

**SINCLAIR COMMUNITY COLLEGE
DAYTON, OHIO**

**MATERIALS AVAILABLE FOR
MATH 220 - STATISTICS II
JANUARY 3, 2011**

IX. Hypothesis Tests

1. Developing Null and Alternative Hypotheses

Statistics CD Lecture 9 “The Language of Hypothesis Testing”
VCOMAP Tape 38 Part B “Significance Tests”
EV 8034 “Hypothesis Testing”
VSM-Carruth “220 Prerequisite Review - Tape 2”
VSM-Carruth “Standard and Non-standard Tests of Hypotheses”

2. Type I and Type II Errors

Statistics CD Lecture 9 “The Language of Hypothesis Testing”
VCOMAP Tape 38 Part B “Significance Tests”
EV 8034 “Hypothesis Testing”
VSM-Carruth “220 Prerequisite Review - Tape 2”
VSM-Carruth “Standard and Non-standard Tests of Hypotheses”

3. Population Mean: σ Known

Statistics CD Lecture 9 “Testing a Hypothesis about μ with σ Known”
VSM-Carruth “Standard and Non-standard Tests of Hypothesis”
EV 8035 “Hypothesis Tests About Means”
VSM- Carruth “220 Prerequisite Review - Tape 2”
VCOMAP Tape 38 Part B “Significance Tests”

4. Population Mean: σ Unknown

VSM-Carruth “Standard and Non-standard Tests of Hypotheses”
Statistics CD Lectures 9 “Testing a Hypothesis about μ with σ Known”
“Testing a Hypothesis about μ with σ Unknown”

5. Population Proportion

Statistics CD Lectures 9 “Testing a Hypothesis about the Population
Proportion”
EV 8037 “Hypothesis Tests of Proportions”

6. Hypothesis Testing and Decision Making

7. Calculating the Probability of Type II Errors

Statistics CD Lectures 9 “Probability of a Type II Error; The Power of the Test”

HANDOUT “Calculating β ”

8. Determining the Sample Size for a Hypothesis Test About a Population Mean

X. Inference about Means and Proportions with Two Populations

1. Inferences about the Difference between Two Population Means: σ_1 and σ_2 Known

Statistics CD Lectures 10 “Inference About Two Means: Independent Samples”

VCOMAP Tape 39 Part B “Comparing Two Means”

2. Inferences about the Difference between Two Population Means: σ_1 and σ_2 Unknown

Statistics CD Lectures 10 “Inference About Two Means: Independent Samples”

VCOMAP Tape 39 Part B “Comparing Two Means”

XI. Inferences about Population Variances

2. Inferences about Two Population Variances

Statistics CD Lectures 10 “Inference About Two Population Standard Deviations”

X. Inference about Means and Proportions with Two Populations

3. Inferences about the Difference between Two Population Means: Matched Samples

Statistics CD Lectures 10 “Inference About 2 Means: Dependent Samples”

VCOMAP Tape 39 Part A “Inference For One Mean”

EV 8043 “Confidence Intervals - Hypothesis Tests III”

XIX. Nonparametric Methods (optional if less than 22 classes)

2. The Wilcoxon Signed-Rank Test

Statistics CD Lectures 13 “An Overview of Nonparametric Statistics”
HANDOUT “Notes: Non-Parametric Statistics”

X. Inference about Means and Proportions with Two Populations

4. Inferences about the Difference between Two Population Proportions

Statistics CD Lectures 10 “Inference about 2 Population Proportions”
VCOMAP Tape 40 Part A “Inference for Proportions”

XII. Tests of Goodness of Fit and Independence

1. Goodness of Fit Test: A Multinomial Population

Statistics CD Lectures 11
EV 8049 “Goodness of Fit” (Pearson X^2 statistic for categorical data)
HANDOUT “Notes: X^2 ”

2. Test of Independence

Statistics CD Lectures 11
VCOMAP Tape 40 Part B “Inference for Two-Way Tables”
EV 8051 “Two Variable Goodness of Fit and Independence”
HANDOUT “Notes: X^2 ”

XIII. Experimental Design and Analysis of Variance

1. An Introduction to Experimental Design and Analysis of Variance

VCOMAP Tape 35 Part A “Blocking and Sampling”

2. Analysis of Variance and the Completely Randomized Design

VCOMAP Tape 35 Part A “Blocking and Sampling”
WORKSHEET “Analysis of Variance (ANOVA) – Single Factor”

XIX. Nonparametric Methods (optional if less than 22 classes)

4. Kruskal-Wallis Test

Statistics CD Lectures 13 “An Overview of Nonparametric Statistics”
“Kruskal-Wallis Test of One-Way ANOVA”
HANDOUT “Notes: Non-Parametric Statistics”

XIII. Experimental Design and Analysis of Variance

3. Multiple Comparison Procedures

Statistics CD Lectures 12 “One-Way Analysis of Variance”
EV 8053 “One-Way Analysis of Variance”

5. Factorial Experiment

WORKSHEET “Factorial Analysis of Variance (ANOVA)”

XIV. Simple Linear Regression

HANDOUT “Linear Regression”

1. Simple Linear Regression Model

VCOMAP Tape 32 Part B “Describing Relationships”
VCOMAP Tape 41 Part A “Inference for Relationships”

2. Least Squares Method

Statistics CD Lectures 4 “Least Squares Regression”
EV 8045 “Linear Regression”
VCOMAP Tape 41 Part A “Inference for Relationships”

4. Model Assumptions

Statistics CD Lectures 4 “Least Squares Regression”
EV 8045 “Linear Regression”

5. Testing for Significance

Statistics CD Lectures 4 “Least Squares Regression”
EV 8045 “Linear Regression”

6. Using the Estimated Regression Equation for Estimation and Prediction

Statistics CD Lectures 4 “Least Squares Regression”
“Diagnostics on the Least-Squares Regression Line”
Statistics CD Lectures 12 “Confidence and Prediction Intervals”
EV 8048 “Prediction Intervals”

7. Computer Solution

HANDOUT “Linear Regression”

8. Residual Analysis: Validating Model Assumptions

Statistics CD Lectures 4 “Least Squares Regression”
“Diagnostics on the Least-Squares Regression Line”

XV. Multiple Regression

WORKSHEET “Linear Regression”

- 1. Multiple Regression Model**
- 2. Least Squares Method**
- 4. Model Assumptions**
- 5. Testing for Significance**
- 6. Using the Estimated Regression Equation for Estimation and Prediction**
- 7. Categorical Independent Variables**