

Stat 515 — Practice Exam 2: Topic & Point Summary

Ott & Longnecker, 7th ed. | Chapters 4, 5, 7, 10 — Sampling Distributions, Confidence Intervals, Hypothesis Testing

#	Topic & Context	Points	Chapter — Section (pages)
1	Central Limit Theorem — conditions for CLT; verifying independence in practice	8	Ch. 4 — §4.11–4.12 (pp. 187–200); CLT p. 197
2	Normal Approximation to Binomial — defective light bulbs ($n=250$, $p=0.08$)	10	Ch. 4 — §4.13 (pp. 200–203)
3	Normal Probability (Q–Q) Plot — reading a normal quantile plot to check the normality condition	10	Ch. 4 — §4.14 (pp. 203–208); applied in §7.2 (Fig. 7.6, p. 373)
4	Interpreting a CI — two common misinterpretation errors (adult sodium intake study) in practice exam	12	Ch. 5 — §5.2 (pp. 235–240)
5	Sample Size Determination — for mean (± 2 min, 95%) and proportion (± 0.04 , 90%)	8	Ch. 5 — §5.3 (pp. 240–242); Ch. 10 — §10.2 (pp. 487–488)
6	Setting Up Hypotheses — three scenarios: caffeine content, hospital stay, fill machine	15	Ch. 5 — §5.4 (pp. 242–255)
7	Definitions — significance level (α) and Type I error	10	Ch. 5 — §5.4 (pp. 242–255); §5.6 (pp. 257–260)
8	p-Value Interpretation — two-sided p-value; decision at $\alpha=0.05$ and $\alpha=0.10$; one-sided p-value	10	Ch. 5 — §5.6 (pp. 257–260)
9	One-Sample t-Test — resting heart rate of cardiac rehab patients ($n=18$)	15	Ch. 5 — §5.7 (pp. 260–269)
10	CI for Variance — normality assumption; robustness; definition of robustness	10	Ch. 7 — §7.2 (pp. 368–376); robustness defined §5.8 (p. 269)
11	CI for Proportion — constructing 95% CI (student sleep survey, $n=980$)	12	Ch. 10 — §10.2 (pp. 483–485)
12	Wilson's (WAC) CI for a proportion; large-sample conditions for the normal approximation	10	Ch. 10 — §10.2 (pp. 485–487)
TOTAL (Q1–Q12 = 120 pts)		120	