

Stat 515 — Practice Exam 2: Topic & Point Summary

Chapters 6 – 8 | Sampling Distributions, Confidence Intervals, Hypothesis Testing

#	Topic & Context	Points	Chapter
1	Definitions — significance level (α) and Type I error	10	Conceptual
2	Normal Approximation to Binomial — defective light bulbs ($n=250$, $p=0.08$)	10	Ch. 6
3	Central Limit Theorem — conditions for CLT; verifying independence in practice	8	Ch. 6
4	CI for Variance — normality assumption; robustness; definition of robustness	10	Ch. 7
5	Interpreting a CI — two common misinterpretation errors (adult sodium intake study)	12	Ch. 7
6	CI for Proportion — constructing 95% CI (student sleep survey, $n=980$)	12	Ch. 7
7	Sample Size Determination — for mean (± 2 min, 95%) and proportion (± 0.04 , 90%)	8	Ch. 7
8	Setting Up Hypotheses — three scenarios: caffeine content, hospital stay, fill machine	15	Ch. 8
9	One-Sample t-Test — resting heart rate of cardiac rehab patients ($n=18$)	15	Ch. 8
10	p-Value Interpretation — two-sided p-value; decision at $\alpha=0.05$ and $\alpha=0.10$; one-sided p-value	10	Ch. 8
11	Wilson's CI; pooled vs. unpooled proportion; large-sample conditions	10	Ch. 7–8
TOTAL (Q1–Q10 = 110 pts)		110	