



MODULE SPECIFICATION

Academic Year (student cohort covered by specification)	2022-23
Module Code	IDM102
Module Title	Principles of Biology
Module Organiser(s)	Dr Chrissy H Roberts
Contact email	The LSHTM distance learning programmes and modules are run in collaboration with University of London Worldwide. Enquiries may be made via the Student Advice Centre . (Enquiries from face-to-face i.e. London-based the LSHTM MSc or research students regarding study of DL modules should be emailed to distance@lshtm.ac.uk .)
Faculty	Infectious & Tropical Diseases: The London School of Hygiene & Tropical Medicine https://www.lshtm.ac.uk/research/faculties/itd
FHEQ Level	Level 7
Credit Value	CATS: 15 ECTS: 7.5
HECoS Code	100822:100344:100948 (1:1:1)
Mode of Delivery	Distance Learning
Mode of Study	Directed self-study, through provided and online materials
Language of Study	English
Pre-Requisites	None
Accreditation by Professional Statutory and Regulatory Body	None
Module Cap (Maximum number of students)	None
Target Audience	This module is intended for those with an interest in infectious diseases who wish to expand on a basic educational or professional background in biological sciences.
Module Description	This module introduces students to fundamental biological principles in four key topic areas including (1) the evolutionary tree of life, (2) molecular biology and biochemistry, (3) cell biology and (4) immunology & vaccinology.

Duration	Distance learning module studies begin in early October. Students may start their studies at any time from receipt of study materials and work through the material until the start of the June examinations (although assessment submission deadlines which are earlier than this must be observed).
Last Revised (e.g. year changes approved)	March 2022

Programme(s) This module is linked to the following programme(s)	Status
PGCert/PGDip/MSc Infectious Diseases (Distance Learning - University of London Worldwide)	Compulsory

Module Aim and Intended Learning Outcomes

Overall aim of the module
<p>The overall module aim is to:</p> <ul style="list-style-type: none"> introduce students to the fundamental biological principles which are necessary for the Postgraduate Diploma and MSc in Infectious Diseases. Areas covered include: the evolutionary tree of life, molecular biology and biochemistry; cell biology and immunology and vaccinology.

Module Intended Learning Outcomes
<p>Upon successful completion of the module a student will be able to:</p> <ol style="list-style-type: none"> Discuss the basic features of prokaryotic and eukaryotic cells and, at a basic level, the evolutionary relationships between the main kingdoms. Explain the characteristics and roles of the basic molecules of life and demonstrate an understanding of the biochemistry that governs their interactions. Describe the structure of different types of cells and explain the relationships between these structures and the specialised functions of cells and their components. Discuss the main cell types, molecules and processes involved in the immune response and demonstrate how the various components act together to provide immunity to infection.

Indicative Syllabus

Session Content

The module is expected to cover the following topics:

- **Section 1 – Evolution and Classification**

The first, very short, section consists of a single session. It introduces the concepts of evolution, eukaryotes and prokaryotes, and classification.

- **Section 2 – Biochemistry and Molecular Biology**

The second section introduces a wide range of topics, starting with the structure of the atom, and how molecules interact. Basic biochemical concepts are discussed before moving on to look at the properties of the main classes of biological molecules. Understanding these properties is essential to an appreciation of infectious agents, tackled later in other modules. Finally, there are several sessions looking at the properties of nucleic acids – how they replicate, how they act as the genetic material of the cell and the analytical techniques used to probe and utilise the information they contain.

- **Section 3 – Cell Biology**

The third section deals with cell biology and, in particular, the mammalian cell. This is important because the cell is a specialized and highly complex microenvironment. In some cases it is an environment in which infectious agents choose to live and thrive; in others it is an extremely hostile instrument that is highly successful at destroying invading organisms.

