# Module Specification

## GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Module name</th>
<th>Project Module (Epidemiology)</th>
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<tbody>
<tr>
<td>Module code</td>
<td>EPM500</td>
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<tr>
<td>Module Organiser(s)</td>
<td>Phil Edwards, Suzanna Francis, Andrea Rehman, Caroline Minassian</td>
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<tr>
<td>Contact email</td>
<td>The LSHTM distance learning programmes 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.londoninternational.ac.uk/contact-us">www.londoninternational.ac.uk/contact-us</a></td>
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<tr>
<td>Home Faculty</td>
<td>Faculty of Epidemiology and Population Health London School of Hygiene &amp; Tropical Medicine <a href="http://www.lshtm.ac.uk/eph/">http://www.lshtm.ac.uk/eph/</a></td>
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<tr>
<td>Level</td>
<td>This module is at Level 7 (postgraduate Masters 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 45 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>
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<tr>
<td>Keywords</td>
<td>Project, dissertation.</td>
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## AIMS, OBJECTIVES AND AUDIENCE

### Overall aim
This module gives students the opportunity to work on a real epidemiological issue, and to develop and deepen their understanding of epidemiological concepts and skills learned during the MSc programme.

### Intended learning outcomes
On completion of the project module students should be able to:
- Demonstrate independent research skills.
- Demonstrate the ability to think critically and develop original ideas; develop a research question, formulate a hypothesis, critically evaluate the literature.
- Demonstrate an awareness of the practical aspects of planning and conducting a study, including potential problems and pitfalls; carry out a risk assessment, understand how to address issues around intellectual property and ethics when conducting a research study.
- Apply skills including methodological, analytical skills and knowledge gained while applying skills and content gained in the advanced modules to a real world problem.
- Analyse data or literature and form conclusions based on this analysis.
- Demonstrate familiarity with research-reporting styles, including project layout and referencing; write a scientific report according to prescribed standards.
- Present, describe and interpret study findings in a clear and systematic way.
- Produce an extended piece of writing that is clear and coherent.
- Demonstrate the ability to present research and/or policy implications and recommendations in a clear format.
- Where appropriate, reflect on social or ethical issues relating to the research.

In addition, students completing an MSc Epidemiology Project Module should be able to:

- Demonstrate competence in either: (1) the design and application of statistical methods of analysis, appropriate to an epidemiological study question; (2) the use of mathematical modelling methods to adequately address an epidemiological research question; (3) a systematic search and critical evaluation and synthesis of the literature related to an epidemiological research question.
- Demonstrate an awareness of the practical aspects of epidemiological research.
- Identify and explore important sources of systematic and random error, including bias and confounding, either in an epidemiological dataset analysis, a modelling project, and additionally identify design weaknesses in a systematic literature review.

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<th>Target audience</th>
<th>The Project Module is compulsory for all students on the DL MSc Epidemiology programme and should be taken in the final year of study to complete the degree.</th>
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<td>CONTENT</td>
<td>The project must be one of the following three types:</td>
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<tr>
<td>Session content</td>
<td><em>i) Analysis of a dataset</em></td>
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<td>Students are encouraged to use datasets that are freely available either with data that has been made open access or by requesting permission (e.g. DHS data). Some students may have access to a dataset for analysis from their employment or another source. If they intend to use such a dataset, they must ensure that it will provide them with sufficient opportunity to demonstrate their epidemiological skills to an MSc epidemiology level, for example by investigating an epidemiological association whilst allowing for confounding (including designing a strategy of analysis and conducting multivariable analyses). Students will need to ensure that the data are available to them within the time constraints of the project, and that it will not require a large amount of time to 'clean' the data before they can begin coding and analysing. Only in exceptional circumstances would de novo data collection be approved as part of the Project Report.</td>
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<td>If the data are not open access, it is essential that students get full written agreement from the owner of the dataset to use it for their project. If they are working on a study as a member of a team, the data analysis and formulation of the research question must be their own independent work, and they should clearly state in their report the contribution that was made by others. The choice of the statistical methods is dependent on the research question and type of data available for analysis. While it is expected that statistical methods taught in the module EPM202 Statistical Methods in Epidemiology would be sufficient for most data analysis projects, students planning more advanced analysis (e.g. survival analysis) would be strongly advised to have learnt more advanced statistical methods taught in the module EPM304 Advanced Statistical Methods in Epidemiology.</td>
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**ii) Modelling projects**

Modelling projects are acceptable as Project reports as long as the project allows for, and the student displays, a solid understanding of epidemiological principles. In such projects, the student will be expected to:

