

**Statistics 2500–001**  
Exam Information and Course Review

**Exam Information: VALID PHOTO REQUIRED**

**Time, Place:** Wed., Dec. 16, noon–2pm. PE–2000

**What to bring:** Pencil, pen, calculator.

**Not Permitted:** Textbook or any other notes.

**Formula Sheet, Tables:** Will be provided. Formula sheet is posted on the course website.

**Format:** True/False questions (15%–20%), long answer questions (80%–85%). **THERE IS NOTHING ABOUT MINITAB ON THE EXAM.**

**COURSE TOPICS, ASSOCIATED BOOK SECTIONS FOR EXAM**

**NOTE: THIS LIST OVERRULES ANY TOPICS LISTED OR NOT LISTED ON THE ORIGINAL COURSE SYLLABUS.**

Types of variables, sampling (1–2:1–4); frequency distributions, histograms, ogives, shapes of distributions, Pareto charts, stem-and-leaf plots (2–2:2–4).

Data Description: mean, median, range, variance, standard deviation; Chebyshev and Empirical rules; percentiles, boxplots (3–1:3–5).

Probability: Sample Spaces, basic concepts, complementary events (4–2).

Addition Rule, Mutually Exclusive Events (4–3).

Conditional probability, multiplicative rules, independent events (4–4).

Discrete Probability Distributions: Discrete random variables, probability distributions, mean, variance of discrete r.v.'s (5–2, 5–3); binomial distribution (5–4).

Normal Distribution: Properties, Standard Normal distribution, using the normal distribution table, z-scores (6–2:6–4). Assessing normality (6–4). Central Limit Theorem (6–5).

Confidence Intervals: For  $\mu$ , large sample size. Also finding sample sizes (7–2).

For  $\mu$ , small sample size. Using the t-table (7–3).

For  $p$ , large sample size; finding sample sizes (7–4).

Hypothesis Testing: Elements of testing (hypothesis, test statistic, etc.). (8–2)

Hypothesis tests about single  $\mu$ : Procedure, etc.: large sample (8–3), small sample (8–4).

P-values: definition, rules, how to calculate (8–3).

Test about a single proportion  $p$  (large sample): procedure, etc. (8–5)

Relationship between CIs, hypothesis testing (8–7).

Testing difference between 2 means:

Hypothesis tests when sample sizes large or small (9.2, 9.4): procedure, etc.; Dependent data (paired data) (9.5): procedures, etc.

Correlation and Regression:

Explanatory, response variables; positive and negative relationship (10–1); scatter plots (10–2)

Correlation: definition, properties (no hypothesis testing) (10–3);

Regression: line of best fit (least squares line), prediction, extrapolation (10–4); residuals (10–5).

Goodness of fit test, using  $\chi^2$  table (11–2).