- **Section 4 – Immunology**

Cell biology leads on to the study of immunology – the subject of Section 4. The human body's defence against invasion is a remarkable multi-layered system that involves components that are both innate and acquired during an individual's lifetime. This section covers antibody, cytokine and cellular immune responses, how genetic diversity prevents population collapse in the face of epidemics, how vaccines are developed and how some immune responses can be harmful.

Teaching and Learning

Notional Learning Hours

Type of Learning Time	Number of Hours	Expressed as Percentage (%)
Directed self-study	95	63.3
Self-directed learning	20	13.3
Assessment, review and revision	35	23.3
Total	150	100

Teaching and Learning Strategy

Learning is self-directed against a detailed set of learning objectives using the materials provided. Students are strongly encouraged to participate in the module-specific discussion forums available on Moodle to obtain tutor support, and to make use of the LSHTM online library resources.

The notional learning time for the module totals 150 hours, consisting of:

- Directed self-study (reading and working through the provided module material) ≈ 95 hours.
- Self-directed learning (general reading around the subject, library, Moodle discussion forums) ≈ 20 hours.
- Assessment, review and revision ≈ 35 hours.

Assessment

Assessment Strategy

Formal assessment of this module is by two written assessed assignments taken from a choice of two pairs of tasks (50% for each assignment), which include a selection of multiple choice questions (MCQs).

The MCQs test breadth of understanding across the module, whereas the longer tasks assess depth of knowledge in a specific subject area. The choice of task allows students some freedom in focussing on areas of particular interest or importance to them. The tasks are aligned to the module content and can be completed in an open-book format.

Summative assessment

Assessment Type	Assessment Length	Weighting (%)	Intended Module Learning Outcomes Tested
Assessed Assignment	2500 words plus MCQs	50	1, 3 and 4
Assessed Assignment	2500 words plus MCQs	50	1, 2 and 3

Assessment submission deadlines

Assignment 1 must be submitted by **31st March** and assignment 2 must be submitted by **12th May**; both must be submitted via the online Assignment Management System.

Resitting assessment

Resits will accord with the LSHTM's [Resits Policy](#).

The Resit assessment will be the same assessment type as the first attempt (see previous table).

From **June 2022 onwards**, all students requiring a resit will be transferred to the new mode of assessment and will be required to submit two written assessed assignments.

Resources

Indicative reading list

- Pommerville (2021). *Fundamentals of Microbiology*, 12th Ed. Jones & Bartlett Publishers Inc. ISBN: 978 1284484410.
- Goering, R.V., Dockrell, H.M., Zuckerman, and Chiodini, P.L., (2018) *Mims' Medical Microbiology and Immunology*. 6th Ed. ISBN: 9780702071546.
- Clark, M.A., Douglas, M., Choi, J., Biology 2e OpenStax
<https://openstax.org/details/books/biology-2e>

Textbooks will be made available in e-format to registered students in early autumn.

Other resources

Study Guide: Available online, and to download, via the virtual learning environment

Reader: On-line reading list via the virtual learning environment

In addition to the materials above, students are given access to the **LSHTM Virtual Learning Environment, (VLE; Moodle)** where they can access the study guide, reading list, for web-based discussion forums, assessed assignments, supplementary materials, Panopto recordings and the **LSHTM online library resources**.

Teaching for Disabilities and Learning Differences

The module-specific site on Moodle provides students with access to the module learning materials, including a study guide (with accessible printable versions of sessions), an online reading list (containing essential readings), textbooks in e-format and additional resources including supplementary exercises and optional lecture recordings (via Blackboard Collaborate or Panopto). All materials posted up on Moodle areas, including computer-based sessions, have been made accessible where possible. The LSHTM Moodle has been made accessible to the widest possible audience, using a VLE that allows for up to 300% zoom, permits navigation via keyboard and use of speech recognition software, and that allows listening through a screen reader. All students have access to "[SensusAccess](#)" software which allows conversion of files into alternative formats.

If you have specific, access requirements please contact the Inclusive Practice Manager via special.arrangements@london.ac.uk to request an alternative format of the study guide and for special exam arrangements.