

<b>1. Module Title:</b> Biostatistics in Research Practice		
<b>2. Module Code:</b> 2648011	<b>3a. Version No.:</b>	2
	<b>3b. Date Approved:</b>	
	<b>3c. Date last revised:</b>	October 2007
<b>4. Module Leader and Teaching Team: (indicate by * for module leader)</b> Martin Bland, Simon Crouch, and Mona Kanaan*		
<b>5. Timing of Module:</b> Every Tuesday Afternoon, Spring Term.		
<b>6. Name of Pathway/Branch/Course:</b> MSc Health Services Research		
<b>7. Module Status:</b> Optional	<b>8. Level:</b> M	<b>9. No of Credits:</b> 10
<b>10. Professional Body Requirements:</b> None		
<b>11. Pre-requisite(s):</b> Applied Biostatistics or equivalent	<b>12. Co-requisite(s):</b>	<b>13. Barred Combinations:</b>
<b>14. Aims of Module:</b> To equip students with the necessary skills and knowledge to allow analysis of data with an awareness of effect modification and confounding.		
<b>15. Synopsis of Module:</b> For this module the student - by means of lectures and the hands-on analysis of data from real health-related studies using the statistical software packages STATA and SPSS - is guided through the full range of standard statistical parametric and non parametric techniques, ranging from frequency tables to Cox's regression. Special attention is paid to the conditions under which the technique may or not may be applied.		
<b>16. Learning Outcomes:</b> Students will be able to: <ul style="list-style-type: none"> <li>○ make effective use of statistical packages for analysis (STATA and SPSS)</li> <li>○ interpret the results of using such packages and generate functional reports</li> <li>○ utilise descriptive and inferential statistical tests of difference and association</li> <li>○ correctly construct multivariate linear and logistic regression models and to undertake survival analysis and Cox-regression modelling</li> </ul>		
<b>17. Assessment Strategy:</b> Practical skills and the appropriate application of knowledge will be tested by a secondary analysis of datasets under examination conditions (2 hours). It is an open-book exam.		
<b>18. Teaching &amp; Learning Strategies (including sizes of groups taught, e.g. full, seminar etc)</b> Each session consists of a lecture and a workgroup.		
<b>19. Teaching &amp; Learning Resources:</b> <b>Please check 'x' if discussed with Subject Librarian</b>		<input type="checkbox"/>
<b>19a Reading List</b> <b>Suggested Readings</b> Altman DG. <i>Practical statistics for medical research</i> . London: Chapman and Hall, 1995. Bland M. <i>An introduction to medical statistics</i> , 3 <sup>rd</sup> edition, Oxford: Oxford University Press, 2000. Field, A. <i>Discovering statistics using SPSS for Windows</i> , 2 <sup>nd</sup> edition. Sage, 2005. Hamilton, L. <i>Statistics with Stata</i> , 6 <sup>th</sup> edition, Wadsworth; 2005. Peacock, J. And Kerry, S. <i>Presenting medical statistics from proposal to publication</i> , Oxford University Press, 2007. Petrie, A. And Sabin, C. <i>Medical statistics at a glance</i> , 2 <sup>nd</sup> edition, Blackwell, 2005. Rabe-Hesketh, S. and Everitt, B. <i>A handbook of statistical analyses using Stata</i> , 4 <sup>th</sup> edition, Chapman & Hall, 2006.		

**19 b. Journals**British Medical Journal <http://bmj.bmjournals.com/>Journal of the American Medical Association <http://jama.ama-assn.org/>The Lancet <http://www.thelancet.com/>

American Journal of Epidemiology

International Journal of Epidemiology

**19c. Websites and other electronic sources**

- <http://www-users.york.ac.uk/~mb55/>
- <http://bmj.bmjournals.com/collections/statsbk/>
- <http://www.davidmlane.com/hyperstat/index.html>
- <http://www.tufts.edu/%7Egdallal/LHSP.HTM>
- <http://onlinestatbook.com/rvls.html>
- <http://www.stats.gla.ac.uk/steps/glossary/index.html>
- <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi>
- <http://www.york.ac.uk/inst/crd/>
- <http://www.library.nhs.uk>
- <http://www.ats.ucla.edu/stat/>
- <http://www.statsoft.com/textbook/stathome.html>
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**19d. Staffing Requirements:**

Lecturers with necessary knowledge.

**20. Indicative Content/ Sessions Outline:**

Week	Lecture	Work group
2	Introduction to STATA	Data handling and manipulation; t-tests, $\chi^2$ and correlation using STATA
3	Regression and multiple regression	Multiple regression using STATA
4	More on multiple regression, dummy coding in regression, normality and transformations	Advanced multiple regression exercise using STATA
5	Logistic regression for categorical data	Logistic regression using STATA
6	Principles of survival analysis and introduction of Cox's regression for time related data	Survival analysis and Cox regression using STATA
7	Poisson regression for count data	Poisson regression using STATA
8	Non-parametric tests	Non-parametric tests using STATA
9	Practical Revision	Regression Analysis using SPSS
10	Assessment	

**21. Allocation of Teaching & Learning Time (100 hours total per 10 credits)**

a. Lectures	b. Seminars	c. Group Tutorials	d. Lab/ Practical	e. Directed Study	f. Private Study	g. Other	h. Formal Exams	i. Total
8			16	32	42		2	100

**22. Delivery Details****22a: Principal Teaching Site****22b: Max No Students per module intake:****22c: No Intakes per year**

	University of York	30	1
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