PSY/CJ 315: Behavioral Sciences Statistics

Instructor:	**Joe Allen, Ph.D.**	**Spring 2014**
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Office:	**Behavioral Sciences #109**	
Office Hours:	**By appt.**	
Course Prereq:	**None. Open to non-majors.**	

CATALOG COURSE DESCRIPTION:
This course provides an introduction to the methods and rules for organizing and interpreting observations; descriptive and inferential statistics, including frequency distributions, hypothesis testing, simple analysis of variance, estimation, and Chi-Square.

PROGRAM LINKING STATEMENT:
This course develops and assesses the skills and competencies for the program student learning outcome of the Scientific Method and its Application in the Field of Psychology/Criminal Justice.

COURSE DESCRIPTION:
This course will be presented using a variety of methods, primarily through lecture and group discussions and exercises, often employing instructional aids like PowerPoint and other audio/visual material. The assigned textbook for the course is: *Gravetter & Wallnau. Essentials of Statistics for the Behavioral Sciences, 8th ed.* Cengage, 2014. Additional reading materials will also be assigned to supplement the textbook.

The purpose of this course is to provide the student with the fundamental building blocks necessary to conduct and analyze statistical research. Social science research, or the study of people and things around us, consists of many different parts—statistics is just one of these parts, albeit a very important one.

Ever-increasingly, functioning in today's society requires individuals to be proficient in interpreting and conducting statistical research; this course will enable students to become more skilled in these areas which by today's standards are not considered to be so technical anymore. Specific material to be covered throughout the course include: the analysis, presentation and interpretation of descriptive statistics including, measures of central tendency and variability, probability, sampling; and the analysis, presentation and interpretation of inferential statistics including items such as, t-tests, analysis of variance, significance, correlation, and regression analysis.

This course is the first of a two-part sequence in behavioral sciences research required of all majors in Psychology. The sequence intends to introduce the student to behavioral & social sciences research methods (i.e., research design and statistical analysis of data). In PSY 315, students will be introduced to the basics of data measurement, descriptive and inferential statistical techniques used to analyze research data, and proper interpretation and write-up of results.

The analysis of statistics is dictated by being able to manage and process data through the use of computers. Much of our understanding of the current world through statistics is just a button-click away, whereas a few decades ago, these same types of functions would have taken days and even weeks to perform. Thus, in order to better understand statistical methods, these concepts will be introduced in conjunction with statistical software. The "Statistical Package for the Social Sciences" (SPSS) software will be used for analyzing & interpreting quantitative data.

The student will create his/her own survey instrument in order to provide a hands-on experience in survey methods; the collected data will also serve as a backdrop for statistical analysis assignments using the SPSS program.

STUDENT LEARNING OUTCOMES:

Upon successful completion of this course, the student will have a demonstrable understanding of:

1. The difference between populations and samples, and what is associated with each in terms of research issues and statistical techniques.
2. Variables types and levels of measurement.
3. The various types of descriptive statistics used in social science research, and how to produce these types of statistics in order to summarize and analyze data.
4. The various statistics and techniques used to assess relationships between variables.
5. The use and proper application and interpretation of inferential statistics in conjunction with hypothesis-testing.
6. The proper presentation and interpretation of data in graph and table form.
7. The application of SPSS in terms of proper data entry, coding of variables, performing statistical functions, and producing output for analysis.
8. The methods of writing-up research results in a logical manner and in a suitable format for the social sciences.
9. Ability to apply the scientific method to the study of human behavior in various environmental contexts.

ASSESSMENT:

- **Quizzes.** These quizzes are non-cumulative and will be administered every 2-3 weeks and will usually cover 2-3 chapters of material at a time.

- **Written/Data assignments.** These assignments will range between 1-3 pages. The assignments will generally focus on interpretation and analysis of data performed using SPSS. Due dates for assignments will be determined at the beginning of the individualized study period. Assignments, unless noted otherwise, must include the SPSS printout associated with the analysis and interpretation. Write-up of results must be typed and formatted.

- **Homework assignments.** Homework assignments will focus on problems presented in the textbook at the end of each chapter, supplementary handouts given in class, etc. For these assignments, the instructor will ask the student to complete select problems in chapters coinciding with textbook materials read/covered during that timeframe. Dates for homework assignments are not listed in the syllabus as the timing will often be based on the student's individual progress throughout. Basically though, the instructor will assign chapter problems during the week prior of their completion due date.

- **Midterm Examinations.** These exams are non-cumulative and will only include materials covered in the specified sections. The exam contents will correspond highly with materials covered and tested in the quizzes.

- **Final Examination.** This exam is cumulative though it will focus heavily on materials covered subsequent to the preceding midterm. The final will include materials covered throughout the entire semester.

