

When getting things on screen to follow along

Course Syllabus: CS&SS/SOC/STAT 536 Analysis of Categorical and Count Data Fall Quarter 2011

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↓
working
together

Website

<http://www.stat.washington.edu/adobra/classes/536/536.html>

Discussion board

<https://catalyst.uw.edu/gopost/board/adobra/23371/>

stat.washington.edu/adobra/
classes/536/536.htm
"7 studies"

Classroom

The class meets Monday and Wednesday between ~~10:30 and 11:20am~~ in SAV 130. On Fridays between ~~10:30 and 11:20am~~ we have a lab session in SAV 121.

2:30 - 3:20 PM

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Office Hours

Wednesdays and Fridays between 3:30pm and 5:30pm in UW Health Sciences Building, room T643.

Textbooks

- ✓ Fienberg, S. E. (2007). *The Analysis of Cross-Classified Categorical Data* (Second Edition). Springer.
- Long, J. Scott (1997). *Regression Models for Categorical and Limited Dependent Variables*. Thousand Oaks: Sage.

Prerequisites

SOC 504/505/506, or equivalent; recommended: CS&SS 505/506. Students are expected to be familiar with R as well as with basic calculus, matrix algebra and probability.

Class requirements

The students will have to complete six homeworks (75% of final grade) and a final take-home exam (25% of the grade).

Topics to be covered

Review of discrete probability distributions, likelihood inference and basic mathematics. Regression models for binary, ordinal and multinomial. Assessing model fit. Variable selection in regression models. Models for matched pairs. Contingency tables and log-linear models. Model selection issues. Links between regression and log-linear models.

Schedule

Week 1. Foundations: Review of basic mathematical concepts, matrix algebra and discrete probability distributions. Reading: Fienberg, chapter 1; Long, chapters 1, 2.

Week 2. Regression models for binary responses: background, model fitting, interpretation, diagnostics, model selection. Reading: Long, chapters 3, 4.

Week 3: Regression models for ordinal multinomial responses. Reading: Long, chapter 5.

Week 4: Regression models for multinomial responses. Reading: Long, chapter 6.

Weeks 5: Regression models for censored/truncated/count responses. Reading: Long, chapters 7, 8.

Week 6: Log-linear models for two-way contingency tables. Reading: Fienberg, chapters 2.

Week 7: Log-linear models for three-way contingency tables. Reading: Fienberg, chapters 3.

Week 8: Log-linear models for higher-dimensional contingency tables. Model selection for contingency tables. Reading: Fienberg, chapters 4, 5.

Weeks 9-10: Special topics: Fixed and random zeros, models for tables with ordered categories, exact testing, copula models. Reading: Fienberg, chapters 6, 8.