



**1. Programme Title(s):**

MSc Molecular Genetics

Postgraduate Certificate Molecular Genetics (available only as an exit award)

**2. Awarding body or institution:**

University of Leicester

**3. a) Mode of study**

Full-time

**b) Type of study**

Blended

**4. Registration periods:**

The normal period of registration is 12 months.

The maximum period of registration is 24 months.

**5. Typical entry requirements:**

First or second class honours degree in a biological science awarded by a British university, or equivalent. Significant relevant experience may be considered on a case by case basis.

Students required to demonstrate English proficiency in line with the requirements of [Senate Regulations](#) 1 need to achieve a score of 90 in the Test of English as a Foreign Language (TOEFL) or an average score of 6.5 in the International English Language Testing System (IELTS).

**6. Accreditation of Prior Learning:**

Accreditation of Prior Learning will not be accepted for exemptions from modules on this programme.

**7. Programme aims:**

The programme aims to:

- Provide instruction in current concepts and techniques of molecular genetics as applied in modern research.
- Offer practical instruction in experimental techniques and use of common laboratory equipment.
- Give students direct experience of laboratory-based research during a seven-month research placement (MSc only)
- Provide a framework to develop skills to plan research and devise strategies to achieve specific research goals.
- Prepare graduates for employment in molecular, biomedical or biotechnological research and related industries, or for entry to PhD programmes.

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

External Examiners' reports

Framework for Higher Education Qualifications (FHEQ)

Periodic Developmental Review, May 2012

Student feedback

[QAA Master's Degree Characteristics Statement 2015](#)

[University of Leicester Learning and Teaching Strategy](#)

Student destinations

### 9. Programme Outcomes:

ILOs that require students to be present in laboratories (teaching and research) may be subject to change as a direct result of the Covid 19 pandemic and unpredictable changes in physical distancing.

| Intended Learning Outcomes   | Teaching and Learning Methods   | How Demonstrated?  |
|--|---|--|
| <b>(a) Subject and Professional skills</b>   |   |  |
| <b>Knowledge</b>   |   |  |
| Display knowledge of core aspects of molecular genetic analysis, genomics, and molecular biology techniques.<br>Demonstrate high-level knowledge of a research topic (MSc only)                                      | Lectures. Laboratory classes. Computer classes. Tutorials. Independent research.                                      | Experimental analyses. Essay. Examinations: short-answer; problem-based; essay. Individual research project and dissertation (MSc only).                                       |
| <b>Concepts</b>  |   |  |
| Demonstrate understanding of molecular mechanisms of gene regulation and gene function.  | Lectures. Laboratory classes. Tutorials.  | Experimental analyses. Examinations: short-answer; problem-based; essay. Contributions to discussions (formative).   |
| <b>Techniques</b>  |   |  |
| Practical demonstration of experimental method. Competent use of standard and specialized equipment. Ability to interrogate publication databases and bioinformatic resources. Manipulate simple bioinformatic data. | Laboratory and computer classes. Laboratory project supervision and demonstration (MSc only). Lectures and tutorials. | Experimental analyses. Contributions to discussions (formative). Examination. Essay. Individual research project and project report (MSc only).                                |
| <b>Critical analysis</b>   |   |  |
| Critically appraise data and results and critically review literature.   | Laboratory classes. Laboratory research project supervision and appraisals (MSc only). Independent research.          | Experimental analyses. Contributions to discussions. Essay. Examination. Project appraisals (formative) (MSc only). Project report and individual research project (MSc only). |
| <b>Presentation</b>  |   |  |
| Present scientific results. Participate in scientific discussion.  | Laboratory classes. Research project supervision (MSc only). Research project laboratory meetings (MSc only).         | Contributions to discussions. Laboratory presentations, Project presentations (formative and assessed).  |

