



THE UNIVERSITY
OF QUEENSLAND
AUSTRALIA

Course title: STAT7608 Categorical Data & Generalised Linear Models

Course coordinator: Dr Michael Coory

Mode: External

Prerequisites: Epidemiology, Mathematical Background for Biostatistics, Probability and Distribution Theory, Principles of Statistical Inference

Course introduction:

This course begins with conventional methods for contingency tables and then introduces generalised linear models (GLM's) (exponential family of distributions; parameter estimation and inference for GLM's). This is followed by binary, nominal and ordinal logistic regression and poisson regression. This course may not be offered if the enrolment is less than 10 students.

Course aims:

To enable students to use generalized 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.

Course content:

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

Method of assessment:

Assignments 40% (two written assignments worth 20% each), practical exercises 54%, and contribution to online discussions 6%).

Recommended text: Nil

Computer requirements: Stata statistical software or similar

Resources:

Printed course notes and assignment material by mail, email, and online interaction facilities

Further details are provided in the Course Profile: <http://www.bca.edu.au/courseinfo.htm>