AMS 132: Classical and Bayesian Inference

Tentative syllabus and reading list: Winter 2017

The course text is

DeGroot MH, Schervish MJ (2012). *Probability and Statistics*, fourth edition. London: Pearson; abbreviated **DS** below.

Lecture Number	Date	Topic	Pages in **DS**
1	10 Jan	Canceled/postponed (strike)	—
2	12 Jan	Foundations; probability review	1–375
3	17 Jan	Populations and samples; experimental design	—
4	19 Jan	Classical and frequentist probability; repeated-sampling distributions	464–468
5	24 Jan	Statistical inference; large-sample confidence intervals (CIs)	376–384, 485–494
6	26 Jan	Small-sample CIs	—
7	31 Jan	Maximum-likelihood (ML) estimation	417–442
8	2 Feb	Sufficiency; ML inference	443–463
9	7 Feb	Bayesian inference (one parameter)	385–407
10	9 Feb	Bayesian inference (one parameter)	408–416
11	14 Feb	Frequentist and Bayesian inference (multi-parameter)	469–529
12	16 Feb	Bayesian inference (multi-parameter)	—
13	21 Feb	Simulation-based Bayesian computation	787–893
14	23 Feb	Simulation-based Bayesian computation	—
15	28 Feb	Frequentist hypothesis-testing	530–604, 617–623
16	2 Mar	Bayesian hypothesis-testing	605–616
17	7 Mar	Frequentist inference with the bootstrap	839–849
18	9 Mar	Regression	689–735
19	14 Mar	Regression and ANOVA	736–762
20	16 Mar	ANOVA	763–786

Assignment	Handed Out	Due
Homework 1	13 Jan	9 Feb
Homework 2	14 Feb	23 Feb
Homework 3	28 Feb	9 Mar
Take-home Final	14 Mar	24 Mar