Statistics 200: Introduction to Statistical Inference

Zhou Fan, Stanford University, Autumn 2016

Home (index.html)

Lectures

Homework (homework.html)

Grades (http://www.gradescope.com)

Piazza (http://www.piazza.com/stanford/fall2016/stats200/home)

Course schedule (tentative)

Unit 0 - Introduction and tools

Mon 9/26	Course introduction, polling (Lecture01.pdf)	Rice 7.1-7.3
Wed 9/28	Probability review (Lecture02.pdf)	Rice 4.5 (review Chapter 2, 4.1-4.2 if necessary)
Fri 9/30	Probability review (cont'd) (Lecture03.pdf)	Blitzstein/Hwang 7.5 (https://canvas.stanford.edu/courses/48759/files), Rice 6.2 (review Rice 3.2-3.3, 4.3 if necessary)
	Fri 9/30, 3-4PM, Sequoia Hall room 200: Introduction to R	
Mon 10/3	Asymptotics and simulation (Lecture04.pdf)	Rice 5.1-5.3

Unit 1 - Hypothesis testing

Wed 10/5	Testing a simple null hypothesis (Lecture05.pdf)	Rice 9.7-9.8
Fri 10/7	Simple alternatives, Neyman-Pearson lemma (Lecture06.pdf)	Rice 9.1-9.2
Mon 10/10	Composite hypotheses and the t-test (Lecture07.pdf)	Rice 6.3

Wed 10/12	Two-sample t-test and signed rank test (Lecture08.pdf)	Rice 11.1-11.2.1 (skip pgs. 426-427), 11.3.2-11.3.3
Fri 10/14	Rank sum test and permutation tests (Lecture09.pdf)	Rice 11.2.3 (pgs. 435-441), Wasserman 10.5 (https://canvas.stanford.edu/courses/48759/files)
Mon 10/17	Experimental design (Lecture10.pdf)	Rice 11.2.2, 11.3-11.3.1, 11.4
Wed 10/19	Testing multiple hypotheses (Lecture11.pdf)	Wasserman 10.7 (https://canvas.stanford.edu/courses/48759/files)

Fri 10/21: President inauguration (no class)

Unit 2 - Parametric inference

Mon 10/24	Parametric models, method of moments estimation (Lecture12.pdf)	Rice 8.1-8.4
Wed 10/26	Maximum likelihood estimation (Lecture13.pdf)	Rice 8.5-8.5.1
Fri 10/28	Consistency and asymptotic normality of the MLE (Lecture14.pdf)	Rice 8.5.2
Mon 10/31	Fisher information, the Cramer-Rao lower bound (Lecture15.pdf)	Rice 8.7
	Tue 11/1, 6:30-8:30PM, Room 320-105: Midterm exam	
Wed 11/2	MLE under model misspecification (Lecture16.pdf)	Notes by CJ Geyer (http://www.stat.umn.edu/geyer/5601/notes/sand.pdf), 1.1-1.7 and 2.1-2.4
Fri 11/4	Plug-in estimators, the delta method (Lecture17.pdf)	Rice 4.6, Wasserman 5.5 (https://canvas.stanford.edu/courses/48759/files)
Mon 11/7	Confidence intervals (Lecture18.pdf)	Rice 7.3.3 (pgs. 217-220), 8.5.3
Wed 11/9	The bootstrap (Lecture19.pdf)	Wasserman 8.1-8.3 (https://canvas.stanford.edu/courses/48759/files), Rice 8.5.3 (pgs. 284-285), Rice 10.4.6
Fri 11/11	Bayesian analysis (Lecture20.pdf)	Rice 8.6
Mon 11/14	Prior distributions (Lecture21.pdf)	Rice 8.6.1-8.6.2

Wed 11/16	Generalized likelihood ratio test (Lecture22.pdf)	Rice 9.4
Fri 11/18	Testing in contingency tables (Lecture23.pdf)	Rice 9.5, 13.3, 13.4

Mon 11/21 - Fri 11/25: Thanksgiving recess (no class)

Unit 3 - Introduction to statistical models

Mon 11/28	The Bradley-Terry model (Lecture24.pdf)
Wed 11/30	The linear model (Lecture25.pdf)
Fri 12/2	Logistic regression (Lecture26.pdf)
Mon 12/5	Poisson regression (Lecture27.pdf)
Wed 12/7	The proportional hazards model (Lecture28.pdf)
Fri 12/9	Course review, looking ahead (Lecture29.pdf)
	Fri 12/16, 8:30-11:30AM, Mudd Chemistry Building AUD: Final exam

Webpage design courtesy of Dennis Sun