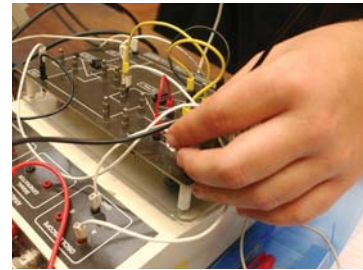


# Faculty of Science

## Foundation Degree for Science Technicians

**i-Science**

The Centre for Interdisciplinary Science



University of  
**Leicester**

UNDERGRADUATE STUDIES



## What will you gain from studying the FdSc for Science Technicians?

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**This Foundation Degree provides training opportunities for science technicians in schools and colleges to address the ever higher expectations of schools, colleges and students for the quality of technical support in science.**

This course is the first to balance increased expectations brought about by curriculum change (including the new science GCSE), quality assurance and health and safety legislation by offering increased training opportunities. It will allow current technicians and those newly entering the profession the chance to upgrade their skills and to broaden their knowledge to cover new and emerging aspects of the job covering:

- Laboratory management
- Health and safety
- Managing people
- Current issues in science education



## Benefits:

You, your colleagues and your school or college will benefit from this Foundation Degree: you will enhance your effectiveness as a science technician by developing work-related knowledge and skills and you will be able to assume greater responsibilities.

Schools and colleges will benefit from having comprehensively trained science technicians adding stability to the teaching of a subject where often there is a high turnover of science teachers. Where a science subject is taught by a non-specialist teacher in that area, the delivery of education will be strengthened by Science Technicians that have completed this interdisciplinary science degree.

The content of the course also covers twenty-first century science – the new GCSE that is being added to the national curriculum.

The Foundation Degree is a relatively new type of course in Higher Education, which combines and connects part-time study with work practice. It is particularly suited to students with little or no recent experience of Higher Education. Successful completion of the course enables students to progress to the third year of selected BSc programmes if they wish.



## Skills and Content

*The course will include all aspects of science - from biology to the earth sciences. The degree will cover experimental equipment maintenance, and trends of science education.*

Science Technicians will gain the following skills and knowledge:

- a broad background in contemporary science
- specific technical, IT, presentational and mathematical skills relevant to scientific support
- a basis for effective interaction with professionals in various science disciplines
- effective problem-solving skills
- knowledge of health and safety issues in the classroom

The approach to learning is specifically designed for students who may not have studied for some time with specialist modules and applications to the workplace.

The focus of the programme is on relevant skills for the work place and knowledge as well as delivering a broad background in contemporary science. Problem-based learning encourages students from different backgrounds to reach the same objectives; group work provides a real-world environment for the honing of negotiating skills, time-management, presentation and writing skills; laboratory work underpins development of practical and IT skills.

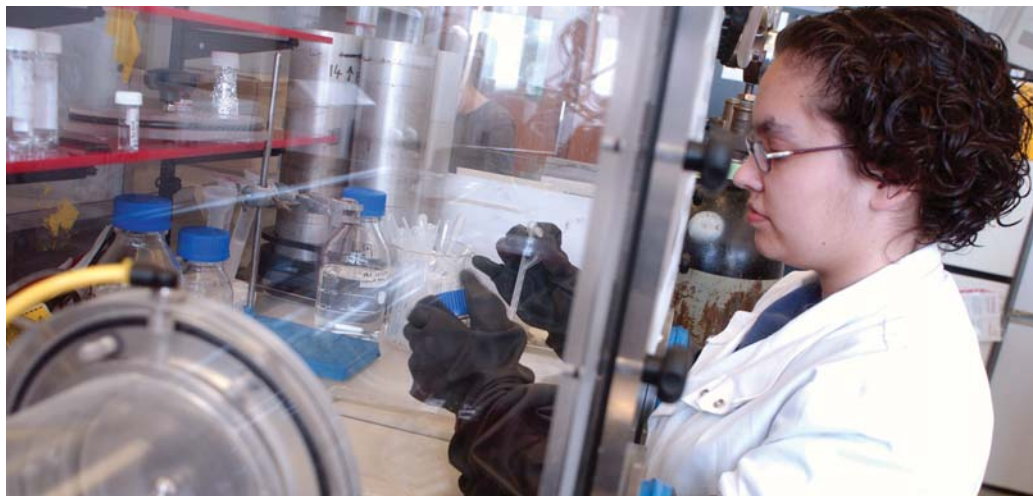
The scientific content is drawn from a wide range of real-world questions from climate change to genetics, from space research to biodiversity using materials developed for part-time study from the Interdisciplinary Science undergraduate programme.



## Course structure

Each science module poses an interdisciplinary problem and these modules are supported by courses in education, laboratory practice, IT and relevant mathematics. The programme is based on a credit structure, the 240 credits required for the degree being accumulated over three years of part-time study.