| <b>Intended Learning Outcomes</b>   | <b>Teaching and Learning Methods</b>   | <b>How Demonstrated?</b>   |
|---|--|--|
| <b>Appraisal of evidence</b>  |  |  |
| Demonstrate awareness of the experimental method and project design (MSc only)  | Laboratory classes. Lectures. Research project supervision (MSc only). Tutorials.                        | Examination. Experimental analyses. Individual research project and dissertation (MSc only).   |
| <b>(b) Transferable skills</b>  |  |  |
| <b>Research skills</b>  |  |  |
| Should be able to problem solve, analyse data and interpret simple statistical tests. Should maintain useful research notes/records.  | Laboratory and computer classes. Individual research project (MSc only). Project supervision (MSc only). | Performance in laboratory and computer classes (formative). Laboratory notebook. Experimental analyses. Examinations: problem-based. Individual research project (MSc only). |
| <b>Communication skills</b>   |  |  |
| Write effective scientific reports and deliver effective oral presentations.  | Study skills support. Project supervision (MSc only). Lecture. Individual research project (MSc only).   | Individual research project. Project appraisals (formative). Project report. Research seminar. (All MSc only).   |
| <b>Data presentation</b>  |  |  |
| Should be able to select and use appropriate software, and use statistical tests  | Laboratory and computer classes.   | Performance in laboratory and computer classes (formative).  |
| <b>Information technology</b>   |  |  |
| Ability to interrogate publication databases and use bibliographic software. Identify, retrieve and manipulate simple bioinformatic data. Demonstrate mastery of word processing and presentation software. | Laboratory and computer classes. Study skills support.   | Experimental analyses. Essay. Seminar presentation (MSc only). Project report (MSc only).  |
| <b>Problem solving</b>  |  |  |
| Should be able to solve problems effectively. Formulate hypotheses and choose appropriate tests.  | Tutorials and experimental classes. Project supervision (MSc only).                                      | Experimental analyses. Examinations: problem-based. Individual research project and project report (MSc only).   |
| <b>Working relationships</b>  |  |  |
| Display project management and organizational skills. (MSc only) Effective interaction with supervisor. (MSc only). Work in pairs /groups.  | Project supervision (MSc only). Laboratory classes. Individual research project (MSc only).              | Assessment of project (MSc only). Formative feedback in laboratory classes.  |
| <b>Managing learning</b>  |  |  |
| Should be able to apply study skills and manage information. Develop specialization and manage project (MSc only).  | Library and IT skills, study skills support. Individual research project (MSc only).                     | Essay. Individual research project (MSc only). Project appraisals (formative) (MSc only).  |

| Intended Learning Outcomes   | Teaching and Learning Methods       | How Demonstrated?   |
|--|-------------------------------------|---|
| <b>Career management</b>   |                                     |   |
| Produce a professional CV, write applications effectively and show knowledge of career pathways. | Workshops and study skills support. | Student feedback and monitoring career progression of previous graduates. |

#### 10. Special features:

Laboratory-based experimental research project.

#### 11. Indications of programme quality:

Extracts from External Examiner report for academic year 2013-14:

"The achievement of the students is at least comparable to those at other institutions. The difference with students on the Leicester course is that they are exposed to a much higher level of practical experience compared to many other courses. They also have high quality projects reflecting the significant research of the department. The quality of their project presentations, which I was fortunate to be able to attend, was also extremely good and at least as good as any others I have witnessed at this level. "

"The initial practical modules give the students a good grounding in basic techniques and are very comprehensive which means that when it comes to the lab based projects they can start from a position of having some background knowledge"

"As ever I am always impressed at the level of practical skills achieved by the students with the intensive practical modules as well as the opportunity to carry out a significant research project with very high calibre of topics offered."

#### 12. Scheme of Assessment

As defined in Senate Regulation 6: Regulations governing Taught Postgraduate Programmes of Study for programmes with 60 taught credits and a 120 credit project (see [Senate Regulations](#))

#### 13. Progression points

As defined in Senate Regulation 6: Regulations governing Taught Postgraduate Programmes of Study (see [Senate Regulations](#))

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.

#### Exceptional exit from the course at the end of Semester 2.

Students who pass the taught phase of the course (the 60 credits of Semester 2), but are unable to undertake or complete the research project, are eligible for a Postgraduate Certificate in Molecular Genetics (awarded in line with the criteria set out in Senate Regulation 6). This represents an exceptional exit route, and students are not permitted to register purely for this Postgraduate Certificate.

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

As defined in Senate Regulation 6: Regulations governing Taught Postgraduate Programmes of Study (see [Senate Regulations](#))

#### 15. Additional information [e.g. timetable for admissions]

n/a

## 16. External Examiners

The details of the External Examiner(s) for this programme and the most recent External Examiners' reports can be found [here](#).

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

The MSc degree consists of 180 course credits and is organized in two phases:

|                  |             |                   |
|------------------|-------------|-------------------|
| Taught Phase     | 60 credits  | MB7211 and MB7212 |
| Research Project | 120 credits | MB7205            |

| Module | Module Title   | Core / Optional | Credit Value |
|--------|--|-----------------|--------------|
| MB7211 | Introduction to techniques in molecular genetics and data analysis               | Core            | 30           |
| MB7212 | Experimental design and applications of molecular genetic techniques in research | Core            | 30           |
| MB7205 | Masters research project   | Core            | 120          |

### Appendix 2: Module Specifications

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

