Department of Statistics

COURSE STATS 330/762

Assignment 5, 2011

Instructions: Hand in your completed assignment to the Student Resource Centre by **4pm Monday October 17th.**

There is no data set on the web for this assignment; you must create it for yourselves from the table given below.

These data were collected after an outbreak of food poisoning that occurred at a company picnic. 305 persons attended the picnic, and 147 become ill. Questionnaires were administered to the 305 persons in an effort to determine what foods caused the illness. Attention focused on potato salad and crabmeat, and respondents were asked (i) if the became ill, (ii) if they ate potato salad, and (iii) if they ate crabmeat.
The results were

	Crabmeat?			
	Yes		No	
Ill?	Potato salad?		Potato salad?	
	Yes	No	Yes	No
Yes	120	4	22	1
No	80	31	24	23

1. Read the data into R, and make a suitable data frame with factor levels "Yes","No" for each classifying variable. Print out the data frame. Also print out a cross-tab like the table above. [10 marks]

2. Fit a suitable Poisson regression model to the data. State what your model means in terms of conditional independence, homogeneous association etc. [10 marks]

3. Calculate 3 confidence intervals for the 3 conditional odds ratios. [10 marks]

4. What food do you think caused the food poisoning? Is it possible to tell? [10 marks]

R hint: Use the functions **`expand.grid`** and **`xtabs`** for Q1.