STAT 706 – GLM I Syllabus

Instructor

Vitaly Druker

Email

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Class Location

Blackboard Collaborate Ultra
Thursday:
5:35 pm -7:25pm

Office Hours

After class (Thursday 7:30 pm – 8:30 pm) or by appointment

Course Overview

STAT 706 (GLM I) will introduce generalized linear models by building on ordinary linear regression within the larger generalized framework. The course will focus on regression applications for binary, count and multinomial data along with diagnostics and likelihood theory. All analyses and simulations will be completed using the R language.

Course Resources

Academic Calendar

- https://www.cuny.edu/academics/academic-calendars/

Required Text

Extending the Linear Model with R: Generalized Linear, Mixed Effects and Nonparametric Regression Models, 2nd Edition, *Faraway*

Optional Texts

Applied Linear Statistical Models, 5th edition, *Kutner, Naschtsheim, Neter and Li*

Statistical Rethinking, 2nd edition, *McElreath*

- https://xcelab.net/rm/statistical-rethinking/

R for Data Science, *Wickham*

- http://r4ds.had.co.nz

Tentative Course Schedule

Week	Class Date	Class Topic	Homework
1	27-Aug	Course Overview, Basics of R OLS: Linear Regression with one predictor	Setup R, Survey Questions, Introduction
2	3-Sep	OLS: Multiple Variable Regression, Hypothesis Testing, Diagnostics	Introduction, Problem Set 1
3	10-Sep	OLS: Variations of OLS, Variable Transformations, Likelihood Theory	Appendix A
4	17-Sep	Binary Response	Chapter 2, Problem Set 2
5	24-Sep	B/P Response: Model, Inference, $\chi 2$	Chapter 3
6	1-Oct	B/P Response: Overdispersion and how to deal with it	Problem Set 3
7	8-Oct	Variations on Logistic Regression	Chapter 4, Study for Midterm
8	15-Oct	Midterm (Timed)	Problem set 4
9	22-Oct	Count Regression: Poisson, Dispersed	Chapter 5
10	29-Oct	Count Regression: Rate, Negative Binomial and Zero Inflated	
11	5-Nov	Multinomial Data, Hierarchical or Nested, Proportional Hazard	Chapter 7 (skip LDA)
12	12-Nov	GLM: Fitting, Hypothesis Tests	Problem set 5, Chapter 8
13	19-Nov	GLM: Diagnostics, Sandwich/Robust	
14	3-Dec	Final Project Presentations	
15	10-Dec	Final Project Presentations	

Grading Policy

Midterm – 30%

I would like this to be "in class" or during a 2 hour period of your choosing.

Final Project – 30%

A larger analysis/problem using techniques from class. Details to follow

Homework – 30%

Bi-weekly homework (drop lowest grade)

Class Participation – 10%

Ask questions, discuss homework/reading.

Extra Credit

1. Turn in notes at the end of semester (max 2 points)
2. Complete Teacher evaluation (1 point)

Students wishing to *request a CR/NCR grade* must notify the instructor one week before final, must have taken all the exams, and have at least a 40% average. INC are only given to students with an average of at least 70% with most of the work completed.

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