505-972 Survival Analysis & Regression for Rates

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2009, This subject commences in the following study period/s: September, - Taught on campus. Classroom
Time Commitment:	Contact Hours: One 4-hour lecture per week over the last 6 weeks of semester Total Time Commitment: Students will be expected to undertake additional tasks, reading and preparation equivalent to an average of 80 to 90 hours of additional time commitment.
Prerequisites:	505-969 Epidemiology & Analytic Methods I or equivalent 505-970 Epidemiology & Analytic Methods II or equivalent 505-971 Linear and Logistic Regression
Corequisites:	See Prerequisites
Recommended Background Knowledge:	-
Non Allowed Subjects:	-
Core Participation Requirements:	-
Coordinator:	Dr Lyle Gurrin
Contact:	Centre for Molecular, Environmental, Genetic & Analytic Epidemiology School of Population Health
Subject Overview:	This subject expands on Linear and Logistic Regression, introducing the use of rates and rate ratios and the analysis of censored time to event (survival) data. The focus is on methods for modelling the relationship between events measured over time, or censored time-to-event outcomes with a number of covariates, including Poisson regression and survival modelling using the proportional hazards model (Cox regression). Emphasis is on practical application and interpretation of results in the context of standard epidemiological study designs and particularly longitudinal studies. Further topics may include the use of flexible regression models to represent non-linear relationships. Practical work will use the statistical package Stata.
Objectives:	On completion of this subject, students are expected: # To gain an understanding of generalized linear regression modeling of events over time and censored survival time data # To gain familiarity with the topics of model building and prediction in the context of generalized linear models in epidemiology # To develop a basic understanding of the role of regression modeling of rates and epidemiology, particularly in the context of longitudinal studies # To learn practical skills in fitting and interpreting generalized linear regression models for count data over time (Poisson and Cox models) in the statistical computing package Stata # To be introduced to the theory of generalized linear models
Assessment:	One 1,500 word written assignment on modelling rates using Poisson regression due mid-teaching period (30%);One 2,000 word written assignment on modelling time-to-event data using Cox regression due at the end of semester (40%);An end of semester examination (1.5 hour in length constituting 30% (1,500 words) of the total assessment) to be held in the University examination period.

Prescribed Texts:	BR Kirkwood & JAC Sterne, Essential Medical Statistics Second Edition, Blackwell Science, 2003. Special computer skills required: Students are expected to have experience using the Stata statistical package for multivariate analytic methods. Resources provided to distance students (applicable only to distance education subjects)
Recommended Texts:	
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:	-
Links to further information:	http://www.sph.unimelb.edu.au
Notes:	This subject is a group 1 elective in the Master of Public Health.
Related Course(s):	Master of Epidemiology Master of Public Health