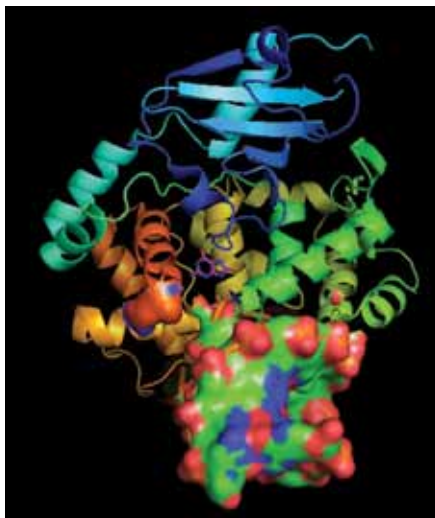


MRes Molecular Mechanistic Toxicology Research Masters in Toxicology



Understanding the molecular bases by which toxic chemicals disrupt cellular function to cause disease such as cancer is an important scientific challenge that can only be addressed using a multidisciplinary approach.

Dr Nik Hodges

Course Tutor MRes Molecular Mechanistic Toxicology

'We provide a research orientated extension of molecular biology into the subject of molecular mechanistic toxicology.'

Why Molecular Mechanistic Toxicology?

Molecular Toxicology is an academically challenging, exciting and rapidly expanding multi-disciplinary subject with good career prospects. An understanding of Toxicology at the cellular and molecular level enhances the quality of human life for example, by allowing the design of safer drugs and improving the overall quality of our environment.

What can I expect from this degree programme?

The programme is coordinated by the School of Biosciences which is recognised internationally as a major centre for both teaching and research in toxicology. Molecular Toxicology is a major component of the School's molecular pathobiology research theme.

Specific areas of active research include:

- Mechanisms of cell toxicity
- Cellular proliferation and differentiation
- Environmental genomics and metabolomics
- Molecular biomarkers of genotoxicity and stress response
- Non genotoxic carcinogens
- Host pathogen interactions
- Role of environmental and genetic factors in neurological disease

We provide a lively interactive teaching and research environment and training is provided by members of academia, industry, hospitals and government institutions. There are two taught modules (lectures, seminars, presentations, essays and practical classes) held in conjunction with the taught MSc in Toxicology which focus on xenobiotic

metabolism and the molecular and cellular mechanisms of toxicity. There is also an extended library project where you will have a chance to explore in depth and critically evaluate a subject area of your choice relating to molecular and cellular toxicology. The taught component of the course is followed by an extended 6 months research project where you will undertake a piece of scientific research and gain research training and hands on experience in state of the art molecular and cellular biology techniques. Projects may be undertaken in either academia or an industrial laboratory and are written up in the style of a manuscript for publication in a scientific journal. In previous years we have had several publications arising from student research projects.

MRes Molecular Mechanistic Toxicology

Research Masters in Toxicology

What will I learn about on this degree programme?

This programme will provide you with the theoretical knowledge required to understand the mechanisms of chemical toxicity at the cellular and molecular level. This includes an advanced understanding of metabolism of xenobiotics and their interaction with cellular targets like proteins and DNA. You will also learn how to relate this to the assessment of environmental and pharmaceutical chemical safety. The theoretical knowledge gained in the taught component is linked to research training in state of the art molecular and cellular biology techniques to investigate and understand the mechanisms of chemical toxicity. Students will also receive more generic training in transferable skills such as presentation of scientific data to peers via poster and oral communications, report writing, statistical analysis of biological data, experimental design and critical appraisal of scientific data.

What skills will I gain from this degree programme?

The skills that you will learn from this degree programme include:

- Practical experience of state of the art research techniques in molecular mechanistic toxicology

- An understanding of the cellular and molecular basis for chemical toxicity and its implications for chemical safety and risk assessment
- An appreciation of the scientific method and experimental design
- How to critically interpret scientific data and literature
- How to analyse and present your data to your scientific peers through oral and poster communications as well as written reports.

What qualifications do I need to study this degree programme?

You will need a minimum 2.1 BSc Honours degree or equivalent qualification in a subject which contains a substantial component of molecular biology. If English is not your first language you will also need to demonstrate that your standard of English meets the University English Languages requirement.

What can I do with this degree?

There is currently demand for Toxicologists with molecular biology training in industry and other research organisations. The skills you gain from this course will stand you in good stead to enter research based careers in the pharmaceutical industry and the medical

sciences. You will also have enhanced your opportunities to further your research training by studying for the degree of PhD.

Funding

Studentships may be available to support students resident in the UK or EU.

Learn more

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This leaflet was written several months in advance of the start of the academic year. It is intended to provide prospective students with a general picture of the programmes and courses offered by the School. Please note that not all programmes or all courses are offered every year. Also, because our research is constantly exploring new areas and directions of study some courses may be dropped and new ones offered in their place.

