

**Fall 2009 -- STAT 453/653**  
**STATISTICS: DISCRETE METHODS**

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WRB 2007, TR, 1:00-215

Text: [Alan Agresti \(2007\) \*An Introduction to Categorical Data Analysis\*,  
2nd ed., Wiley](#)

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*“...it is unnecessary and often inappropriate to use methods for  
continuous data with categorical responses.”*

Alan Agresti (2007)

Discrete data are routinely collected in social, geophysical, behavioral, biomedical, biological and agricultural sciences as well as in public health, marketing, education, and industrial quality control. The statistical inference for discrete data involves special methods and approaches that differ (sometimes significantly) from those for continuous random variables. In this class, we will overview real-life examples, classical and modern statistical techniques, and numerical methods aimed at answering the main question: How to make a sound and efficient inference if our observations are discrete?

Tentative topics include:

- Univariate and multivariate discrete distributions
- Basic inference for discrete and categorical responses
- Contingency tables
- Generalized linear models, Log-linear models
- Logistic regression
- Hamming distance approach
- Historical remarks

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**IMPORTANT:**

**STAT 452/652 (STATISTICS: Continuous Methods) is NOT a prerequisite for this class. Get a waiver from instructor or any of Math & Stat advisors.**