



University of
Strathclyde
Science

MSc

MOLECULAR MICROBIOLOGY

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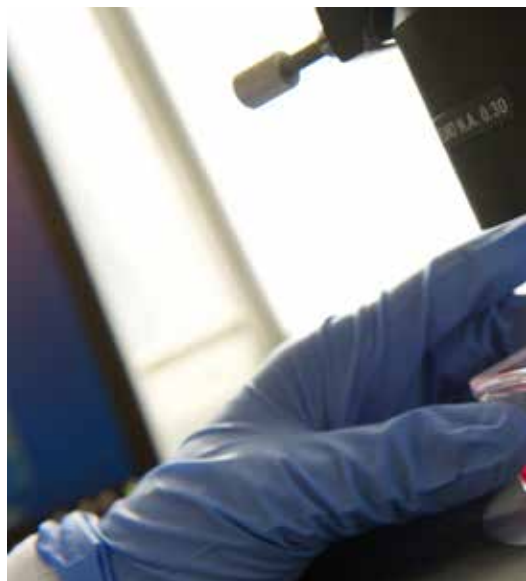
The course provides comprehensive postgraduate life sciences training with three elements:

- Dedicated training in a broad suite of practical laboratory skills
- Two unique classes that develop skills in statistics, presentations, career development, ethics and science writing skills
- Taught classes which capture the excitement of cutting-edge research fields and teaching by active researchers or practicing clinical professionals

You will benefit from the highest-quality teaching in the leading Institute of Pharmacy and Biomedical Sciences in Scotland. Lectures, tutorials, practical sessions and workshops will be delivered by expert clinicians and clinical biochemists from the National Health Service.

Class Profile

Course participants are recent graduates and early-career professionals from a variety of backgrounds, from the UK, EU and overseas, all with a common desire to be challenged and a real passion for the value in understanding how molecular mechanisms can be exploited for the synthesis of biotechnologically important products.



Programme Skills Set

On the programme you will study:

- transferable skills in statistics, communication, ethics, science writing and critical analysis of data
- two semesters of laboratory work to gain the practical and interpretational skills to prepare for your project and future career
- optional classes in *in vivo* biology, drug discovery or haematology.
- compulsory class in Pharmacology, and choice of either Clinical Microbiology or Applied Microbiology
- a summer project in research laboratory

Careers

Graduates should ideally be qualified for positions in the biomedical and pharmaceutical industries as well as hospitals and universities. You may also wish to continue studies for an MPhil or PhD degree.



The course provides the background training for a career in:

- pharmaceutical and biotechnology industry laboratory research posts
- laboratory technical support
- medical/pharmaceutical/life science sales
- academia – following a PhD route

Compulsory Classes

- Generic Skills for Biomedical and Pharmaceutical Students – refine your core skills in statistics, data presentation and career development; learn about the ethical choices and dilemmas you may encounter in your scientific career
- Entrepreneurship – find out from the experts what it takes to translate ideas in biomedical sciences into patents, business plans and spin-out companies

- Statistics – a comprehensive, week-long class that gives you the tools you will need in your scientific career, and knowledge on when to apply them
- Postgraduate Studies in Microbiology – learn about the key concepts of bioreactor and process design including the importance of downstream processing and process monitoring; the importance of systems and synthetic biology in advanced industrial biotechnology and the roles of micro-organisms in wastewater treatment, bioremediation and biofouling are introduced
- Advanced Techniques in Biomedical Research 1 & 2 – two compulsory laboratory classes familiarise you with the key research skills relating to the biochemistry, pharmacology, microbiology and immunology fields, help develop your skills in data analysis and report writing, and pave the way for a smooth transition into your summer research project
- Advanced Topics in Biomedical Research – an innovative class designed with three outcomes:
 - become an expert in the field that you will study for your research project and learn how to write a review paper of publication quality
 - learn from the experts about how a scientific research career works and write the outline of a hypothetical research grant application
 - enhance your teamworking ability on a project to develop a hypothetical therapy from an initial idea through to licensed drug treatment; learn how to manage a project's timelines and targets, and experience the world of big data manipulation and analysis

- Research Project – choose from a selection of project topics in Semester 1, engage with your supervisor to plan the work, and start your laboratory work at the end of May

Optional Classes

- *In Vivo* Biology – gain practical experience in the application of *in vivo* research through training to Home Office Personal Licence standard; discover how *in vivo* biology has driven the development and testing of new drugs and medical techniques
- Drug Discovery – explore the pathway from pathology or biological pathway to small molecule drug candidate; become familiar with the modern laboratory assays and screening approaches used by the pharmaceutical industry to develop their drugs
- Postgraduate Studies in Clinical Biochemistry – explore the range of diseases and disorders afflicting human body systems and discover how they are diagnosed by clinical biochemists working within the NHS
- Postgraduate Studies in Applied Microbiology – learn about modern industrial biotechnology (IB) and understand microbial process development and the way in which molecular biology is revolutionising the IB sector; address the key concepts of bioreactor and process design including the importance of downstream processing and process monitoring; introduction to the importance of systems and synthetic biology in advanced IB and the roles of micro-organisms in wastewater treatment, bioremediation and biofouling

Course Duration

12 months full-time

Entry Requirements

First- or second-class Honours degree, or equivalent, in a biological or chemical discipline.

English language: IELTS 6.5 (with no component below 5.5) is required for all non-English speakers.

Fees and Funding

For information on current fee levels, see: www.strath.ac.uk/studywithus/feesfunding/tuitionfees

A number of scholarships are available for outstanding UK, EU and international applicants. For details, please visit www.strath.ac.uk/studywithus/scholarships

Further Information and How to Apply

For further information and how to apply, please visit www.strath.ac.uk/courses/postgraduate/taught/molecularmicrobiology

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the place of useful learning

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Information current at April 2017. Please consult the University website for the most up-to-date information. The University of Strathclyde is a charitable body, registered in Scotland, with registration number SC015263