

## Foundation Year in the Sciences For students entering in 2006

**Awarding Institution:**

The University of Reading

**Teaching Institution:**

The University of Reading

Relevant QAA subject benchmarking group(s): -

Faculty of Science

Programme length: 1 year or 2 year p.t.

Date of specification: 2006/7

Programme Director: Dr Ben Cosh

Programme Adviser: Dr Ben Cosh

**Board of Studies:** Foundation Year in the Sciences Programme

**Accreditation:** - IET, IoP

### Summary of programme aims

The Foundation Year in the Sciences aims to provide a route into the Faculties of Life Sciences and Science for students whose background is not that of the standard A-level route, or whose subjects at school or college are not suitable for direct entry to the degree programme they wish to study. It aims to achieve this by the provision of high quality teaching which is sympathetic to the needs of students with a range of different educational backgrounds.

### Transferable skills

The University's Strategy for Teaching and Learning has identified a number of generic transferable skills that all students are expected to have developed by the end of their degree programme. In following the full four (or five) year programme, students will have had the opportunity to enhance their skills relating to career management, communication (both written and oral), information handling, numeracy, problem-solving, team working and use of information technology.

As part of the Foundation Year students are expected to have gained experience and show competence in scientific writing, oral presentation, team-working, problem-solving, use of library resources, and time-management, although the skills developed will depend to some extent upon the modules pursued.

### Programme content

The programme provides a Foundation Year extending a standard three year BSc/BEng to a four year BSc/BEng programme, with corresponding changes to other programmes. Each student will be admitted to the Foundation Year with a specific destination programme included in his or her terms of entry. The programme content for the Foundation Year is set out in this specification. Following successful completion of the Foundation Year, students will progress and transfer into Part 1 of their destination programme, and will then follow the specification of that programme.

During the Foundation Year students must study modules totalling 120 credits and these will be divided into three 40-credit module-groups. Two of these 40-credit groups must be subject-pairs from the list of foundation modules in the table below. The remaining 40-credit group will usually be another foundation level subject-pair but in some cases (for instance, where a student is already well qualified in a particular science subject) a suitable combination of foundation level modules and/or relevant alternative Level C modules will, subject to approval by the Programme Director and Faculty, be permitted.

The foundation level modules currently on offer to Foundation Year students are as follows.

Subject	Module Code	Module	Credits	Level
Maths	MA0A	Foundation Mathematics A (Autumn only)	20	0
	MA0B	Foundation Mathematics B (Spring only)	20	0
	MA0C	Foundation Mathematics C (Spring only)	20	0
Physics	PH0A	Foundation Physics A	20	0
	PH0B	Foundation Physics B	20	0

Electrical Science	EE0A	Foundation Electrical Science A (Autumn and Summer)	20	0
	EE0B	Foundation Electrical Science B (Spring and Summer)	20	0
Biology	AM0BIA	Foundation Biology A (Autumn and Summer)	20	0
	AM0BIB	Foundation Biology B (Spring and Summer)	20	0
Chemistry	CH0A	Foundation Chemistry A (Autumn)	20	0
	CH0B	Foundation Chemistry B (Spring)	20	0

Although a wide variety of module choices and combinations may be appropriate, in practice, there are three main routes of study through the Foundation Year. These are as follows.

- Maths (MA0A+MA0B), Physics (PH0A+PH0B), Electrical Science (EE0A+EE0B)
- Maths (MA0A+MA0B), Physics (PH0A+PH0B), Chemistry (CH0A+CH0B)
- Maths (MA0A+MA0C), Biology (AM0BIA+AM0BIB), Chemistry (CH0A+CH0B)

Which route a student follows will be dependent upon the progression requirements for his or her destination programme and every student will receive individual advice concerning module selection on arrival at the University.

