

MAUI COMMUNITY COLLEGE  
COURSE OUTLINE

1. ALPHA AND NUMBER: PSY 213  
COURSE TITLE: Statistical Techniques  
NUMBER OF CREDITS: Four (4)  
DATE OF OUTLINE: February 2004
2. COURSE DESCRIPTION: Teaches students to interpret statistics successfully by providing sound decision-making skills in analyzing various research and applied statistical problems found throughout the psychological discipline. Examines descriptive statistics, z-test, t-tests, F tests, chi square tests, and correlational and regression analyses. Explains ANOVA. Denotes uses and abuses of statistics.
3. CONTACT HOURS PER WEEK: Lecture/Discussion: Three (3); Lab: Three (3)
4. PREREQUISITES: PSY 100 with a C or better;  
MATH 100/115 with a at least a C; or consent.  
COREQUISITES: None  
RECOMMENDED PREPARATION: None

APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

Note: Formerly PSY 210

**Received March 2004  
Under Amnesty Program  
SLOs Updated & Linked To Content  
COWIQ Grid Prepared**

## 5. GENERAL COURSE OBJECTIVES

To develop a working understanding of general terminology in a basic psychological statistics class, decision-making skills necessary to interpret psychological data, and application of this knowledge to other types of psychological research.

This class focuses on the following five general education standards:

- 1.4 Express a main idea as a thesis, hypothesis, or other appropriate statement.
- 1.5 Demonstrate a mastery of the conventions of writing, including grammar, spelling, and mechanics.
- 2.1 Apply numeric, graphic, symbol, skills, and other forms of quantitative reasoning accurately and appropriately
- 2.2 Demonstrate mastery of mathematical concepts, skills, and applications, using technology when appropriate.
- 2.3 Communicate clearly and concisely the methods and results of quantitative problem solving.
- 2.4 Define quantitative issues and problems, gather relevant information, analyze the information, and present results.
- 2.5 Define quantitative issues and problems, gather relevant information, analyze that information, and present results.
- 2.6 Assess the validity of statistical conclusions.
- 5.3 Formulate research questions that require descriptive and explanatory analysis.
- 5.4 Recognize and understand multiple modes of inquiry, including investigative methods based on observation and analysis.
- 5.5 Evaluate a problem, distinguishing between relevant and irrelevant facts, opinions, assumptions, issues, values, and biases.
- 5.8 Communicate clearly and concisely the methods and results of logical reasoning.

## 6. STUDENT LEARNING OUTCOMES:

Upon completion of this course, including the lab portion, the student will be able to:

- a. Learn how to develop and implement a "good" questionnaire.
- b. Differentiate between sample statistics from population parameters.
- c. Describe at least three types of sample data.
- d. List at least five ways of misusing and abusing the application of statistics.
- e. Compute measures of central tendency and measures of variability for simple data sets.
- f. Compare and contrast the different types of descriptive statistics and be able to appropriately apply each to a given situation.
- g. Examine graphs and appraise their interpretative meaning.
- h. Explain basic probability theory. Assess its importance in interpreting inferential statistics.
- i. Explain the importance of the Gaussian (normal) distribution.
- j. Calculate and illustrate the areas under a normal curve.
- k. Compare and contrast standard deviation and standard error of the mean.
- l. Identify and differentiate the following related terms: level of confidence, interval estimate, confidence interval.
- m. Explain hypothesis-testing in various types of research studies.
- n. Define the steps in hypothesis testing.
- o. Apply statistical tests (z, t, and F tests) to different statistical data sets within hypothesis testing.
- p. Explain ANOVA.
- q. Identify the difference between parametric and nonparametric statistics.
- r. Explain Chi Square testing and when it is appropriately used.
- s. Compare and contrast correlational and regression analysis and apply each to different data sets.
- t. Use a statistical computer program to calculate statistical tests, draw pictures of data, and determine significance.
- u. Define psychological terms and concepts and apply them to everyday situations.
- v. Write an APA-style statistical paper.