1. Justify why mathematical modelling is well suited to address the question under study and demonstrate an awareness of the strengths and limitations of the approach;
2. Demonstrate a solid understanding of the epidemiology and natural history of the disease under study and the problem being modelled;
3. Describe the source and limitations of data used to fit the model and to define parameter values (for example with regard to random error, selection bias, confounding or errors in ascertainment of exposure, infection or disease) and their implications for the conclusions of the modelling study;
4. Provide a clear statement of the assumptions made by the model and a critical discussion of the validity of these assumptions and of the implications for the model findings of any departures from them;
5. Depending on what outcome is being modelled, to present uncertainty ranges for the main model outputs. These uncertainty ranges may come from sensitivity analyses or some other approach, but should provide some quantification of uncertainty, not just a statement that there is uncertainty in the point estimates. It is expected that all students opting for a modelling project will have successfully completed the module on *Modelling and the Dynamics of Infectious Diseases*, by distance learning (EPM302) or the London-based module (2464).

**iii) Systematic Review of the Literature**

This should be a comprehensive, systematic and critical review in which students will be expected to demonstrate their understanding of the epidemiological issues involved, a concise synthesis of the ‘state of the art’ in that field, and to state clear recommendations for future research direction. Suitable topics are new or controversial interventions, or risk factors over which there is current disagreement. Review projects should address quantitative outcomes or indicators, rather than purely qualitative ones. Students are expected to use standard approaches used in epidemiology for systematic literature reviews. Although it is common to use a second researcher to double-screen and code studies (e.g. when seeking to publish a systematic review), students should carry out their search, screening and review independently for their project report. Students will be expected to conduct a meta-analysis if the data from relevant studies are suitable. It is necessary to demonstrate at the project outline stage early on in the year that there are a reasonable number of studies (at least 5) that can be used based on a quick Medline search.

Students are encouraged to do a project which is relevant to their current or future work, but this is not essential.

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**TEACHING, LEARNING AND ASSESSMENT**

**Study resources provided or required**

Students are given access to i) the LSHTM Virtual Learning Environment, Moodle, which contains resources such as discussion forums and Project guidance documents and forms and ii) the LSHTM online library, as well as two online training modules / workshops on information skills.

Students who are taking this module also have online access to the most recent versions of EPM1, EPM2 and EPM304 electronic study materials (this access excludes tutor support and associated textbooks).
### Teaching and learning methods

Learning is self-directed against a set of learning objectives, using the project guidelines which are available to students registered for the project. Project supervisors provide feedback on the project idea, the completed CARE (Combined Academic, Risk assessment and Ethics) form, including an outline of the proposed project, one draft of the final report and in response to specific academic queries.

Student support is available from a project supervisor and the Project Organisers via email or through the web-based discussion fora in which students are encouraged to participate. There are web-based discussion fora specifically designed for queries related to Stata (technical queries related to the software), library and literature search support, meta-analysis and analyses based on Demographic and Health Surveys (DHS) and other complex multistage surveys. Specialist support is made available for students doing Mathematical modelling project when this is appropriate. The role of the project supervisor is to guide students in carrying out their project. However, ultimate responsibility for the project report rests with the student, and not the supervisor.

Students are expected to complete their project within one academic year; however, students are allowed up to two (2) consecutive years to complete their project i.e. students registering in September 2017 are expected to submit their report by 30th September 2018, but may have up to September 2019 maximum to complete their project. However, students who plan to complete their project over two years rather than one year should inform the Project Organisers, so that appropriate arrangements are made for continuity of their supervision over the 2 years.

### Assessment details

Formal assessment of this module is by one written report, with a recommended minimum length of 7,000 and an absolute maximum of 10,000 words (100%). The emphasis will be on the student’s understanding of the key epidemiological methods and their implementation. The project will be independently marked by two examiners and judged not only on scientific content but also on evidence of the student's appreciation of its strengths and weaknesses, and on the appropriateness of the style and presentation of their report.

The final project report is submitted in electronic form.

Students who receive a fail grade for their project report (0 or 1), and who are not granted extenuating circumstances, are allowed one further attempt at the project.

Students who do not submit their project report by the deadline of their second consecutive year (30th September 2019) and who are not granted extenuating circumstances, will be automatically awarded a 0 (non-submission) grade. They will be considered to have failed the project at the first attempt and allowed one further attempt at the project.

### Re-sits

Students follow the School policy on re-sits of modules, examinations and project reports. For students who are required to re-sit, there are three types of re-sit which the Board of Examiners can require students to undertake:

(i) **'Revise and re-submit'**: In such cases, the re-sit student will need to make corrections and submit a revised project by 31 March 2019.

