STA 2212S: Mathematical Statistics II
Syllabus Spring 2023

Week	Date	Methods	References
1	Jan 10	Likelihood inference: review of ML estimation; mis-specified models; computation; nonparametric mle	MS §§5.1–7, SM Ch 4
2	Jan 17	Bayesian estimation; Bayesian inference	MS §5.8; AoS §§ 11.1–4; SM §§11.1,2
3	Jan 24	Optimality in estimation	MS Ch 6; AoS Ch 12; SM §7.1, 11.5.2
4	Jan 31	Interval estimation; Confidence bands	MS §§7.1,2; AoS Ch 7; SM §7.1.4
5	Feb 7	Hypothesis testing; likelihood ratio tests	MS §§7.1–4 AoS Ch 10.6, SM
6	Feb 14	Significance testing	MS §7.5; AoS §10.2,6; SM Ch 4, §7.3.1
	Feb 21	Break	
7	Feb 28	Significance testing	SM 7.3.1
7	Feb 28	Goodness-of-fit testing	MS Ch 9; AoS §§10.3,4,5,8; SM p.327-8 (hard)
8	Mar 7	Multiple testing and FDR	AoS Ch 10.7, EH Ch 15.1,2
9	Mar 14	Empirical Bayes	EH Ch 6, SM Ch 11.5
10	Mar 21	Multivariate Models	AoS Ch 14; SM Ch 6.3
11	Mar 28	Introduction to Causal Inference	AoS Ch 16, 17
12	Apr 4	Recap	

Subject to adjustment as the course progresses.

References

MS: *Mathematical Statistics* by K. Knight (Chapman & Hall/CRC).

AoS: *All of Statistics* by L. Wasserman (Springer) If your copy has a **Chapter 1. Introduction**, then all Chapter numbers increase by 1.

SM: *Statistical Models* by A.C. Davison (Cambridge University Press)

EH: *Computer Age Statistical Inference* by B. Efron and T. Hastie (Cambridge University Press)