## 7. RECOMMENDED COURSE/LAB CONTENT

2 Weeks	Introduction, Project, Questionnaire Development (a, b, c, d, u, v)
1 Week	Graph Interpretation (g, t, u, v)
2 Weeks	Measures of Central Tendency Measures of Variability (e, f, t, u, v)
2 Weeks	Transforming Data, Probability, Probability Distributions (h, i, j, t, u, v)
1 Week	Sampling and Estimation (k, t, u, v)
3 Weeks	Hypothesis Testing (l, m, n, o, p, q, t, u, v)
1 Week	Chi Square (r, t, u, v)
2 Weeks	Correlation and Regression (s, t, u, v)
2 Weeks	Evaluation (quizzes, project, presentation, homework)

## 8. RECOMMENDED COURSE/LAB REQUIREMENTS

Specific course/lab requirements are at the discretion of the instructor at the time the course is being offered. Suggested requirements might include, but are not limited to:

Examinations, In-class exercises, Lab exercises, Homework, Quizzes, Projects/research, Attendance/Class participation, Portfolio, Oral Presentation

## 9. TEXT AND MATERIALS:

An appropriate text(s) and materials will be chosen at the time the course is to be offered from those currently available in the field. Examples include:

Texts: Statistics: A First Course by D. Sanders  
Ready, Set, Go! by T. Pavkov, K. Pierce  
Statistics with a Sense of Humor by F. Pyrczak

Materials:

Other:

Study Guide Packet by instructor; appropriate films, videos, or internet sites; Television programs; Guest speakers; Other instructional aids

## 10. EVALUATION AND GRADING

Written or oral examinations	25-80%
Class and Lab exercises	0-30%
Homework assignments	0-30%
Quizzes	0-20%
Projects or research (written reports and/or class presentations)	25-30%
Attendance and/or class participation	0-30%
Development of a Portfolio	0-20%
Service Learning	0-20%

## 11. METHODS OF INSTRUCTION

Instructional methods vary considerably with instructor's teaching style and students learning style. Thus, specific instructional methods will be at the discretion of the instructor teaching the course. Suggested techniques might include, but are not limited to:

Lecture, problem solving and class exercises or readings  
Class discussions or guest lecturers  
Audio, visual presentations  
Internet usage  
Student class presentations  
Group or individual projects  
Lab demonstrations and exercises  
Other contemporary learning techniques (e.g. service learning)

# Assessment of Student Learning Outcomes

## PSYCHOLOGY

	PSY 100	PSY 103	PSY 170	PSY 202	PSY 213	PSY 214	PSY 240	PSY 250	PSY 251	PSY 263	PSY 260	PSY 290V
<b>Standard 1 - Written Communication</b>												
<b>Outcome 1.1 - Use writing to discover and articulate ideas.</b>	1	1	1	2	1	1	2	2	2	2	3	
<b>Outcome 1.2 - Identify and analyze the audience and purpose for any intended communication.</b>	0	1	0	1	0	2	1	0	0	0	0	
<b>Outcome 1.3 - Choose language, style, and organization appropriate to particular purposes and audiences.</b>	0	3	0	2	2	3	1	0	0	0	0	
<b>Outcome 1.4 - Gather information and document sources appropriately.</b>	2	3	1	2	3	3	2	2	2	2	3	
<b>Outcome 1.5 - Express a main idea as a thesis, hypothesis, or other appropriate statement.</b>	1	3	1	2	3	3	2	1	1	1	1	
<b>Outcome 1.6 - Develop a main idea clearly and concisely with appropriate content.</b>	1	2	0	2	2	2	2	2	2	2	2	
<b>Outcome 1.7 - Demonstrate a mastery of the conventions of writing, including grammar, spelling, and mechanics.</b>	1	2	0	2	2	3	2	1	1	1	2	
<b>Outcome 1.8 - Demonstrate proficiency in revision and editing.</b>	0	2	0	2	1	2	2	0	0	0	0	
<b>Outcome 1.9 - Develop a personal voice in written communication.</b>	0	0	3	3	0	0	2	3	3	2	3	

PSYCHOLOGY

	PSY 100	PSY 103	PSY 170	PSY 202	PSY 213	PSY 214	PSY 240	PSY 260	PSY 261	PSY 263	PSY 260	PSY 290V
<b>Standard 2 - Quantitative Reasoning</b>												
<b>Outcome 2.1 - Apply numeric, graphic, and symbolic skills and other forms of quantitative reasoning accurately and appropriately.</b>	0	2	0	0	3	3	0	0	0	0	0	0
<b>Outcome 2.2 - Demonstrate mastery of mathematical concepts, skills, and applications, using technology when appropriate.</b>	0	1	0	0	3	3	0	0	0	0	0	0
<b>Outcome 2.3 - Communicate clearly and concisely the methods and results of quantitative problem solving.</b>	1	3	0	1	3	3	1	0	0	0	0	0
<b>Outcome 2.4 - Formulate and test hypotheses using numerical experimentation.</b>	0	1	0	0	3	3	0	0	0	0	0	0
<b>Outcome 2.5 - Define quantitative issues and problems, gather relevant information, analyze that information, and present results.</b>	0	3	0	0	3	3	0	0	0	0	0	0
<b>Outcome 2.6 - Assess the validity of statistical conclusions.</b>	1	1	0	1	3	3	1	0	0	0	0	0