(ii) **'Further data collection'**: In such case the student will be requested to collect or generate new data and revise/update the project, while keeping the initial project topic. Please note that for DL MSc Epidemiology projects, 'collecting new data' would usually mean using additional variables already
available from the dataset rather than actual field collection of new information. Submission should be by the following year's deadline.

(iii) 'New project': In such cases, the re-sit student will need to re-register and do a project on an entirely new topic, for submission by the following year's deadline.

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<th>Language of study and assessment</th>
<th>English (please see 'English language requirements' below regarding the standard required for entry).</th>
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**TIMING AND MODE OF STUDY**

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<tr>
<th>Duration</th>
<th>The Project Module runs over one academic year, from 1 October to 30 September of the following year. Students are expected to submit their project proposal and complete the report in the same academic year. However, students may defer submission of the report to a second consecutive year, in which case they should re-register for the project that following year. The maximum time allowed to complete the project is therefore two years. (Students requesting deferment may also need to extend their programme registration by a further year; a fee would then be payable.) Students unable to complete the project within 2 consecutive years due to extenuating circumstances may formally apply to the Extenuating Circumstances Committee for approval to defer submission of the project report to a third year.</th>
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| Dates | • MSc students must register for the Project Module by 30 September at the latest.  
• An overview of the project idea (about 60-100 words), including the main research question, key exposure and outcome of interests, need to be submitted by 15th November (specific requirements for inclusion will be made available to all students by 15th September).  
• The final Project report can be submitted only once annually; and must be submitted for marking via the LSHTM online Assignment Management System by 30 September (of the following year).  
Students should refer to the Project Guidelines for other deadlines, for example the CARE form submission. |

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<th>Mode of study</th>
<th>By distance learning.</th>
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| Learning time | On average the module should take about 450 hours (e.g. 13 weeks full-time) to complete. This includes 50 hours on topic selection and preparation of the proposal (identification of question, draft and finalise outline, check feasibility, complete CARE form, etc.), 300 hours carrying out work involved in the project, and up to 100 hours on writing up the project report. The learning experience consists of some or all of the following:  
• Self-directed learning;  
• Preparation of a proposal outline, and incorporation of reviewer feedback if required;  
• Fundamental and Intermediate Information Skills workshops;  
• Academic discussions with supervisor via email;  
• Risk assessment and ethical approval applications;  
• Critical review of the literature;  
• Analysis of epidemiological data and/or study findings from a systematic literature review; or Building, parameterisation and fitting of a mathematical model;  
• Preparation of a written report. |
|---|---|
**APPLICATION, ADMISSION AND FEES**

| Pre-requisites | This module is only available to, and is compulsory for, students studying for the DL MSc Epidemiology programme. Students are expected to take this module in their final year of study, except where they have applied, and been given permission, to take this in an alternative year. It is essential that students have studied the content of EPM105 Writing and Reviewing Epidemiological Papers and EPM202 Statistical Methods in Epidemiology before carrying out the project. Also, it is strongly recommended that they choose and study the optional module EPM304 Advanced Statistical Methods in Epidemiology before doing an analysis project or a meta-analysis within a systematic literature review. Students are also required to have studied EPM201 Study Design. Students opting to do a modelling project will be required to complete EPM302 Modelling and the Dynamics of Infectious Diseases or attend the London-based equivalent module. Those wishing to study this module must have regular access to the internet to participate in project-specific discussions on Moodle, benefit from online library facilities and to submit their Project. |
| English language requirements | All elements required for approval of the project i.e. project proposal and CARE form, and the final project report, must be completed in English. |
| Student numbers | There is no cap on the number of students who can register for the project. The number of students actively carrying out a project varies, but typically approx. 100 students register for the project per year. |
| Student selection | This module is available only to those registered for the DL MSc Epidemiology programme. |
| Fees | The current schedule of fees can be viewed at [www.londoninternational.ac.uk/fees](http://www.londoninternational.ac.uk/fees) (click on the LSHTM programme link). |
| Scholarships | Scholarships are not available for individual modules. Some potential sources of funding are detailed on the LSHTM website. |
| Admission deadlines | Key deadlines for the Project Module can be found summarised in the “Dates” section above and in full in the Project Guidelines. 
- Registration deadline for the Project Module: 30 September |

**ABOUT THIS DOCUMENT**

This module specification applies for the academic year: 2017-18
Last revised/approved [01 / 05 / 2017], by Patrick Nguipdop Djomo (Deputy Programme Director) 
London School of Hygiene & Tropical Medicine, Keppel St., London WC1E 7HT. [www.lshtm.ac.uk](http://www.lshtm.ac.uk)