POPH90121 Categorical Data & GLMs

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2010, Parkville This subject commences in the following study period/s: Semester 2, Parkville - Taught online/distance. Distance
Time Commitment:	Contact Hours: None Total Time Commitment: 8-12 hours per week
Prerequisites:	505-940 Linear Models (LMR) (may be taken concurrently)

Subject	Study Period Commencement:	Credit Points:
POPH90016 Epidemiology	Semester 1, Semester 2	12.50
POPH90015 Mathematics B'Ground for Biostatistics	Not offered 2010	12.50
POPH90017 Principles of Statistical Inference	Semester 1, Semester 2	12.50
POPH90148 Probability and Distribution Theory	Semester 1, Semester 2	12.50
POPH90120 Linear Models	Semester 2	12.50

Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	None
Core Participation Requirements:	None
Coordinator:	Prof John Carlin
Contact:	Associate Professor Michael Coory, University of Queensland Biostatistics Collaboration of Australia OR Academic Programs Office Melbourne School of Population Health Tel: +61 3 8344 9339 Fax: +61 3 8344 0824 Email: sph-gradinfo@unimelb.edu.au
Subject Overview:	Introduction to and revision of conventional methods for contingency tables especially in epidemiology: odds ratios and relative risks, chi-squared tests for independence, Mantel-Haenszel methods for stratified tables, and methods for paired data. The exponential family of distributions; generalized linear models (GLMs), and parameter estimation for GLMs. Inference for GLMs – including the use of score, Wald and deviance statistics for confidence intervals and hypothesis tests, and residuals. Binary variables and logistic regression models – including methods for assessing model adequacy. Nominal and ordinal logistic regression for categorical response variables with more than two categories. Count data, Poisson regression and log-linear models.
Objectives:	To enable students to use generalised linear models (GLMs) and other methods to analyse categorical data with proper attention to the underlying assumptions. There is an emphasis on

	the practical interpretation and communication of results to colleagues and clients who may not be statisticians.
Assessment:	Two written assignments due before the end of semester worth 35% each (approx 8 hours work each). Six practical exercises due throughout the semester worth 4% each (approx 6 hrs work each) Contribution to online discussions worth 6% (approx 6 hrs work)
Prescribed Texts:	None Special Computer Requirements: Stata statistical software Resources Provided to Students: Printed course notes and assignment material will be provided to students by mail (including electronic media).
Recommended Texts:	None
Breadth Options:	This subject is not available as a breadth subject.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	Independent problem solving, facility with abstract reasoning, clarity of written expression, sound communication of technical concepts.
Links to further information:	http://www.sph.unimelb.edu.au
Notes:	This subject is not available in the Master of Public Health.
Related Course(s):	Master of Biostatistics Postgraduate Certificate in Biostatistics Postgraduate Diploma in Biostatistics