

FP058-30 Biology Principles and Practice

24/25

Department

Warwick Foundation Studies

Level

Foundation

Module leader

Rachel Evans

Credit value

30

Module duration

25 weeks

Assessment

60% coursework, 40% exam

Study location

University of Warwick main campus, Coventry

Description

Introductory description

This module will develop students' understanding of biological principles and processes, particularly in the context of human biology. Students will develop skills and confidence in biological research and experimental techniques with regular laboratory classes.

[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. Students will develop skills and experience in conducting experimental research, evaluating evidence, data analysis, and acquire an awareness of the ethical issues and debates in biology. This module will 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.

1. Cell Biology

- Cell Structure - prokaryotic and eukaryotic cells
- Cell Membranes - structure and transport processes
- Stem Cells – types and uses in medicine
- The DNA molecule - structure and function
- Enzymes - role and mechanism in biological reactions

1. Human Biology and Health

- Hormonal System – endocrine glands and homeostatic regulation
- Nervous System – neural signal transmission
- Respiratory System - structure, function and disease case study
- Circulatory System - heart structure, function and coordination, cardiovascular disease
- Immune System - specific and non-specific defence mechanisms
- Infectious Disease - epidemics and pandemics, disease prevention, case studies such as Ebola and Covid-19

1. Genetics

- The Cell Cycle - cell lifecycles and cancerous cells
- Inheritance mechanisms - Mendelian genetics and pedigree charts
- Genetic technologies - case studies, such as CRISPR/Cas9

1. Fundamentals of Biology

- 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:

- Analyse biological data, research and statistical results, including from experiments, to compose scientific reports and provide evidence-based conclusions
- Apply knowledge of biological principles and processes to different biological systems in order to solve problems.
- Communicate disciplinary knowledge and research on a biological topic.

Indicative reading list

Alberts, B et al (2013). Essential Cell Biology.
Biological Sciences Review (journal)
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.
New Scientist (journal)
Waugh, A. and Grant, A (2018). Ross & Wilson Anatomy and Physiology in Health and Illness.

[View reading list on Talis Aspire](#)

Research element

The lab report assessment includes an element of research as students can choose what to investigate in the experiment, can select their own variables.

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.

International

This module will use international case studies throughout to examine medicine and health issues from across the world. Assessments will be designed to give students choice to research issues that related to their interests and experience.

Subject specific skills

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

Transferable skills

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

Study

Study time

Type	Required
Seminars	25 sessions of 2 hours (17%)
Supervised practical classes	25 sessions of 2 hours (17%)
Private study	137 hours (46%)
Assessment	63 hours (21%)
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 must pass all assessment components to pass the module.

Assessment group D

	Weighting	Study time
Biology Presentation Oral presentation with slides on a biological topic, with Q&A.	25%	15 hours
Scientific report A scientific report based on an experiment students have conducted to investigate a problem in the biological sciences. Report to include introduction, method, results, discussion, and to include an analysis of their own data.	35%	18 hours
Biology Exam Summer exam featuring short-answer questions to test understanding of biological concepts and application of knowledge.	40%	30 hours

- Answerbook Pink (12 page)
- 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