### **Passing the Foundation Year**

The performance threshold for successful completion of the Foundation Year is achievement of an overall average of the pass marks in the modules taken, and individual marks of at least 30% in each of a collection of modules totalling 100 credits. Thus the pass mark for students taking all modules at foundation level is 55%. For students for whom part of the material taught is at foundation level (pass mark 55%) and part at level C (pass mark 40%) the mark required to pass the foundation year will be the weighted average of the pass marks for the modules taken in the foundation year.

### **Programme-specific progression requirements**

In addition to passing the Foundation Year, in order to progress to his or her chosen destination programme, each student will normally have to meet the programme-specific progression requirements set out in the Programme Handbook.

In certain circumstances it may be appropriate for the programme-specific progression requirements for an individual student to differ from those in the Programme Handbook, such as in the case of prior qualification in a Foundation Year subject. All such variations in requirements must be approved by the Programme Director and Faculty.

On entering the Foundation Year, each student will be advised, individually in writing, of the progression requirements he or she must meet in order to progress to his or her destination-programme.

If a student wishes to change his or her destination programme during the Foundation Year, the proposed change must be approved by the Faculty and the student will then be advised, individually in writing, of his or her new progression requirements.

### **Summary of teaching and assessment**

Teaching is organised in modules that typically involve lectures, seminars, problem solving sessions and laboratory practical classes. Most modules will be assessed by a mixture of coursework and final examinations. All examinations will have a significant proportion of compulsory questions.

A feature of the Foundation Year is to enhance the motivation of students enrolled and improve their prospects of progression. This is achieved by specific teaching methods which emphasise:

- close association with the School responsible for the destination degree programme.
- small group tutorials and seminars.
- a dedicated pastoral support programme.

- full access to all of the University's learning and support services including the Disability Office, Study Advisors, Mathematics Support Centre, Students Union, Counselling Service, Health Centre, Library and IT Services.

### **Admission requirements**

Entrants will normally be required to have obtained at least Grade C or better in English, Mathematics and Science at GCSE level or equivalent, with Grade B or better preferred in Mathematics and Science.

Students entering from an A-level or equivalent programme will typically be made offers in the region of 200-240 UCAS tariff points. However, in order to account for the variety in background, experience and aspiration of potential applicants there is **no standard entry offer** for this programme and the admissions tutor will consider each application on its merits. Applications from mature learners and those whose educational backgrounds would not normally provide access to undergraduate science programmes will be welcomed. Priority will be given to candidates who can demonstrate

- ability to self-organise and work independently
- motivation to succeed, and/or
- genuine interest in science.

Admissions will be conducted by the Programme Director, in consultation with Admissions Tutors from the School responsible for each applicant's destination programme.

### **Support for students and their learning**

Learning support which includes IT Services and the University Library is available to all students on the foundation year. The University library has a range of electronic sources of information and houses the Student Access to Independent Learning (S@IL) computer-based teaching and learning facilities. Student guidance and welfare support is provided by Personal Tutors, the Careers Advisory Service, the University's Special Needs Advisor, Study Advisors, Hall Wardens and the Students' Union.

The Foundation Year Programme in the Sciences places particular emphasis on the individual support of students. It is anticipated that many of these students will derive from non-standard educational backgrounds and require both motivation and encouragement in order to succeed. Although students registering for this programme will have a choice of degrees available at Part 1, they will be registered for a particular programme on entry and assigned a personal tutor from the relevant school. Through the Personal Tutor system students will follow the PAR (Personal Academic Record) scheme in which tutors see their students at least once per term and appraise performance in academic and transferable skills. In this way problems can be identified and addressed at an early stage. Results from continual assessment carried out in modules will be relayed to personal tutors for discussion at PAR interviews.

### **Career prospects**

Whilst not directly involved with career planning or management the Foundation Year in the Sciences provides access to most degree programmes in the Faculties of Science and Life Sciences.

### **Opportunities for study abroad or for placements**

There are no arrangements for study abroad or placements during the Foundation Year but a variety of opportunities exist in some of the destination programmes available.

