

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

Tentative syllabus and reading list: Spring 2018

An approximately 720–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	3 Apr	Introduction; populations and samples	1 (A), 1–2 (B)	L1–47
2	5 Apr	Data types; graphical descriptive methods (histograms, bar charts)	2 (A), 2 (B)	L48–51
3	10 Apr	Numerical descriptive methods: measures of center (mean, median, mode) and spread (standard deviation, variance)	2 (A), 3 (B)	L52–66
4	12 Apr	Using the normal distribution descriptively; controlled experiments	3 (A), 4–5 (B)	L67–85
5	17 Apr	Observational studies	3 (A), 6 (B)	L86–94
6	19 Apr	Probability; conditional probability	7–8 (B)	L95–118
7	24 Apr	Probability models for sums	9 (B)	L119–126
8	26 Apr	Probability models for means	10 (B)	L127–136
9	1 May	Statistical models for means; interval estimation (continuous outcomes)	11 (B)	L137–156
10	3 May	Interval estimation (dichotomous outcomes)	—	L157–160
11	8 May	Sample size determination; hypothesis testing	—	L161–173
12	10 May	Pitfalls of hypothesis testing; power	—	L174–185
13	15 May	Two-sample problems (continuous outcomes)	—	L186–200
14	17 May	Two-sample problems (discrete outcomes)	—	L201–213
15	22 May	Simple correlation and simple linear regression	—	L214–244
16	24 May	Regression prediction	—	L245–268
17	29 May	One-way analysis of variance (ANOVA)	—	L269–282
18	31 May	ANOVA; multiple comparisons	—	L283–301
19	5 Jun	Categorical data analysis	—	L302–322
20	7 Jun	Categorical data analysis; decision	—	L302–322

Please note that no discussion sections will take place on Mon 28 May (which is a holiday); if you usually go to a Monday discussion section, *for that week only* you'll need to go to a section on Wed, Thu, or Fri.

Please note also that with the loss of 200 minutes of lecture time (under the new class schedule), we may need to have a make-up lecture, probably during finals week; more on this toward the end of the quarter.