

Math 542A – Categorical Data Analysis

Binomial, multinomial and Poisson distributions.

Likelihood function, maximum likelihood estimation for categorical models

Wald, Likelihood ratio and score tests and confidence intervals. Clopper-Pearson confidence interval.

Poisson, Binomial and multinomial sampling.

Contingency tables: Chi-square test, Fisher's exact test. Partial tables, conditional and marginal independence, odds ratios, relative risk. Measures of association for categorical data, homogenous association, ordinal trend.

Generalized linear models: Deviance. Logistic regression. Logit models with categorical predictors, multiple logistic regression. Model selection, Akaike information criterion. Cochran-Mantel-Haenszel test. Probit model. Logit models for multinomial responses.

Loglinear models for contingency tables.

Recommended Textbook

Alan Agresti, *Categorical Data Analysis*, 2nd Ed. Wiley, 2002.