GEO204 reading list, spring 2018

Peter A. Rogerson (2015): Statistical Methods for Geography - A Student's Guide (fourth edition). Sage publishing

Appendix B: Mathematical conventions and notation

Chapter 1: Introduction to Statistical Methods for Geography

- 1.1 Introduction
- **1.2 The Scientific Method**
- 1.3 Exploratory and Confirmatory Approaches in Geography
- 1.4 Probability and Statistics
  - 1.4.1 Probability
  - 1.4.2 Statistics
  - 1.4.4 Geographical Applications of Probability and Statistics
    - 1.4.4.1 Are housing prices lower near airports?
    - 1.4.4.2 Do two places differ in terms of air quality?
- **1.5 Descriptive and Inferential Methods**
- 1.6 The Nature of Statistical Thinking

Chapter 2: Descriptive Statistics

- 2.1 Types of data
- 2.2 Visual Descriptive Methods
- **2.3 Measures of Central Tendency**
- **2.4 Measures of Variability**
- 2.5 Other Numerical Measures for describing Data
  - 2.5.1 Coefficient of Variation
  - 2.5.2 Skewness
  - 2.5.3 Kurtosis
  - **2.5.4 Standard Scores**
- **2.7 Descriptive Statistics in SPSS 21 for Windows**

Chapter 3: Probability and Discrete Probability Distributions

- 3.1 Introduction
- 3.2 Sample Spaces, Random Variables, and Probabilities
- 3.3 Binomial Processes and the Binomial Distribution
- 3.4 The Geometric Distribution
- 3.5 The Poisson Distribution
- 3.7 Binomial Tests in SPSS 21 for Windows

Chapter 4: Continuous Probability Distributions and Probability Models

- 4.1 Introduction
- 4.2 The Uniform or Rectangular Distribution
- **4.3 The Normal Distribution**
- 4.4 The Exponential Distribution
- 4.5 Summary of Discrete and Continuous Distributions

Chapter 5: Inferential Statistics: Confidence Intervals, Hypothesis Testing, and Sampling

- 5.1 Introduction to Inferential Statistics
- 5.2 Confidence Intervals
- 5.3 Hypothesis Testing
  - **5.3.1 Hypothesis Testing and One-Sample z-Test of the Mean**
  - 5.3.2 One-Sample t-Test
  - **5.3.4 Two-Sample Tests: Differences in Means**
  - 5.3.6 Type II Errors and Statistical Power
- 5.4 Distributions of the Random Variable and Distributions of the Test Statistic
- 5.6 Further Discussions of the Effects of Deviations from the Assumptions
- 5.7 Sampling
  - 5.7.2 Sample Size Considerations
- 5.9 One-Sample Tests of Means in SPSS 21 for Windows
- **5.10 Two-Sample t-Tests in SPSS 21 for Windows**
- **5.11 Two-Sample t-Tests in Excel**

Chapter 6: Analysis of Variance

- 6.1 Introduction
- 6.2 Illustrations
- 6.3 Analysis of Variance with two Categories
- 6.4 Testing the Assumptions
- 6.5 Consequences of Failure to meet Assumptions
- 6.6 Implications for Hypothesis Tests when Assumptions are not met
- 6.10 One-Way ANOVA in SPSS for Windows
- 6.11 One-Way ANOVA in Excel

Chapter 7: Correlation

- **7.1 Introduction and Examples of Correlation**
- 7.2 More Illustrations
- 7.3 A Significance Test for *r*
- 7.4 The Correlation Coefficient and Sample Size
- **7.7 Correlation in SPSS 21 for Windows**
- **7.8 Correlation in Excel**

Chapter 8: Introduction to Regression Analysis

8.1 Introduction

8.9 Regression in SPSS 21 for Windows

8.10 Regression in Excel

Chapter 9: More on Regression

9.1 Multiple Regression

Chapter 12: Data Reduction: Factor Analysis and Cluster Analysis

12.1 Introduction

12.2 Factor Analysis and Principal Components Analysis