PSYCHOLOGY

	PSY	100	170	202	213	214	240	250	251	253	260	290V
<b>Standard 3 - Information Retrieval and Technology</b>												
<b>Outcome 3.1 - Use print and electronic information technology ethically and responsibly.</b>	1	2	1	1	3	2	1	1	1	1	1	1
<b>Outcome 3.2 - Demonstrate knowledge of basic vocabulary, concepts, and operations of information retrieval and technology.</b>	1	2	1	1	3	2	1	1	1	1	1	1
<b>Outcome 3.3 - Recognize, identify, and define an information need.</b>	2	2	2	1	2	2	1	2	2	1	2	2
<b>Outcome 3.4 - Access and retrieve information through print and electronic media, evaluating the accuracy and authenticity of that information.</b>	2	3	1	2	3	1	2	2	2	2	2	2
<b>Outcome 3.5 - Create, manage, organize, and communicate information through electronic media.</b>	0	1	1	0	2	2	0	1	1	0	1	1
<b>Outcome 3.6 - Recognize changing technologies and make informed choices about their appropriateness and use.</b>	1	1	2	1	2	2	1	2	2	1	2	2

PSYCHOLOGY

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<b>Standard 4 - Oral Communication</b>														
<b>Outcome 4.1 - Identify and analyze the audience and purpose of any intended communication.</b>	1	2	1	2	2	2	1	1	1	2	1	2	1	
<b>Outcome 4.2 - Gather, evaluate, select, and organize information for the communication.</b>	2	2	1	2	2	2	1	2	2	2	2	2	2	
<b>Outcome 4.3 - Use language, techniques, and strategies appropriate to the audience and occasion.</b>	2	1	1	2	1	1	1	1	1	1	3	3	1	
<b>Outcome 4.4 - Speak clearly and confidently, using the voice, volume, tone, and articulation appropriate to the audience and occasion.</b>	2	2	1	2	2	2	1	2	2	3	3	2	2	
<b>Outcome 4.5 - Summarize, analyze, and evaluate oral communications and ask coherent questions as needed.</b>	1	2	1	2	2	2	1	2	2	3	3	2	2	
<b>Outcome 4.6 - Use competent oral expression to initiate and sustain discussions.</b>	1	1	1	2	2	2	1	2	2	3	3	2	2	



PSYCHOLOGY

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<b>Standard 5 - Critical Thinking</b>												
<b>Outcome 5.1 - Identify and state problems, issues, arguments, and questions contained in a body of information.</b>	1	3	2	2	2	3	2	3	3	2	2	2
<b>Outcome 5.2 - Identify and analyze assumptions and underlying points of view relating to an issue or problem.</b>	2	2	3	3	2	2	2	3	3	2	3	
<b>Outcome 5.3 - Formulate research questions that require descriptive and explanatory analyses.</b>	0	3	0	1	3	3	0	0	0	0	0	0
<b>Outcome 5.4 - Recognize and understand multiple modes of inquiry, including investigative methods based on observation and analysis.</b>	2	3	2	2	3	3	2	2	2	2	2	2
<b>Outcome 5.5 - Evaluate a problem, distinguishing between relevant and irrelevant facts, opinions, assumptions, issues, values, and biases through the use of appropriate evidence.</b>	2	3	3	2	3	3	2	3	3	2	2	2
<b>Outcome 5.6 - Apply problem-solving techniques and skills, including the rules of logic and logical sequence.</b>	1	2	3	0	2	2	1	2	2	1	2	
<b>Outcome 5.7 - Synthesize information from various sources, drawing appropriate conclusions.</b>	2	2	2	3	2	2	2	2	2	2	2	3
<b>Outcome 5.8 - Communicate clearly and concisely the methods and results of logical reasoning.</b>	1	2	2	0	3	2	1	2	2	1	2	2
<b>Outcome 5.9 - Reflect upon and evaluate their thought processes, value system, and world views in comparison to those of others.</b>	2	1	3	3	1	1	2	3	3	3	3	3