MATH 235 Probability and Statistics for Middle School Mathematics Teachers

Course Content Outline

Current Textbook: *Statistics: Unlocking the Power of Data*, *2nd edition*, by Robin H. Lock et al. (Wiley, 2017).
Recommended Software: Tinkerplots, 2nd ed.

Estimated timeline of topics by week; subject to change

Week	Topics	Text Section
Chapter P: Probability Basics		
1	Introduction to course, Intro to Probability Probability Rules, Tree Diagrams	P1, P2
2	Tree Diagrams & Bayes' rule and maybe binomial	P2, maybe P4
Unit A: Data *Chapter 1: Collecting Data*		
3	Structure of Data; Sampling from a Population; Experiments and Observational Studies	1.1, 1.2, 1.3
Chapter 2: Describing Data		
4	Categorical variables One quantitative variable: Shape and Center	2.1 2.2
5	One quantitative variable: Measures of Spread Boxplots and quantitative/categorical relationships	2.3 2.4
6	Catch up and Review; **Exam 1 on Chapter P, 1, 2.1-2.4**	
7	Two Quantitative Variables: Scatterplot and Correlation Two Quantitative Variables: Linear Regression	2.5 2.6
Unit B: Understanding Inference *Chapter 3: Confidence Intervals (CI)*		
8	Sampling Distributions; Understanding and Interpreting CIs; Constructing Bootstrap CIs	3.1, 3.2, 3.3
Chapter 4: Hypothesis Tests (HT)		
9	Bootstrap CIs using Percentiles; Introducing Hypothesis Tests; Measuring evidence with P-Values	3.4, 4.1, 4.2
10	Determining Statistical Significance; A closer look at Testing; Making connections	4.3, 4. 4, 4.5

Unit C: Inference with Normal and t-Distributions Chapter 5: Approximating with a Distribution		
11	Catch up and Review; **Exam 2 on 2.5, 2.6, Chapters 3 and 4**	
Chapter 6: Inference for Means and Proportions (with formulas)		
12	Hypothesis Tests using Normal Distributions	5.1
	Confidence Intervals using Normal Distributions	5.2
13	Inference for a proportion	6.1
	Inference for a mean	6.2
14	Inference for Difference in Proportions	6.3*
	Inference for difference in paired means	6.5
15 (half week)	Catch up, Review	

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