

300:511

Course Outline

Fall, 2011

Title: Quantitative Research Methods in Education I: Introduction

Instructor: Douglas A. Penfield (932-7496 x8324) - Rm. 324 (GSE)
E-mail: douglas.penfield@gse.rutgers.edu

Time: Wednesday, 4:50-7:30 PM **Place:** GSE - Room 208

Book: Fundamentals of Statistical Reasoning in Education
Coladarci/Cobb/Minium/Clarke
John Wiley & Sons (3rd ed.) (2011)

SPSS Student Version 19.0

Statistics Laboratory: Rm. 304 in the GSE

Exams: Midterm - Oct. 19 Final - Dec. 14

Schedule of Lectures

- Sept. 07 Introduction, Variable Types, Scales of Measurement,
Summation Notation, Frequency Distributions
(Chap. 1; Pages 11; Questions 1, 2, 4)
(Chap. 2; Pages 32-35; Questions 3, 4, 7(a,b), 8, 12)
- Sept. 14 Graphing, Histogram, Frequency Polygon, Box Plot,
Measures of Central Tendency
(Chap. 3; Pages 53-54; Questions 3, 4, 6, 8, 9)
(Chap. 4; Pages 67-69; Questions 2, 3, 6, 7, 10, 12)
- Sept. 21 Measures of Variability, Effect Size,
Normal Distribution, Standard Scores(z), T Scores
(Chap. 5; Pages 84-98; Questions 2, 3, 4, 6,
11(use SPSS), 14)
(Chap. 6; Pages 110-112; Questions 2, 3, 5, 6, 7(a,b),
8(a,b), 9(a,b), 10(a,b), 11(a,b), 13)
- Sept. 28 Scatterplots, Correlation, Covariance, Coefficient of
Determination
(Chap. 7; Pages 141-142; Questions 3, 3(use SPSS), 4,
4(use SPSS), 6(use SPSS), 9)
- Oct. 05 Regression, Prediction, Standard Error of Estimate,
Causation
(Chap. 8; Pages 168-172; Questions 1(use SPSS), 4,
6(use SPSS), 12(a,b), 13(a,b,c))

- Oct. 12 Probability, Addition Rule, Multiplication Rule,
Sampling Distribution of Means, Standard Error of the
Mean
(Chap. 9; Pages 187-190; Questions 5, 7, 9, 15, 18)
(Chap. 10; Pages 211-213; Questions 1, 9, 10, 11, 14)
- Oct. 19 **Midterm**
- Oct. 26 Introduction to Hypothesis Testing, Type I Error,
Type II Error, Power, One Sample z Test for Means,
Confidence Intervals, Margin of Error
(Chap. 11; Pages 237-239; Questions 3, 4, 8, 9, 15, 16,
18)
(Chap. 12; Pages 253-254; Questions 1, 2, 5, 8, 10)
- Nov. 02 One Sample t Test for Means, Two Independent Sample Tests
for Means, Explained Variance
(Chap. 13; Pages 271-274; Questions 3, 6, 8, 9, 10, 11,
12(a,c), 13, 15)
(Chap. 14; Pages 297-300; Questions 7, 8, 8(use SPSS),
10, 14, 15)
- Nov. 09 Dependent Samples t Test for Means, Confidence Intervals,
(Chap. 15; Pages 314-317; Questions 3(use SPSS), 6, 7,
12(use SPSS))
- Nov. 16 One-Way Analysis of Variance, Tukey's Test, Effect Size
(Chap. 16; Pages 343-346; Questions 4, 6, 8,
12(use SPSS), 13(use SPSS), 17)
- Nov. 30 Pearson Correlation Test, Interval Estimation, Chi-Square
Tests
(Chap. 17; Pages 361-364; Questions 2(a,b), 4, 6(a,d), 8,
9(a,d), 15)
(Chap. 18; Pages 388-392; Questions 3, 5, 7, 10(use SPSS),
14(use SPSS))
- Dec. 07 Power, Type II Error, Effect Size; Review
(Chap. 14)
- Dec. 14 **Final**

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