Year 1	Year 2	Year 3
Independent learner	Theory of Science	
Integrated Science 1:	Integrated Science 2:	Integrated Science 3:
<ul style="list-style-type: none"> <li>• Introduction to problem - based learning</li> <li>• Aligning the stones: an introduction to astronomy</li> <li>• Science of the Invisible</li> <li>• Biosphere 1: Introduction to Ecology</li> <li>• Heat and Temperature</li> </ul>	<ul style="list-style-type: none"> <li>• Rebuilding Stonehenge</li> <li>• Keeping time: an introduction to Newtonian Mechanics</li> <li>• Science of the Invisible: the sequel</li> <li>• Genetics</li> <li>• Near Space: climate change</li> </ul>	<ul style="list-style-type: none"> <li>• Biosphere and the Eden project</li> <li>• Science of the Invisible 3</li> <li>• Deep Space</li> <li>• Raising the alarm: an introduction to electricity and magnetism</li> <li>• The stained glass scam: introduction to optics</li> </ul>
Laboratory Practice 1	Laboratory Practice 2	Management of Laboratory Operations
IT and Numeracy Skills	The Educational context	Work-related project



To give you a taste of some of the course content here is a brief description of just some of the modules:

### **Independent Learner**

This module is intended to provide students with

- An evaluation of their personal strengths and areas for improvement
- An opportunity to develop and consolidate their academic study skills
- Awareness of how to communicate effectively through a variety of media
- An overview of academic information sources and how to use them

### **Laboratory Practice 1**

The aims of this module are:

- Enable students to comply with the main requirements of health and safety in a laboratory setting
- Ensure that students are able to carry out a number of general laboratory procedures
- Equip students with a range of laboratory techniques in Biology, Microbiology, Chemistry and Physics

### **Integrated Science**

This course teaches science through Problem Based Learning. In other words, students will start with a problem and identify what they need to know to obtain a solution. Some examples are:

- Aligning the stones: an introduction to elementary astronomy including the use of telescopes
- Science of the Invisible: this deals with basic features of atoms, the periodic table, molecules and chemical bonding and the scales involved.
- Biosphere 1 an introduction to ecology: this will include an understanding of the basic terms in ecology, Linear Classification and major kingdoms. Issues in the dynamics of populations will be addressed and students will be expected to be able to take part in a basic discussion of evolution.



### The Educational Context

Topics in the module will include

- Science in the National Curriculum
- Issues of funding school-based science
- Pedagogy of science subjects
- Trends in university science courses
- The funding and organisation of research
- The technician's role in the research laboratory
- Survey of management skills and approaches with the potential to enhance performance across the board or in high-priority areas
- More detailed consideration of the particular management skills related to individual student needs and circumstances
- Review of opportunities for further development of management skills

### Management of Laboratory Operations

This module will include:

- Examination of generic operating procedures, work practices and staff roles within the laboratory settings in terms of management tasks and responsibilities
- Evaluation of how effectively these functions are undertaken in particular workplaces



## Teaching and Assessment

The course is based around real-world scientific problems with interdisciplinary themes, involving a mixture of physics, chemistry, biology and earth sciences. You work in groups, concentrating on your areas of greatest interest, but learning to interact with those from other disciplines. This approach to study (called 'problem-based learning') was pioneered in interdisciplinary science at the University of Leicester, as part of a nationally funded project and now under the mantle of the Physics Innovation Centre for Excellence in Teaching and Learning.

Assessment is through a combination of group and individual assignments and work-based projects. There are no formal examinations.

### Workplace Learning

An essential feature of the Foundation Degree is that it should draw on and integrate experience in the workplace. There will be continual points of reference throughout the course, culminating in a work-based final year project.

### Progression

At the end of this foundation degree you are eligible to progress onto the third and final year of a BSc Honours Degree if you wish. To qualify you will need to have satisfied the criteria for achieving the foundation degree and satisfied the requirements of the Bridging Protocol.

*This foundation degree is taught on a flexible basis and involves a large amount of workplace learning meaning that you can further your career while still in work.*



## Where and when will I study?

This foundation degree is taught through a partnership of the University of Leicester and Wyggeston & Queen Elizabeth I College. Course meetings will be at Wyggeston & Queen Elizabeth I College **one evening each week** (after the normal school day) supplemented by occasional Saturday schools. Specialist sessions will be held in the University of Leicester.

You will be expected to carry out private study, project work and e-learning activities at home and in the workplace.

Support through the **Centre for Interdisciplinary Science**

- Academic and personal support from dedicated staff members
- Full access to library and computing resources

Support through the **Wyggeston & Queen Elizabeth I College**

- Academic and personal support from dedicated staff members
- Foundation degree area of Wyggeston Intranet

*The University of Leicester is a leader in science teaching, research and innovation, and in the development of problem-based learning in science.*



## Student Support

### **Personal tutors**

All students are allocated a personal tutor. Your tutor will see you to discuss progress in your studies. He/she also will provide a sympathetic ear for all matters of personal concern, whether they be academic, financial, housing, career, social or personal problems.

### **Student Learning Centre**

Support for the development of students' independent learning skills is provided by this Centre. There is a year round programme of study workshops, a wide range of written study guides, and a drop-in advisory centre. The Centre can offer advice and training on study skills, presentation skills, writing skills, maths skills, IT skills and research skills.

### **Careers Service**

Guidance from the start of your degree is available on the importance of skill development, work experience and career planning. At the career centre there is a well-stocked information room, workshops, practice interviews and a drop-in career advice.

### **Student Health Centre**

We have a full NHS practice and student sick bay, including support during examinations and complete mental health care.



## Entrance Requirements

We are interested in the qualifications you might already have achieved, but will also consider relevant work experience. A commitment to learning and personal development will be the key to your success.

## Contact for More Information:

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All information in this brochure was correct at the time of going to press. However, changes and developments are part of the life of the University, and alterations may occur to the programmes and services described in this brochure.



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