Module Introduction

The London School of Hygiene & Tropical Medicine welcomes you to:

EPM202 Statistical Methods in Epidemiology

We hope you enjoy studying this module.

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Finding out about the module

Before you start going through the module material, we recommend you get an overview of this module and how it is run. To do this, we suggest you first read the Module Specification document which is provided with your course materials and may also be downloaded from the course website. It provides an at-a-glance source of key information about the module such as:

- The title and course code for the module (sections 1 and 2).
- The overall aim of the module and its learning objectives (sections 10 and 11).
- The module content (section 12).
- The learning methods used (section 13).
- The study resources provided (e.g. LSHTM materials, software, textbooks) you will need to complete the module (section 14).
- How learning is assessed (section 15).

The Module Specification should be read alongside this Module Introduction which gives guidance on how to go about studying this module. We recommend that you spend some time acquainting yourself with both these documents before you start working through the computer-based sessions. It is also important to
check the messages posted on the EPM202 NoticeBoard conference for key information (see under Web conferencing).

**The module in context**

This module is designed to provide you with the key statistical knowledge and skills you will need to analyse and interpret data from the common forms of epidemiological studies.

In the first half of the module the focus is on issues specific to different types of study. The second half of the module deals with statistical modelling and multivariable analyses. The combined materials will enable you to choose and use the techniques appropriate for estimation and hypothesis testing in selected situations. You may find some of the material in this module hard-going but you are sure to find the effort is worthwhile – and by the end of the module you will possess a comprehensive knowledge of statistical analyses and modelling techniques at a level desired by all epidemiologists! Although we have tried to avoid unnecessary mathematical detail, a proper understanding of the methodology does require the use of some mathematical formulae. No knowledge of calculus will be required.

**Module calendar**

<table>
<thead>
<tr>
<th>Month</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>October</td>
<td>Tutoring support begins (web conferencing, email queries, assignment marking).</td>
</tr>
<tr>
<td>January</td>
<td>AA web conference opens.</td>
</tr>
<tr>
<td>28th February</td>
<td>Final submission date for the Formative Assignment (FA).</td>
</tr>
<tr>
<td>31st March</td>
<td>Final submission date for the Assessed Assignment (AA).</td>
</tr>
<tr>
<td>April</td>
<td>Exam practice WebBoard conference open 6 weeks prior to the exams.</td>
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<tr>
<td>June</td>
<td>Exam usually held in June.</td>
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**CAL (Computer Assisted Learning) material**

- The CAL sessions form the basic learning material, and are provided on CD-ROM. If you have not yet received your CD-ROM, or do not have access to these, you may download the CAL material from the link below. Please note you will only be able to download these materials twice.
  [http://www.lshtmmdldownloads.co.uk/](http://www.lshtmmdldownloads.co.uk/).
- You should work through all the CAL sessions and try to ensure you understand each step before you go on to the next, as the course material builds on itself.
• Within the earlier sessions you will review some of the material you have learnt in the core modules EPM101, EPM102 and EPM103. Individual module students should be familiar with basic concepts in statistics and epidemiology before taking this module and may download the sessions from these core modules if they wish.

• We also have ‘masterfiles’ for all sessions. These are sessions in PDF format on the module CD-ROMs. The masterfiles hold the same information as the CAL material but can be printed out. Please note that masterfiles are not interactive and do not replace the CAL material. When studying the CAL sessions, we recommend that you work through the CD-ROM material first. The masterfile document can then be used for revision purposes to refer back to specific sessions if you wish.

**Workbook**

• The EPM202 Workbook accompanies the CAL sessions, and uses the statistical software package Stata. You should use the Workbook in parallel with the CAL material, so that you gain practical experience as you go along. In most of the practicals, the dataset and analysis is the same as that used for illustration in the corresponding CAL session. It may be useful as you work through the practicals to refer back to the corresponding CAL session for in-depth details about the methods.

• The Workbook is divided into four Sections:
  o Section 1 contains a Stata glossary of the commands used in statistical analysis, including those applied in the practical sessions.
  o Section 2 describes the various datasets used in this module.
  o Section 3 contains all the practical sessions. Each of these sessions consists of a tutorial which guides you through the analysis followed by a review exercise where you will ‘have a go on your own’.
  o Section 4 has the solutions to the review exercises.

• The practical sessions give you the opportunity to gain experience in performing your own analyses. The interpretation of the output is as important, if not more important than being able to use Stata to produce the output. Each practical session consists of a tutorial type exercise which guides you through the analyses. In the tutorials you will be instructed as to which commands to use and provided with interpretation of the output. At the end of each tutorial there is a review exercise where you will ‘have a go on your own’ and apply the commands used in the tutorial. The solutions to these review exercises are given in Section 4 of this Workbook.

• The example datasets used in the practical sessions all come from studies in which staff of LSHTM been closely involved. Although these datasets may not be appropriate for your work, we hope that you will find that they provide meaningful examples of specific study designs to which the methods are applied. A description of each dataset is given in Section 2 of this Workbook.
Before starting these practicals, you must copy the required Stata commands and datasets from the EP202 CD. On this CD there is a folder called \Stata. In this you should find folders called 'ado' and 'data'. You must copy all of the files that are in these folders into the corresponding folders on your C: drive (or whatever drive letter you use). That is, copy all files from \Stata\ado on the CD into C:\ado and copy all files from \Stata\data on the CD into C:\data. These C:\ado and C:\data folders are the default locations in which Stata looks for its ‘ado’ and ‘dta’ files. Once you have copied the files you should find that the instructions work.

Be especially careful that you do not duplicate folders, for example, by putting the files into C:\ado\ado. This is a common error and it means that the commands will not work.

