**Module Specification**

### GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Module name</th>
<th>Principles of Biology</th>
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<tbody>
<tr>
<td>Module code</td>
<td>IDM102</td>
</tr>
<tr>
<td>Module Organiser(s)</td>
<td>Dr Chrissy H Roberts and Dr Elizabeth Sawyer</td>
</tr>
<tr>
<td>Contact email</td>
<td>The LSHTM distance learning courses and modules are run in collaboration with the University of London International Programmes. Enquiries may be made via their Student Advice Centre at: <a href="http://www.london.ac.uk/contact-us">http://www.london.ac.uk/contact-us</a>. (Enquiries from face-to-face i.e. London-based LSHTM MSc or research students regarding study of DL modules should be emailed to <a href="mailto:distance@lshtm.ac.uk">distance@lshtm.ac.uk</a>.)</td>
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<tr>
<td>Home Faculty</td>
<td>Faculty of Infectious &amp; Tropical Diseases, London School of Hygiene &amp; Tropical Medicine <a href="https://www.lshtm.ac.uk/research/faculties/itd">https://www.lshtm.ac.uk/research/faculties/itd</a></td>
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<tr>
<td>Level</td>
<td>This module is at Level 7 (postgraduate Masters 'M' level) of the QAA Framework for Higher Education Qualifications in England, Wales &amp; Northern Ireland (FHEQ)</td>
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<tr>
<td>Credit</td>
<td>LSHTM award 15 credits on successful completion of this module</td>
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<tr>
<td>Accreditation</td>
<td>Not currently accredited by any other body</td>
</tr>
<tr>
<td>Keywords</td>
<td>Biology, Biochemistry, Genetics, Immunology, Molecular biology, Evolution, Cell biology.</td>
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### AIMS, OBJECTIVES AND AUDIENCE

**Overall aim**

This module aims to 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.

**Intended learning outcomes**

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

- 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.
### 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.

### CONTENT

<table>
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<tr>
<th>Session content</th>
<th>The module includes sections addressing the following topics:</th>
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<tr>
<td><strong>Section 1 - Evolution and Classification</strong></td>
<td>The first, very short, section consists of a single session. It introduces the concepts of evolution, eukaryotes and prokaryotes, and classification.</td>
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<tr>
<td><strong>Section 2 - Biochemistry and Molecular Biology</strong></td>
<td>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.</td>
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<tr>
<td><strong>Section 3 – Cell Biology</strong></td>
<td>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.</td>
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<tr>
<td><strong>Section 4 – Immunology</strong></td>
<td>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.</td>
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### TEACHING, LEARNING AND ASSESSMENT

#### Study resources provided or required
The following materials are provided to students after registration for this module once a year in September:

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

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

Audio-recordings of on-campus lectures are not available for this module.

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.
| Teaching and learning methods | 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 LSHTM online library resources. In addition, written feedback is provided on submitted formative assignments. |
| Assessment details | Formal assessment of this module is by two written assessed assignments taken from a choice of two pairs of tasks (50% for each assignment). Students must pass the module with an overall GPA of 2 and each individual assessed assignment must be graded a minimum grade point (GP) of 1. If students fail an assignment, they are allowed one further attempt at the failed element.  
*Prior to September 2018, students were required to sit an unseen written examination (100% of module marks). If a student registered for module IDM102 prior to 1 September 2018 has obtained a GPA of less than 2.0 on the unseen written examination prior to 1 September 2018, and either wishes or must resit the module, they must resit the unseen written examination.* |
| Assessment dates | 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. For students registered on the module before 2018/19 who need to resit, please note: unseen written examinations for DL modules are held once a year, in June. Examinations are normally held in a student’s country of residence, in one of over 650 examination centres worldwide. They are arranged mainly through Ministries of Education or the British Council. A list of examination centres can be found at [https://london.ac.uk/current-students/examinations/examination-centres](https://london.ac.uk/current-students/examinations/examination-centres). A local fee will be payable direct to the examination centre. This fee is in addition to the course/module fee and is set by, and paid directly to, the individual examination centres. The level of local examination centre fees varies across the world and neither the University of London International Programmes nor the LSHTM have any control over the fee amount. |
| Language of study and assessment | English (please see 'English language requirements' below regarding the standard required for entry). |

### TIMING AND MODE OF STUDY

| 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). |
| Dates | Tutorial support for distance learning modules is available only from the beginning of October through to the end of May. |
| Mode of Study | By distance learning. |
| Learning time | The notional learning time for the module totals 150 hours, consisting of:  
- Directed self-study (reading and working through the provided module material) \( \approx 95 \) hours  
- Self-directed learning (general reading around the subject, library, Moodle discussion forums ) \( \approx 20 \) hours  
- Assessment, review and revision \( \approx 35 \) hours |
## APPLICATION, ADMISSION AND FEES

### Pre-requisites

Those wishing to study this module must have regular access to the internet to participate in module-specific discussions on Moodle, benefit from online library facilities and submit assignments.

### English language requirements

A strong command of the English language is necessary to benefit from studying the module. Applicants whose first language is not English or whose prior university studies have not been conducted wholly in English must fulfil LSHTM's [English language requirements](https://www.lshtm.ac.uk/admissions/academic-standards/), with an acceptable score in an approved test taken in the two years prior to entry. Applicants may be asked to take a test even if the standard conditions have been met.

### Student numbers

There is no cap on the number of students who can register for this distance learning module. The number of students actively studying this module varies, but typically approximately 110 students register for the module per year.

### Student selection

This module is available to be studied by students on the following distance learning courses:

- MSc, Postgraduate Diploma or Postgraduate Certificate Infectious Diseases courses.

Alternatively, students may register for this as an “individual module”. This module is also open to LSHTM research degree students.

### Fees

For the current [schedule of fees](https://www.lshtm.ac.uk/courses/infectious-diseases) click on the LSHTM course link.

### Scholarships

Scholarships are not available for individual modules. Some potential [sources of funding](https://www.lshtm.ac.uk/admissions/finance/) are detailed on the LSHTM website.

### Admission deadlines

Applications for LSHTM distance learning courses and modules are managed by the University of London International Programmes. To apply to take either a formal award (i.e. PG Certificate, PG Diploma or MSc) or an individual module, click the relevant link on the right hand side of the page at [https://london.ac.uk/courses/infectious-diseases](https://london.ac.uk/courses/infectious-diseases)

Key deadlines are as follows:

- **Application deadline:** 31 August each year
- **Registration deadline (new students and those registering for the project module, IDM600):** 30 September each year
- **Registration deadline (continuing students, with the exception of those registering for the project module IDM600, and those taking individual modules):** 31 October.

**Please note:** The academic year starts 1 October. Students who register after 1 October should note that module welcome and Collaborate sessions held in October are recorded, but they cannot request an extension to assignment submission deadlines or apply for an examination extenuating circumstance as a result of registering later than 1 October.

(LSHTM research students wishing to study this module should note information given in the [mixed mode study option](https://www.lshtm.ac.uk/courses/infectious-diseases) document.)

### ABOUT THIS DOCUMENT

This module specification applies for the academic year 2019/20

**Last revised/approved** by Chrissy H. Roberts, 04/02/19.

Further revisions

London School of Hygiene & Tropical Medicine, Keppel St., London WC1E 7HT.  
www.lshtm.ac.uk