STA 2212S: Statistical Theory for Data Science
Syllabus updated Feb 9 Spring 2026

Week	Date	Methods	References
1	Jan 6	Likelihood inference	AoS §9.3ff; LaE §§1.1–1.3, 2.1,2; SM Ch 4
2	Jan 13	Bayesian inference	AoS §§ 11.1–4; LaE §§1.4, 2.8; SM §§11.1,2
3	Jan 20	Point and interval estimation	AoS §§6.3, 7.2; SM §§7.1,2 7.3.4; MS §§4.5–8; §§6.1,4–5
4	Jan 27	Hypothesis testing and significance testing	AoS Ch 10; LaE §1.4; SM §7.3; MS 7.3,4
5	Feb 3	Goodness of fit testing, diagnostic testing Midterm 1	AoS §§10.3,4,5,8; SM p.327-8 (hard)
6	Feb 10	Multiple testing and FDR	AoS Ch 10.7, EH Ch 15.1,2
	Feb 17	Break	
7	Feb 24	Missing and mis-measured data	AoS §11.9; LaE §§3.5, 6; SM 5.4,5
8	Mar 3	Causal inference	AoS Ch 20; SM Ch 9.1.2
9	Mar 10	High-dimensional and nonparametric inference Midterm 2	AoS §10.7, EH §§15.1,2; LaE §§2.9, 6.5, 7.2
10	Mar 17	High-dimensional and nonparametric inference	AoS §10.7, EH §§15.1,2; LaE §§2.9, 6.5, 7.2
11	Mar 24	Aspects of prediction	tba
12	Mar 31	Loose Ends, Recap, Project Presentations	

Subject to adjustment as the course progresses.

References

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)

LaE: *Likelihood and its Extensions* by N. Reid, C. Varin and G. Yi

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