It is essential that prior to working through a practical session:
- you have studied the corresponding EPM202 CAL session
- you have a basic knowledge of Stata
- you have copied your EPM202 datafiles into an appropriate workspace.

If you wish to refresh your knowledge of Stata refer back to core module EPM102 Statistics with Computing.

Please note this Workbook uses Stata 10 commands. While there are some differences between Stata 10 and 11, all commands used in the Workbook will also work in Stata 11.

Please note: not all the CAL sessions have a practical associated with them.

Readings

Three papers are included in the Reader, which illustrate the application and presentation of the statistical methods discussed within the module.

You should make use of the textbook supplied with your material (Essential Medical Statistics).

Other books recommended as optional reading for this module include (these books are not supplied):
- Multivariable Analysis: A Practical Guide for Clinicians (Katz and Mitchell)
- A Short Introduction to Stata for Biostatistics (Hills and de Stavola, pub: Timberlake).

Please also make use of the Stata Guidelines - A Stata Summary for DL Students - a summary of all the commands you will meet in the EP statistical modules. This can be downloaded from the General Resources page on the student website http://dl.lshtm.ac.uk/programme/student/ep/student/general.htm.

We recommend you also make use of the LSHTM on-line library resources (access via the University of London International Programmes portal). Details on how to access the library are given in the Student Handbook.
Assignments

- **Formative Assignment.** We recommend that you complete the Formative Assignment (FA). This tests your understanding and the feedback given by tutors (and specimen answer) enables you to see how you are progressing. The FA will also help you prepare for the Assessed Assignment (AA). The FA submission deadline is 28th February.

- **Assessed Assignment.** The Assessed Assignment (AA) is a compulsory element of the module, comprising 30% of the final module grade and you must obtain a minimum grade of 1 for your AA in order for this element to count towards completion of your module. The AA submission deadline is 31st March.

- **Accessing the assignments.** Assignments should be downloaded from the module page on the course website: [http://dl.lshtm.ac.uk/programme/student/ep/student/modules/ep202.htm](http://dl.lshtm.ac.uk/programme/student/ep/student/modules/ep202.htm) (see website section at the end of this document). Assignments are subject to change each year for all DL courses so you must ensure you download the assignments corresponding to the year in which you are submitting your assignment for marking. Assignments from previous years will not be accepted.

- Full details of how to submit assignments (using the on-line Assignment Management System) can be found in Chapter 8 of the Student Handbook.

- For all your assignment work, it is vital that you understand and apply principles of good academic writing, referencing and using source material, as well as avoiding plagiarism. Please refer to the Academic Writing Handbook for guidance on this – this can be found on the General Resources page of the student website [http://dl.lshtm.ac.uk/programme/student/ep/student/general.htm](http://dl.lshtm.ac.uk/programme/student/ep/student/general.htm).

Web conferencing

- The ‘WebBoard’ is our current web-based conference system* and an integral part of this course, putting you in touch with other students and with tutors on relevant modules. The WebBoard will be open from the first week of October onwards until the module exam.

- It is used for:
  - **Discussion of module content and queries.** We strongly recommend that you make use of the EP web conferencing system (WebBoard) to discuss issues relating to the course material. This gives an opportunity for you to ask questions and to take part in discussions initiated by fellow students. The conferences are monitored by tutors who will contribute to the discussions. There are conferences for different parts of the module, together with a General EPM202 conference, conferences for discussing FAs and AAs (AA conferences open in January), and, in May, conferences to help you prepare for the exams by discussing past exam questions. You may also email specific queries to
the Distance Learning Support Office \( (\text{dlsupport@lshtm.ac.uk}) \) who will refer your queries to one of the EPM202 tutors.

- **Messages from your Module Organiser and Distance Learning Support Office.** We use WebBoard as the primary means of communication of important messages between students and staff, and in early October, the Student Support Office will subscribe you to the mailing lists for the **EPM202 NoticeBoard (Students).** This conference will be ‘read-only’ with only Course Directors, Module Organisers and Student Support Office staff posting messages in these and it is essential that you read all messages posted there. Please log on regularly to WebBoard to view this module NoticeBoard, and check you are receiving these messages by email. Please do this at least once by the end of October at the latest. If you see NoticeBoard messages for this module on WebBoard that have not reached you by email, please contact the Distance Learning Support Office \( (\text{dlsupport@lshtm.ac.uk}) \)

- **Accessing WebBoard.** Access is via the student website \( \text{http://dl.lshtm.ac.uk/} \) (then click on EP). All students studying EP modules should have their own unique username and password to access the EP WebBoard. Please contact the Distance Learning Support Office \( (\text{dlsupport@lshtm.ac.uk}) \) if you do not have this. For information about using WebBoard in general, please see Chapter 7 of the Student Handbook.

*Please note that we may be upgrading our web conferencing software over the next few months. We will keep you informed of any changes.*

### Website

- Assignments and additional resources such as past exam questions, Frequently Asked Questions, list of module tutors, student evaluations etc can be downloaded from the **EPM202 module page** on the student website \( \text{http://dl.lshtm.ac.uk/programme/student/ep/student/modules/ep202.htm} \).

- There is also a **General Resources page** which includes documents such as the Student Handbook, list of course materials, and general exam guidance.

- **Accessing the student website.** You will be provided with the username and password to access the website at the beginning of the academic year. Please email \( \text{dlsupport@lshtm.ac.uk} \) if you do not know these.

Finally, a reminder that we are here to help! Do let us know if you have any queries at all – either by posting in the relevant WebBoard conference, or emailing \( \text{dlsupport@lshtm.ac.uk} \).