

FP058-30 Biology Principles and Practice

20/21

Department

Warwick Foundation Studies

Level

Foundation

Module leader

Rachel Evans

Credit value

30

Module duration

25 weeks

Assessment

50% coursework, 50% exam

Study location

University of Warwick main campus, Coventry

Description

Introductory description

This module will develop students' understanding of biological principles and processes. It will provide students with training in biological research and experimental techniques. It will also allow students to explore how biology can be used as part of an interdisciplinary approach to solving problems.

[Module web page](#)

Module aims

This module aims to develop students' understanding of biological principles and processes to allow their successful use and application, particularly to current issues and problems in the Life Sciences. This module will prepare students with the skills that are needed to carry out laboratory work and biological research. Students will develop skills and experience in evaluating evidence, data analysis, and acquire awareness of ethical issues and debates in biology. This module will also enhance students' academic research and writing skills so that they are able to compose written materials that communicate biological topics. Students will be provided with opportunities to apply and strengthen theoretical knowledge gained in complementary and co-requisite modules,

to allow them to develop an interdisciplinary outlook.

Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

Cell Biology

- Structure of prokaryotic and eukaryotic cells
- Cell membranes and transport processes
- Stem cells – types and uses in medicine
- The DNA molecule
- Role and mechanism of enzymes in biological reactions

Human Biology and Health

- Respiratory system
- Circulatory system
- Digestive system
- Physiological disease case studies
- Immune system and prevention of disease
- Infectious disease case studies

Control and Coordination

- Homeostasis
- Hormonal system
- Nervous system
- Introductory neuroscience
- Neurological disorders case studies

Genetics

- The cell cycle
- Inheritance and genetic disorders

Fundamentals of Biology

- Introduction to laboratory skills and techniques
- Ethical issues in biology
- Utilising and interpreting data in the biological sciences
- Written communication of biological ideas and concepts

Learning outcomes

By the end of the module, students should be able to:

- Apply knowledge of biological principles and processes to understand different biological systems, and the connections between them

- Analyse biological data, research and statistical results, including from experiments, to compose scientific reports and provide evidence-based conclusions
- Use biological principles to develop an interdisciplinary problem-solving approach.
- Prepare different genres of written communication to relate knowledge and research of biological topics.

Indicative reading list

Alberts, B et al (2013). Essential Cell Biology.

Bonner, P and Hargreaves (2011). Basic Bioscience Laboratory Techniques.

Boyle, M and Senior, K (2008). Human Biology.

Campbell, N.A. and Reece, J.B. (2002) Biology: Concepts and Connections (Third Edition).

Clegg, C, J (2014). Biology (Second Edition).

Jones, A., Reed, R and Weyers, J (2016). Practical skills in Biology.

Waugh, A. and Grant, A (2018). Ross & Wilson Anatomy and Physiology in Health and Illness.

[View reading list on Talis Aspire](#)

Interdisciplinary

This module links with the Chemistry for the Biosciences module as students will develop knowledge and skills that can be used across both modules in order to develop a broader awareness of the Life Sciences discipline. They will also develop research and experimental skills that can be used in their independent research project in the Inquiry and Research Skills module. Students on the Psychology pathway will be able to explore an introductory neuroscience approach to the study of the brain and behaviour.

Subject specific skills

This module will develop student's skills in data analysis, research, use of scientific publications, biological experimental techniques, ethical awareness, and writing reports and essays.

Transferable skills

Students will develop their skills in academic research, critical thinking, team working, referencing and problem solving.

Study

Study time

| Type | Required |
|----------|-----------------------------|
| Seminars | 75 sessions of 1 hour (25%) |
| Total | 300 hours |

| Type | Required |
|-------------------------------|----------------------------|
| Online learning (independent) | 25 sessions of 1 hour (8%) |
| Private study | 105 hours (35%) |
| Assessment | 95 hours (32%) |
| Total | 300 hours |

Private study description

Students should undertake activities such as reading, practice questions, group work and revision for topic tests.

Costs

No further costs have been identified for this module.

Assessment

You do not need to pass all assessment components to pass the module.

Assessment group C

| | Weighting | Study time |
|---|------------------|-------------------|
| Essay Scientific essay on a biological topic. | 20% | 20 hours |
| Scientific report A scientific report based on an experiment students have designed to help solve a problem in the biological sciences. Report to include introduction, method, results, discussion and conclusion sections, and to include an analysis of their own data. | 30% | 30 hours |
| Online Examination Summer exam featuring short-answer questions and longer, report-style questions. | 50% | 45 hours |

- Students may use a calculator

Feedback on assessment

Students will receive individual written feedback as well as verbal feedback in seminars.

[Past exam papers for FP058](#)

Availability

Courses

This module is Core for:

- FIOE Warwick International Foundation Programme
 - Year 1 of FP21 Warwick International Foundation Programme - Life Sciences
 - Year 1 of FP22 Warwick International Foundation Programme - Psychology