MODULE SPECIFICATION

Academic Year (student cohort covered by specification)	2022-23
Module Code	3158
Module Title	Advanced Training in Molecular Biology
Module Organiser(s)	Dr Robert Moon & Dr Sam Alsford
Faculty	Infectious & Tropical Diseases
FHEQ Level	Level 7
Credit Value	**CATS:** 15 **ECTS:** 7.5
HECoS Code	100265:100948 (1:1)
Term of Delivery	Term 2
Mode of Delivery	For 2022-23 this module will be delivered by predominantly face-to-face teaching modes. Where specific teaching methods (lectures, seminars, discussion groups) are noted in this module specification these will be delivered by predominantly face-to-face sessions. There will be a combination of live and interactive activities (synchronous learning) as well as recorded or self-directed study (asynchronous learning), plus face-to-face laboratory classes.
Mode of Study	Full-time
Language of Study	English
Pre-Requisites	It is advised that students clearly understand basic concepts of molecular biology and genetics, and that they have some previous experience of laboratory experimental work, for example that obtained by attending the Molecular Biology & Recombinant DNA Techniques module (3131). Students will be assumed to have basic computer skills.
Accreditation by Professional Statutory and Regulatory Body	None
Module Cap (Indicative number of students)	30 (numbers may be capped due to limitations in facilities or staffing)
Target Audience	This module is intended for students who require a detailed understanding of what practical work in molecular biology

	entails and who may need to use or guide molecular biological procedures and research strategies in their future careers.
Module Description	Module 3158 is a lab-intensive module, showing how molecular biological approaches can be applied to a pathogen-focused research question. The module consists of three components: bioinformatics, hands-on molecular biology laboratory practicals, and a lecture series addressing key aspects of molecular biology and the experimental approaches available to the molecular biologist.
Duration	5 weeks at 2.5 days per week
Timetabling slot	Slot D1
Last Revised (e.g. year changes approved)	August 2021

Programme(s) This module is linked to the following programme(s)	**Status**
MSc Immunology of Infectious Diseases	Recommended Option
MSc Medical Microbiology	Recommended Option

Module Aim and Intended Learning Outcomes

Overall aim of the module
The module aims to: • give advanced students hands-on practical training in the molecular biology of infectious diseases, together with a greater conceptual understanding of new advances at the forefront of the discipline • demonstrate what can be achieved with the molecular approach, and how expertise in this area can be integrated into career development.

Module Intended Learning Outcomes
Upon successful completion of the module a student will be able to: 1. Distinguish between potential benefits and difficulties of laboratory work in molecular biology, based on practical training experience; 2. Perform competently and independently some research procedures involving recombinant DNA technology; 3. Select and design an appropriate research project involving molecular biology; 4. Apply appropriate molecular biological techniques to various medical research areas.

Indicative Syllabus

Session Content
The module is expected to cover the following topics: • Structure, expression and function of genes; • Planning experiments; • Bioinformatics.

Teaching and Learning

Notional Learning Hours

Type of Learning Time	Number of Hours	Expressed as Percentage (%)
Contact time	40	26.7
Directed self-study	0	0
Self-directed learning	70	46.7
Assessment, review and revision	40	26.7
Total	**150**	**100**

Student contact time refers to the tutor-mediated time allocated to teaching, provision of guidance and feedback to students. This time includes activities that take place in face-to-face contexts such as lectures, seminars, demonstrations, tutorials, supervised laboratory workshops, practical classes, project supervision as well as where tutors are available for one-to-one discussions and interaction by email.

The division of notional learning hours listed above is indicative and is designed to inform students as to the relative split between interactive and self-directed study.

Teaching and Learning Strategy
This module is based around core laboratory and computer work but incorporates a wide range of other teaching methods including tutorials and lectures. Approximately 50% of time will be devoted to experimental work in the laboratory. There will be seven free sessions for private study.

Assessment

Assessment Strategy
The assessment for this module has been designed to measure student learning against the module intended learning outcomes (ILOs) as listed above. Formative assessment methods may be used to measure students' progress. The grade for summative assessment(s) only will go towards the overall award GPA. Assessment will be based on: (1) A written account of the experimental outcomes generated during the in-person laboratory and online bioinformatics sessions in the format of a scientific paper (50%). (2) Oral presentation of a literature-based research topic (50%).

Summative Assessment

Assessment Type	**Assessment Length (i.e. Word Count, Length of presentation in minutes)**	**Weighting** (%)	**Intended Module Learning Outcomes Tested**
Coursework	See Module Handbook	50	1 & 2
Individual Presentation	12 minutes	50	3 & 4

Resitting assessment
Resits will accord with the LSHTM's Resits Policy For individual students resitting there will be an approved alternative assessment as detailed below. The tasks will be (1) a written account of the experimental procedures and/or (2) PowerPoint slides plus a 1-page summary and notes for each slide (no oral presentation required).

Resources

Indicative reading list
Suggested reading is detailed in the laboratory handbook and lecturers highlight key papers in their lectures. Students are encouraged to explore beyond this as per their interests.

Teaching for Disabilities and Learning Differences

The module-specific site on Moodle gives students access to lecture notes and copies of the slides used during the lecture. Where appropriate, lectures are recorded and made available on Moodle. All materials posted on Moodle, including computer-based sessions, have been made accessible where possible.

LSHTM Moodle is accessible to the widest possible audience, regardless of specific needs or disabilities. More detail can be found in the Moodle Accessibility Statement which can also be found within the footer of the Moodle pages. All students have access to "SensusAccess" software which allows conversion of files into alternative formats.

Student Support Services can arrange learning or assessment adjustments for students where needed. Details and how to request support can be found on the LSHTM Disability Support pages.