

MODULE SPECIFICATION

1. Overview

Academic Year (student cohort covered by specification)	2019-20			
Module Code	3333			
Module Title	Molecular Biology			
Module Organiser(s)	Dr Johannes Dessens			
Faculty	Faculty of Infectious & Tropical Diseases			
FHEQ Level	<i>Level 7</i>			
Credit Value	CATS	<i>Non-credit bearing as supplementary teaching only</i>	ECTS	<i>Non-credit bearing as supplementary teaching only</i>
HESA Cost Centre	<i>112 Biosciences</i>			
HECoS Code	<i>100265 Biomedical Sciences</i>			
Term of Delivery	<i>Term 1</i>			
Mode of Delivery	<i>Face to face</i>			
Mode of Study	Both full-time and part-time students follow the same schedule			
Language of Study	English			
Pre-Requisites	None			
Accreditation by Professional Statutory and Regulatory Body	Not currently accredited by any other body			
Module Cap (Maximum number of students)	70-80 (numbers may be capped due to limitations in facilities or staffing)			
Target Audience	The module is designed particularly for students who wish to reinforce or update their core knowledge of molecular biology. It is open to MSc programmes in the Faculty of Infectious & Tropical Diseases and is a pre-requisite for modules 3131, 3158 and 3160.			
Module Description	This module covers the basic concepts in molecular biology through a series of lectures and practicals			
Duration	<i>10 weeks at 0.5 days per week</i>			
Timetabling slot	Term 1			
Last Revised (e.g. year changes approved)	June 2019			

2. Programme(s) that this module is part of

Programme	Status
Medical Microbiology	Recommended Option
Medical Parasitology	Recommended Option
Medical Entomology for Disease Control	Recommended Option

3. 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"> • Provide a grounding in molecular biology

Module Intended Learning Outcomes
<p>Upon successful completion of the module a student will be able to:</p> <ol style="list-style-type: none"> 1. Describe the basic structure and biochemistry of nucleic acids and proteins and discriminate between them 2. Identify the principles of DNA replication, transcription and translation and explain how they relate to each other 3. Describe the main principles of methods for preparation of DNA, such as DNA extraction, cloning, transformation and PCR, and analyse their applications 4. Describe the main principles of methods for analysis of DNA, such as hybridization, restriction analysis and DNA sequencing and analyse their applications 5. Build and interpret phylogenetic trees representing evolutionary relationships among organisms 6. Describe and discuss applications of molecular biology, including the use of bioinformatics and genomics

4. Indicative Syllabus

Session Content
<p>The module is expected to cover the following topics:</p> <ul style="list-style-type: none"> • Description and integration of the biochemistry of nucleic acids • Genetic diversity • Gene expression • Basic methods used in molecular biology • How molecular biology relates to other fields of science

5. Teaching and Learning

Notional Learning Hours		
Type of Learning Time	Number of Hours	Expressed as Percentage (%)
Contact time	20	20
Directed self-study	0	0
Self-directed learning	50	50
Assessment, review and revision	30	30
Total	100	100

Teaching and Learning Strategy

A grounding of molecular biology is provided through a combination of lectures, small group teaching, computer and lab practicals and demonstrations. These will cover various aspects of basic molecular biology including nucleic acids and proteins; gene expression; DNA analysis; gene cloning; molecular evolution; typing and diagnostics. A summative assessment will be carried out via a timed Quiz-style test on Moodle at the end of the module. This assessment does not count toward the grade.

Indicative Breakdown of Contact Time

Type of delivery	Total (hours)
Lecture	13
Small group teaching	4
Seminar	
Tutorial	
Computer Practical	1
Laboratory Practical	2
Fieldwork	
Project Supervision	
Total	20

6. Assessment

Assessment Strategy

There will be an online Quiz-based assessment at the end of the module, with face-to-face feedback in the final week. The Quiz can be taken at any time during week 10, but once started has to be completed within 1h. Attendance of modules 3131, 3158 and 3160 in Term 2 may be subject to successful completion (mark >70%) of this assessment.

Summative assessment

Assessment Type	Assessment Length	Weighting (%)	Intended Module Learning Outcomes Tested
<i>Timed Test (in-module test e.g. MCQ)</i>	1 hour		1-6



Resitting assessment

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

For individual students resitting a group assessment there will be an approved alternative assessment as detailed below.

Assessment being replaced	Approved Alternative Assessment Type	Approved Alternative Assessment Length
n/a	n/a	n/a

7. Resources

Other resources

A module handbook containing information about each session and key references for the module. Additional study material will be provided during the module where needed via Moodle.

8. Teaching for Disabilities and Learning Differences

For all lectures, students are provided with access to lecture notes and copies of the slides used during the lecture prior to the lecture, or shortly thereafter. All lectures are recorded and made available on Moodle as quickly as possible.