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| Title | **Essential Statistics in Health and Medical Research** |
| Code | **MDM66** |
| Level | 7 |
| Credit rating | 20 credits |
| Pre-requisites | Students will currently be registered on a higher degree (M level or higher) or have attended M level quantitative research module which includes statistics, or be working in an environment where statistics is a requirement for day-to-day activity. |
| Type of module | Intensive – 5 days over one week. |
| Aims | The aim of the module aims to enable health practitioners and specialists to develop a pragmatic understanding of essential statistical topics. |
| Learning outcomes/objectives | On successful completion of the module participants will be able to: * Set up a database for research data
* Differentiate between different types of data, choose and implement appropriate descriptive methods
* Interpret raw output from data analysis packages (SPSS)
* Formulate hypotheses and test them using appropriate statistical procedures
* Interpret and accurately summarise the results of such tests in journal report format
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| Content | * Refresher on basic statistics
* Hypothesis testing
* Measures of association
* Correlations
* Linear associations
* Testing the parametric assumptions
* Simple univariate tests
* Simple and multiple linear regression
* Assumptions and interpretation
* Analysis of residuals
* Multicollinearity
* Interactions
* Introduction to the principles of survival analysis (Kaplan-Meier method)
* Principal components analysis
* Factor analysis
* Cluster analysis
* Sample size and Power determination
* Applications in questionnaire design
* Statistics for patient-reported outcome measures (PROMs)
* Reliability statistics: test-retest; item-total; split-half; coefficient alpha
* Validity: concurrent; discriminant; predictive; construct
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| Teaching and learning strategies | Formal lectures and group work with examples from published research and discussing interpretations. There will also be practical demonstrations and hands-on experience of the statistical packages in the computer rooms. These will comprise worked examples, analysing data and writing reports. |
| Learning support | A list of core / recommended reading is available in the Module Handbook which can be found on StudentCentral |  | OUP |
| Assessment tasks | The production of six short statistical reports. |
| Brief description of module content and/or aims (maximum 80 words) | This module is specifically designed for doctors and other health professionals who wish to improve their understanding and use of statistical methods and techniques. It is a pragmatic module and participants will be able to apply their learning immediately to practical applications using SPSS. They will produce reports demonstrating their ability to manipulate, interpret and apply data in real life and research situations. |
| Area examination board to which module relates | Division of Medical Education, BSMS |
| Module team | Muzaffar Malik, Senior Lecturer (Module Leader) |
| Semester offered, where appropriate | Semester 1. |
| Site where delivered | Falmer |
| Date of first approval | 2007 |
| Date of last revision | 2nd July 2009 |
| Date of approval of this version | June 2015 |
| Version number | 4 |
| Replacement for previous module | Not applicable.  |
| Field for which module is acceptable and status in that field | Medicine, Nursing, Midwifery, Allied Health Professions |
| Course(s) for which module is acceptable and status in course | MRes Medical Research (mandatory); GPHSS |
| School home | Division of Medical Education, BSMS |
| External examiner  |  |