UNIVERSITY OF LEICESTER

# Programme Specification (Postgraduate)

**Date amended: June 2014**

## 1. Programme Title(s):

MSc in Medical Statistics
MSc in Medical Statistics with specialisation in Modern Epidemiology
MSc in Medical Statistics with specialisation in Health Technology Assessment
Postgraduate Certificate in Medical Statistics (available only as an exit award)
Postgraduate Diploma in Medical Statistics (available only as an exit award)

## 2. Awarding body or institution:

University of Leicester

## 3. a) Mode of study

Full-time/Part-time

## b) Type of study

Campus-based

## 4. Registration periods:

The normal period of registration is 12 months full-time/27 months part-time

The maximum period of registration is 24 months full-time/48 months part-time

## 5. Typical entry requirements:

Candidates should have at least a good second-class honours degree or equivalent in mathematics or statistics, or in a subject with a substantial mathematical or statistical content. Where English is not a candidate's first language, applicants will be required to provide evidence of appropriate language skills in line with the requirements of Senate Regulation 1.

## 6. Accreditation of Prior Learning:

Accredited prior learning will not be accepted for exemptions from modules on this programme.

## 7. Programme aims:

The programme aims:

- To cover the basic statistical theory needed by practising medical statisticians
- To equip students to teach themselves new skills in what is a fast developing subject
- To enable students to turn a problem described in medical or biological terms into something that can be tackled by a statistical analysis
- To develop the student's computer skills so that they can handle and analyse large medical databases
- To develop communication skills so that the students are able to describe complex statistical ideas to non-statisticians and to present the results of their analyses in written and oral forms
- To develop the student's critical skills so that appreciate the strengths and weakness of a research study and can make practical suggestions for improvement.
- To encourage team-working of the type that the students will meet when they work as medical statisticians

## 8. Reference points used to inform the programme specification:

External Examiners' reports

Framework for Higher Education Qualifications

University Discovery-Led and Discovery Enabling Learning Strategy

Periodic Developmental Review (December 2013)

Student feedback; both module and programme

First destination careers data

Senate Regulations

## 9. Programme Outcomes:

| Intended Learning Outcomes | Teaching and Learning Methods | How Demonstrated? |
|---|---|---|
| ***(a) Subject and Professional skills*** | | |
| **Knowledge** | | |
| Core statistical theory including Frequentist, Likelihood and Bayesian approaches<br>Research designs | Lectures, problem solving, directed and self-directed reading, individual and group-work | Coursework, examination, dissertation (MSc only) |
| **Concepts** | | |
| Role of statistical models in medical research | Lectures, medical examples, directed and self-directed reading, individual and group-work | Coursework, examination, dissertation (MSc only), discussion |
| **Techniques** | | |
| Statistical computing, standard statistical methods | Lectures, problem solving, examples classes, directed and self-directed learning | Coursework, dissertation (MSc only) |
| **Critical analysis** | | |
| Interpretation of an analysis and the appreciation of the limitations of an analysis.<br>Critical appraisal of the medical literature | Directed and self-directed reading, individual and group-work, presentations and discussions | Coursework, examination, dissertation (MSc only), discussion |
| **Presentation** | | |
| Presentation of an analysis to fellow statisticians and to non-statisticians<br>involvement in discussion and interpretation | Lectures, illustrative examples, individual and group-work | Oral presentations, written reports and poster presentations |
| **Appraisal of evidence** | | |
| Medical statistics is the appraisal of evidence in medical research | Lectures, problem solving, directed and self-directed reading, individual and group-work | Coursework, examination, dissertation (MSc only) |
| ***(b) Transferable skills*** | | |
| **Research skills** | | |
| Literature review, research design, statistics | Lectures, case-studies, dissertation (MSc only) | Coursework, dissertation (MSc only) |
| **Communication skills** | | |
| Report writing<br>oral presentation technical and non-technical explanations | Consultancy, individual and group projects, seminars on report writing, presentations, consultancy skills | Individual and group oral presentations, posters, written reports, dissertation (MSc only) |

