. Progression points

The programmes comply with the standard progression points set out in [Senate Regulation 6](#).

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.

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

The programme complies with the standard rules relating to re-sits and resubmissions set out in [Senate Regulation 6](#).

15. Additional information [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.

16. External Examiners

The details of the External Examiner(s) for this programme and the most recent External Examiners’ reports for this programme can be found at exampapers@Leicester [log-in required]

Appendix 1: Programme structure (programme regulations)

| | Module Code | Module Title | Credits |
|--------------------|--------------------|--|----------------|
| Compulsory | MB7401 | Molecular Pathology and Cell Biology of Cancer | 30 |
| | MB7402 | Molecular Methods and Experimental Design | 15 |
| | MB7403 | Cancer Therapeutics | 15 |
| For Masters Award: | MB7404 | MSc. Research Project | 120 |

Appendix 2: Module Specifications

See [module specification database](#)