### **Educational aims of the programme**

The main aims of the programme are

- to provide a sound knowledge base in the subject areas studied in order to progress to Part 1 of the appropriate undergraduate degree programme,
- to develop and encourage the learning skills necessary for undergraduate level study,
- to instil an understanding of the work discipline, commitment, independent learning and time management required for undergraduate study, and by so doing
- provide a route into degree programmes in the Faculties of Science and Life Sciences.

## Programme Outcomes

The programme provides opportunities for students to develop and demonstrate knowledge and understanding, skills, qualities and other attributes in the following areas:

### Knowledge and Understanding

<p><b>A. Knowledge and understanding of:</b></p> <ol style="list-style-type: none"><li>1 the key areas of each module specifications studied</li><li>2 at least three distinct scientific subjects</li><li>3 the use of information technology in a scientific context.</li><li>4 where relevant, the relationship between different areas of study,</li></ol>	<p><b>Teaching/learning methods and strategies</b></p> <p>Much of the knowledge is delineated in formal lectures backed up by problem solving classes, seminars, tutorials and laboratory classes. Students are expected to undertake independent reading to supplement and consolidate the material taught in classes. Information technology will be addressed where appropriate in individual modules.</p> <p><b>Assessment</b></p> <p>Assessment is varied, including formal examinations, coursework and practical reports, as is most appropriate to the area being studied.</p>
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### Skills and other attributes

<p><b>B. Intellectual skills – able to:</b></p> <ol style="list-style-type: none"><li>1 think logically</li><li>2 analyse and solve problems</li><li>3 explain and apply the subject material.</li><li>4 recognise and use subject-specific theories, concepts and principles</li><li>5 analyse, synthesise and summarise information critically</li><li>6 apply knowledge and understanding to address familiar and unfamiliar problems</li><li>7 collect and integrate evidence to formulate and test hypotheses</li><li>8 Use appropriate terminology confidently and accurately.</li></ol>	<p><b>Teaching/learning methods and strategies</b></p> <p>Logic is an essential part of the understanding of science and is embedded throughout the programme. Most modules are designed to develop 1- 5. 4 – 7 are enhanced through the use of coursework assignments. 6-8 are addressed in practical classes.</p> <p><b>Assessment</b></p> <p>1- 4 are assessed indirectly in most parts of science, while 5 contributes to the more successful work. 1-2 in particular are assessed in problem solving classes. 6-8 are assessed in practical reports</p>
<p><b>C. Practical skills – able to:</b></p> <ol style="list-style-type: none"><li>1 plan, conduct, and report scientific experiments and report reliably on their outcomes</li><li>2 accurately collect and collate data. use data to produce a well presented and ordered report.</li></ol>	<p><b>Teaching/learning methods and strategies</b></p> <p>Practical skills are developed through regular practical exercises. In some modules work is laboratory or project based and data are used to produce reports.</p> <p><b>Assessment</b></p> <p>Practical skills are assessed through laboratory reports or practical examinations.</p>

**D. Transferable skills – able to:**

- 1 communicate effectively by written and oral means.
- 2 demonstrate numerical and problem solving skills appropriate to the subject matter of the module.
- 3 use IT (word-processing, using standard software packages, scientific programming)
- 4 interpersonal skills: ability to work independently and with others and share knowledge effectively; recognise and respect the views and opinions of other team members.
- 5 use the internet critically as a source of information.
- 6 apply self management and professional development: study skills, independent learning, time management, identifying and working towards targets for personal, academic and career development.

**Teaching/learning methods and strategies**

The skills listed are developed primarily within the context of the core modules with additional support provided through problem solving workshops, seminars and tutorials.

**Assessment**

1- 3 are assessed mainly through coursework, including practical report writing. The other skills are not directly assessed but their effective use will enhance performance in later modules.

**Please note - This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. More detailed information on the learning outcomes, content and teaching, learning and assessment methods of each module can be found in the module description and in the programme handbook. The University reserves the right to modify this specification in unforeseen circumstances, or where the process of academic development and feedback from students, quality assurance processes or external sources, such as professional bodies, requires a change to be made. In such circumstances, a revised specification will be issued.**