| Intended Learning Outcomes | Teaching and Learning Methods | How Demonstrated? |
|---|---|---|
| **Data presentation** | | |
| Basic to the course | Integral to the whole course | Integral to everything the students do |
| **Information technology** | | |
| Advanced use of statistical software for data handling and analysis. Use of word-processing and presentation software. | Lectures, directed reading, practical computer lab based sessions | Coursework, dissertation (MSc only), individual and group presentations |
| **Problem solving** | | |
| Identifying the most appropriate method of analysis for a data set to answer a medical question | Lectures, practical sessions, individual and group projects | Coursework, examination, dissertation (MSc only), individual and group presentations |
| **Working relationships** | | |
| Team work<br>working with statisticians and non-statisticians | Consultancy, individual and group-work | Group presentations (not formally assessed) |
| **Managing learning** | | |
| Study skills, organisation of workload for project work | Problem solving, directed and self-directed reading, individual and group-work, short (2 week) and long (3 month) projects (MSc only) | Coursework, examination, dissertation (MSc only) |
| **Career management** | | |
| Awareness of the skills required to be a practising medical statistician | Consultancy skills workshop, seminars, subject specific careers events, personal tutor meetings, guest lectures | Personal development planning |

## 10. Special features:

Accredited by the Royal Statistical Society

## 11. Indications of programme quality:

The course has been running successfully for over 30 years and is accredited by the Royal Statistical Society. The number of applicants is high and the course has always attracted applicants from Europe and overseas. The course has a high reputation in the pharmaceutical industry with many companies employing directly from the course. Both the main pharmaceutical industries and contract research organisations support the course through contributing to teaching on the course, providing representatives for the Board of Studies, organising careers events and by funding studentships on the course. The course has been awarded research council studentships from the NIHR and the MRC. There is a high demand for graduates from the MSc and most students who pass the course quickly find jobs working as medical statisticians or funded PhDs. Student feedback via module and course evaluation forms is very positive and many graduates return to give careers and recruitment sessions.

External examiners reports have always been highly supportive of the course and comment on the high standards achieved by the graduates, particularly in the dissertation. Many graduates have continued, after graduating, working with their supervisors on their project work and have been successful in having their work published.

## 12. Scheme of Assessment

As defined in Senate Regulation 6: Regulations governing Taught Postgraduate Programmes of Study (see Senate Regulations)

## 13. Progression points

As defined in Senate Regulation 6: Regulations governing Taught Postgraduate Programmes of Study (see Senate Regulations)

In cases where a student has failed to meet a requirement to progress he or she will be required to withdraw from the course and a recommendation will be made to the Board of Examiners for an intermediate award where appropriate.

## 14. Rules relating to re-sits or re-submissions:

As defined in Senate Regulation 6: Regulations governing Taught Postgraduate Programmes of Study (see Senate Regulations)

## 15. Additional information

N/A

## 16. External Examiners

The details of the External Examiner(s) for this programme and the most recent External Examiners' reports can be found here.

## Appendix 1: Programme structure (programme regulations)

| Core Taught Modules (September to April) | | Credits |
|---|---|---|
| MD7440 | Fundamentals of Medical Statistics | 20 |
| MD7442 | Statistical Modelling | 20 |
| MD7443 | Computationally Intensive Methods | 15 |
| MD7444 | Advanced Statistical Modelling | 15 |
| MD7451 | Clinical Trials | 20 |
| MD7452 | Epidemiology | 15 |

Option module (April/May) 15

Each student must select one of the following three streams:

- Medical Statistics
  by choosing option MD7447 Further Topics in Medical Statistics
- Medical Statistics specialising in Modern Epidemiology
  by choosing option MD7448 Genetic Epidemiology
- Medical Statistics specialising in Health Technology Assessment
  by choosing option MD7449 Health Technology Assessment

Core research module (June to September) **(MSc only)**

MD7446 Project 60

In the last three months of the course, students must undertake a research project. This provides students with the opportunity to examine in depth a topic of particular relevance to their interests and work. The project must demonstrate more than just a competent standard statistical analysis. Students are encouraged demonstrate advanced critical skills and investigate novel approaches to their analysis. Their choice of project should reflect their choice of stream so that students specialising should select a project in their specialist area.

**Total 180**

## Appendix 2: Module Specifications

See module specification database http://www.le.ac.uk/sas/courses/documentation/1314