STAT 7: Statistical Methods for the Biological, Environmental and Health Sciences

Tentative syllabus and reading list: Fall 2019

An approximately 750–page packet of course materials will serve as the text for the course and will be made available at cost (in this packet, DD = draft book by David Draper [A = newer version, B = older version], LN = lecture notes).

Lecture Number	Date	Topic	Readings Chapters in DD	Pages in LN
1	26 Sep	Introduction; populations and samples	1 (A), 1–2 (B)	L1–47
2	1 Oct	Data types; graphical descriptive methods (histograms, bar charts)	2 (A), 2 (B)	L48–51
3	3 Oct	Numerical descriptive methods: measures of center (mean, median, mode) and spread (standard deviation, variance)	2 (A), 3 (B)	L52–66
4	8 Oct	Using the normal distribution descriptively; controlled experiments	3 (A), 4–5 (B)	L67–85
5	10 Oct	Observational studies	3 (A), 6 (B)	L86–94
6	15 Oct	Probability; conditional probability	7–8 (B)	L95–118
7	17 Oct	Probability models for sums	9 (B)	L119–126
8	22 Oct	Probability models for means	10 (B)	L127–136
9	24 Oct	Statistical models for means; interval estimation (continuous outcomes)	11 (B)	L137–156
10	29 Oct	Interval estimation (dichotomous outcomes)	—	L157–160
11	31 Oct	Sample size determination; hypothesis testing	—	L161–173
12	5 Nov	Pitfalls of hypothesis testing; power	—	L174–185
13	7 Nov	Two-sample problems (continuous outcomes)	—	L186–200
14	12 Nov	Two-sample problems (discrete outcomes)	—	L201–213
15	14 Nov	Simple correlation and simple linear regression	—	L214–244
16	19 Nov	Regression prediction	—	L245–268
17	21 Nov	One-way analysis of variance (ANOVA)	—	L269–282
18	26 Nov	ANOVA; multiple comparisons	—	L283–301
—	28 Nov	holiday (no lecture)	—	—
19	3 Dec	Categorical data analysis	—	L302–322
20	5 Dec	Categorical data analysis; decision	—	L302–322

No discussion sections or office hours will take place on Mon 11 Nov 2019 (Veterans' Day); people who usually go to section on Mondays will need to go to a section on Tue, Wed or Fri that week.

No discussion sections will take place during the week of 25–29 Nov 2019 (Thanksgiving week), but there **will** be a lecture on Tue 26 Nov 2019, and office hours will operate normally on Mon–Wed 25–27 Nov 2019.