MODULE SPECIFICATION

Academic Year (student cohort covered by specification)	2022-23
Module Code	3141
Module Title	Vector Sampling, Identification & Incrimination
Module Organiser(s)	Cheryl Whitehorn
Faculty	Infectious & Tropical Diseases
FHEQ Level	Level 7
Credit Value	**CATS:** 15 **ECTS:** 7.5
HECoS Code	100345
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	None (but to gain full benefit from this module, a basic prior knowledge of, and an interest in, vectors is recommended; attendance of Module 3122 is advantageous)
Accreditation by Professional Statutory and Regulatory Body	None
Module Cap (Indicative number of students)	25
Target Audience	This module is intended for any student interested in vector-borne diseases; most likely are entomologists, medical parasitologists and those studying control of tropical diseases.
Module Description	This module is predominately laboratory-based with the ratio of contact time in practicals: lectures roughly 2:1. The practical sessions are an important point for extensive personal interaction with teaching staff both in terms of practical skills as

	well as to support the theoretical content of the lectures. Students will gain hands-on experience in preparing specimens for identification, use of identification keys, dissection, ELISA and bloodmeal analysis. A one-day visit is made to the research facilities and laboratories of the Natural History Museum, South Kensington and a field trip is held at Rainham Marshes NNR for the sampling and collection of mosquitoes.
Duration	5 weeks at 2.5 days per week
Timetabling slot	Slot D1
Last Revised (e.g. year changes approved)	August 2022

Programme(s) This module is linked to the following programme(s)	**Status**
MSc Control of Infectious Diseases	Recommended Option
MSc Medical Entomology for Disease Control	Compulsory
MSc Medical Parasitology	Recommended Option

Module Aim and Intended Learning Outcomes

Overall aim of the module
The overall module aim is to: • provide students with a practical understanding of the methods for sampling, identification and vector incrimination applicable to the most important arthropod vectors and snail intermediate hosts.

Module Intended Learning Outcomes
Upon successful completion of the module a student will be able to: 1. Prepare insect specimens for identification; 2. Accurately identify vectors of major diseases; 3. Understand Sampling methods for major groups of vectors; 4. Understand techniques for species identification of vector complexes; 5. Understand the principles and methods of vector incrimination.

Indicative Syllabus

Session Content
The module is expected to cover the following topics:

Session Content
• Introduction to both traditional and modern techniques, including morphological keys and cytotaxonomy.. • Species complexes in relation to biology and control. • Sampling and identification of mosquitoes; phlebotomine sandflies; tsetse flies; triatomine bugs; ticks and snails. • Current research undertaken by the Natural History Museum in forensic entomology and schistosomiasis. • Vector incrimination.

Teaching and Learning

Notional Learning Hours

Type of Learning Time	Number of Hours	Expressed as Percentage (%)
Contact time	66	44
Directed self-study	10	7
Self-directed learning	30	20
Assessment, review and revision	44	29
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
The module aims to provide students with the basic knowledge of how to collect, preserve, process and identify the insects, ticks and snails of medical importance. In addition, the module aims to demonstrate methods for the incrimination of insects as potential vectors of human pathogens. Students will be taught through a series of online lectures and on-campus practical classes and will be provided with links to scientific papers and other online resources that follow up the theoretical information presented in lectures. Students will be given "hands on" experience of experimental work as carried out in LSHTM laboratories. In addition, students will have the opportunity to see "behind the scenes" research work undertaken at the Natural History Museum, work which underlines the importance and relevance of the methods taught in this module. A field trip to Rainham Marshes provides students with the opportunity to experience field-based entomology, through the sampling and collection of UK mosquitoes.

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. Only the grade for summative assessment(s) will go towards the overall award GPA. The assessment for this module consists of a practical paper and a short answer paper, both will be held on-campus at LSHTM. 50% practical assessment, 50% short answer assessment The practical assessment lasts one hour with 6 elements (10 minutes per element) testing knowledge acquired from practical sessions. Short answer assessment lasts one hour with 6 questions on content obtained from both lectures and practicals. For both assessments, students are able to answer the questions in any order and at their own pace but we recommend that students should spend about 10 minutes answering each question. In the short answer assessment the use of bullet points and drawings are acceptable.

Summative Assessment

Assessment Type	Assessment Length (i.e. Word Count, Length of presentation in minutes)	Weighting (%)	Intended Module Learning Outcomes Tested
Practical	60 minutes	50	1, 2, 3, 4, 5
Timed Test (in-module test e.g. MCQ)	60 minutes	50	1, 2, 3, 4, 5

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).

Resources

Indicative reading list
3141 Entomology Handbook – given to all students who attend this Module (having not previously taken Module 3122). Can be collected from TSO during Reading Week. Also available as a PDF document via Moodle.

Medical Entomology for Students 5th Edition (2012) M. Service. Cambridge University Press – available from the library.

Other resources
Preparation of Material: A Guide to the Preparation of Medically Important Insects and Acarines for Identification and Preservation - given to all students who attend this Module in first week of study. Also available as a PDF document via Moodle.

Introduction to the families of British Diptera (2015) S. Ball by kind permission of Dipterists Forum. Part 1: Naming of the Parts and Glossary, Part 2: Key to Families, Part 3: Description of Families – given to all students who attend this Module in first week of study. Also available as PDF documents via Moodle.

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.