VHM-812 Research Epidemiology
Winter 2008 - Course Outline

Instructor: **Ian Dohoo, ext 0640, office: 423S, AVC**
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Grading

Grading will be on the following basis

regression project	30%
study design assignment	10%
midterm	20%
final exam	40%

Required Text:
Dohoo, Martin & Stryhn - Veterinary Epidemiologic Research
R. Christensen, Analysis of Variance, Design and Regression, CRC Press 1996 (tentative)

Supplemental Texts:

Rothman and Greenland - Modern Epidemiology
Hosmer & Lemeshow - Applied Logistic Regression - 2nd Edition
Long & Freese - Regression Models For Categorical Dependent Variables Using STATA
Collett - Modelling Binary Data
Rabe-Hesketh - Handbook of Statistical Analyses Using Stata
Hamilton - Regression with Graphics

SCHEDULE

Tuesday 9:00 - 12:00 Location: FL = Faculty Lounge
Friday 10:00 - 1:00

Date	Loc.	C[1]	Topic	Inst.	VER	RC
Fri Jan 4	FL	Y	Introduction to Course Linear regression – simple linear regression, ANOVA table, prediction, residuals, polynomial regression	ID HS	14.1-3 14.8-10	7.1-9 7.11
Tu Jan 8	FL	Y	Linear regression – transformations, multiple regression, estimation, comparison of models, collinearity	HS	14.1-3 14.5 14.8-10	7.10 7.12 13
Fri Jan 11	FL	Y	Linear regression - diagnostics	HS	14.8-10	14.1
Tu Jan 15	FL	Y	Linear regression – evaluating linearity, categorical predictors / indicator variables, interaction	ID	14.4 14.6	10
Fri Jan 18	FL	Y	Linear regression – causality, model building, variable selection,	ID	14.7 15	

Date	Loc.	C[1]	Topic	Inst.	VER	RC
Tu Jan 22	FL	Y	Logistic regression - introduction and maximum likelihood estimation, likelihood ratio tests	HS	16.1-6	
Fri Jan 25	FL	Y	Logistic regression- model building, linearity, assessing confounding and interaction	HS	16.7-10	
Tu Jan 29	FL	Y	Logistic regression diagnostics – covariate patterns, residuals, goodness-of-fit tests, predictive ability assessing model fit, prediction, ROC curves	ID	16.11(1 - 4)	
Fri Feb 1	FL	Y	Logistic regression diagnostics – outliers and influential points Conditional logistic regression **Hand out of regression assignment**	ID HS	16.11(5) 16.14	
Tu Feb 5	FL	Y	Structured approach to data analysis Linear and logistic regression review	ID ID HS	25	
Fri Feb 8	FL	N	Poisson Regression – introduction, count data, distribution	JS	18.1-4	
Tu Feb 12	FL	N	Poisson Regression – diagnostics, negative binomial models, zero-inflated models	JS	18.5-7	
Fri Feb 15	FL	N	**Regression assignment due** **Midterm**	ID JS		
Tu Feb 19			UPEI reading week – no class			
Fri Feb 22			UPEI reading week – no class			
Tu Feb 26	FL	N	take up midterm and assignment	ID		
Fri Feb 29	FL	N	Study design – cross sectional studies (review), cohort studies (quantifying exposure)	ID	7.4-5 8	
Tu Mar 4	FL	N	Study design – case-control (selecting controls) and hybrid studies	ID	9 10	
Fri Mar 7	FL	N	Bias – quantifying information and selection biases Hand out Study Design / Bias Assignment	ID	12.1-6	

Date	Loc.	C[1]	Topic	Inst.	VER	RC
Tu Mar 11	FL	N	Bias – confounding, stratified analyses, classification of associations, structural models	ID	13.1-4 13.7 13.11	
Fri Mar 14	FL	N	*conflict with GSR Days – class may start at 9:00 ???* Bias – Matching Review of study design topics	ID	13.6	
Tu Mar 18	FL		**Presentation of studies**	ID		
Fri Mar 21			Good Friday – no classes			
Tu Mar 25	FL	Y	Dealing with clustered data - the problem of clustering, linear mixed models	ID	20 21.1-4	
Fri Mar 28	FL	Y	Dealing with clustered data - modelling clustered binary data GEE	HS	22.1-4 23.3	
Tu Apr 1	FL	N	Survival analysis	ID		
Fri Apr 4	FL	N	Survival analysis	ID		
Tu Apr 8	FL	N	Survival analysis	ID		
Fri Apr 11	FL	N	Course Evaluations (20 min.) Meta-analysis			
Tu Apr 15	FL	N	Review session	ID	24	
Fri Apr 18	FL	N	**Final Exam**	ID HS		
Tu Apr 22	FL	N	*slippage day in case we lose one during the semester*	ID HS		
C[1] – Combined class (HM-802 and HM-812)						