## Module Specification

### ABOUT THIS DOCUMENT

This module specification applies for the academic year 2018-19  
**Last revised:** 10 August 2017 Stéphane Hué  
London School of Hygiene & Tropical Medicine, Keppel St., London WC1E 7HT.  
[www.lshtm.ac.uk](http://www.lshtm.ac.uk)

### GENERAL INFORMATION

<table>
<thead>
<tr>
<th><strong>Module name</strong></th>
<th>Epidemiology and -omics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Module code</strong></td>
<td>2484</td>
</tr>
<tr>
<td><strong>Module Organiser</strong></td>
<td>Professor David Leon; Dr Stéphane Hué</td>
</tr>
<tr>
<td><strong>Contact email</strong></td>
<td><a href="mailto:david.leon@lshtm.ac.uk">david.leon@lshtm.ac.uk</a>; <a href="mailto:stephane.hue@lshtm.ac.uk">stephane.hue@lshtm.ac.uk</a></td>
</tr>
<tr>
<td><strong>Home Faculty</strong></td>
<td>Epidemiology &amp; Population Health</td>
</tr>
<tr>
<td><strong>Level</strong></td>
<td>Level 7 (postgraduate Masters ‘M’ level) of the QAA <a href="http://www.hequalifications.ac.uk">Framework for Higher Education Qualifications</a> in England, Wales &amp; Northern Ireland (FHEQ)</td>
</tr>
<tr>
<td><strong>Credit</strong></td>
<td>There are no credits associated with this module</td>
</tr>
<tr>
<td><strong>Accreditation</strong></td>
<td>Not currently accredited by any other body</td>
</tr>
<tr>
<td><strong>Keywords</strong></td>
<td>‘Omics'; genomics; transcriptomics; proteomics; epigenetics; population genetics; next generation sequencing; molecular epidemiology; genome wide association studies; Mendelian randomisation; metagenomics</td>
</tr>
</tbody>
</table>

### AIMS, OBJECTIVES AND AUDIENCE

**Overall aim**  
To provide an overview of the applications of ‘-omics’ data in epidemiology and public health with respect to communicable and non-communicable disease.  
The emphasis will be on providing key concepts and vocabulary to students, for them to gain a better appreciation and critical awareness of these very rapidly moving areas.

**Intended learning outcomes**  
By the end of this module, students should be able to:  
- Explain the importance of ‘-omics’ technologies in public health and epidemiology  
- Demonstrate knowledge and understanding of the vocabulary used in large-scale, data-rich ‘-omics’ studies  
- Apply basic epidemiological principles to the critical interpretation ‘-omics’ studies when these are used for research questions of epidemiological relevance

**Target audience**  
This is an optional module for students on MSc Epidemiology and MSc Veterinary Epidemiology who need to understand key concepts and
methods in the growing field of ‘-omics’ as applied to epidemiological problems.

**CONTENT**

**Session content**
The module is expected to include sessions addressing the following topics:
- Core concepts of molecular biology and evolution
- Application of ‘-omics’ data to public health research and practice
- The use of ‘-omics’ data to characterise epidemiological exposures or outcomes
- Epidemiologic and statistical pitfalls in the use of -omics
- The ethics of -omics data usage

**TEACHING, LEARNING AND ASSESSMENT**

**Study resources provided or required**
Module Information can be found on the Virtual Learning Environment (MOODLE) containing information about each session and key references for the module.

**Teaching and learning methods**
Teaching will consist of lectures, practical sessions and guided group discussions. There is no laboratory component.

**Assessment details**
There is no specific assessment.

**Assessment dates**
N/A

**Language of study and assessment**
English (please see ‘English language requirements' below regarding the standard required for entry).

**TIMING AND MODE OF STUDY**

**Duration**
The module runs for 10 weeks at one half day per week.

**Dates**
Mondays pm in the first half of Term 1
Mondays am in the second half of Term 1

**Timetable slot**
Term 1

**Mode of Study**
The module is taught face-to-face in London. Both full-time and part-time students follow the same schedule.

**Learning time**
The notional learning time for the module is 50 hours, consisting of:
- Contact time ≈ 25 hours
- Self-directed learning ≈ 25 hours

**APPLICATION AND ADMISSION**

**Pre-requisites**
This module is open to clinical and non-clinical students with a basic knowledge of epidemiology or who are taking modules in epidemiology in term 1. A basic understanding of biology (e.g. what is a gene, a protein etc.) is preferable but students without this knowledge will have access to introductory on-line material.

**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](#).

<table>
<thead>
<tr>
<th>Student numbers</th>
<th>60 (numbers may be capped due to limitations in facilities or staffing)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student selection</td>
<td>This is a recommended module for MSc Epidemiology and MSc Veterinary Epidemiology. These students will be given priority to register. Partial Registration (partial participation) by LSHTM research degree students is allowed for this module. Preference will be given to LSHTM MSc students and LSHTM research degree students. Other applicants meeting the entry criteria will usually be offered a place in the order applications are received, until any cap on numbers is reached. Applicants may be placed on a waiting list and given priority the next time the module is run.</td>
</tr>
</tbody>
</table>