GRADING SYSTEM:
The class will be graded on a curve. For this curve, a standardized grading system will be used in the previous term:

A = 90-100% (of highest point total received)
B = 80-89%
C = 70-79%
D = 60-69%
F = 59% and below

Point Distribution & Scoring System:

Activity/Assignment	% of Final Grade	Point distribution
Quizzes	15%	90
Writing/Data Assignments/Homework	25%	150
Midterm Examinations	30%	180
Final examination	20%	120
Participation (communication, mtgs., deadlines)	10%	60
	100%	**600**

As a policy, the curve for this course will not exceed a straight 90-80-70-60 curve

COURSE PARTICIPATION:

- **Regular Course Participation:** The student is expected to meet with the instructor weekly or communicate via e-mail or phone weekly if the off-island. If the student is unable to meet on the scheduled date, an alternative date must be set up with the instructor.

STUDENTS WITH DISABILITIES:
Chaminade will provide assistance for any student with documented disabilities. Any student who believes he/she may need accommodations in this class must contact **Dr. June Yasuhara, 735-4845**, at the Counseling Center (office next to Security) in order to determine if the student meets the requirements for documented disability in accordance with the Americans with Disabilities Act. It is important to contact them as soon as possible so that accommodations are implemented in a timely fashion.

MARIANIST EDUCATIONAL VALUES

The five characteristics of a Marianist Education are:

1. Educate for Formation in Faith
Catholic Universities affirm an intricate relationship between reason and faith. As important as discursive and logical formulations and critical thinking are, they are not able to capture all that can be and ought to be learned. Intellectual rigor coupled with respectful humility provides a more profound preparation for both career and life. Intellectual rigor characterizes the pursuit of all that can be learned. Respectful humility reminds people of faith that they need to learn from those who are of other faiths and cultures, as well as from those who may have no religious faith at all.

2. Provide an Excellent Education
In the Marianist approach to education, "excellence" includes the whole person, not just the technician or rhetorician. Marianist universities educate whole persons, developing their physical, psychological, intellectual, moral, spiritual and social qualities. Faculty and students attend to fundamental moral attitudes, develop their personal talents and acquire skills that will help them learn all their lives. The Marianist approach to education links theory and practice, liberal and professional education. Our age has been deeply shaped by science and technology. Most recently, information and educational technologies have changed the way faculty and students research and teach. At Marianist Universities, two goals are pursued simultaneously: an appropriate use of information technology for learning, and the enhancement of interaction between students and teachers. As Catholic, Marianist Universities seek to embrace diverse peoples and understand diverse cultures, convinced that ultimately, when such people come together, one of the highest purposes of education is realized: a human community that respects every individual within it.

3. Educate in Family Spirit
Known for their strong sense of community, Marianists have traditionally spoken of this sense as "family spirit." Marianist educational experience fosters the development of a community characterized by a sense of family spirit that accepts each person with loving respect, and draws everyone in the university into the challenge of community building. Family spirit also enables Marianist universities to challenge their students, faculty and staff to excellence and maturity, because the acceptance and love of a community gives its members the courage to risk failure and the joy of sharing success.

4. Educate for Service, Justice, and Peace
The Marianist approach to higher education is deeply committed to the common good. The intellectual life itself is undertaken as a form of service in the interest of justice and peace, and the university curriculum is designed to connect the classroom with the wider world. In addition, Marianist universities extend a special concern for the poor and marginalized and promote the dignity, rights and responsibilities of all people.

5. Educate for Adaptation to Change
In the midst of rapid social and technological change, Marianist universities readily adapt and change their methods and structures so that the wisdom of their educational philosophy and spirituality may be transmitted even more fully. "New times call for new methods," Father Chaminade often repeated. The Marianist university faces the future confidently, on the one hand knowing that it draws on a rich educational philosophy, and on the other fully aware for that philosophy to remain vibrant in changing times, adaptations need to be made.

Selected from *Characteristics of Marianist Universities: A Resource Paper*, Published in 1999 by Chaminade University of Honolulu, St. Mary's University and University of Dayton

Each of these characteristics is integrated, to varying degrees, in this course.

SCIENTIFIC METHOD DEFINITIONS

The **METHODS OF SCIENCE** are only tools, tools that we use to obtain knowledge about phenomena.

The **SCIENTIFIC METHOD** is a set of assumptions and rules about collecting and evaluating data. The explicitly stated assumptions and rules enable a standard, systematic method of investigation that is designed to reduce bias as much as possible. Central to the scientific method is the collection of data, which allows investigators to put their ideas to an empirical test, outside of or apart from their personal biases. In essence, stripped of all its glamour, scientific inquiry is nothing more **THAN A WAY OF LIMITING FALSE CONCLUSIONS ABOUT NATURAL EVENTS.**

Knowledge of which the credibility of a profession is based must be objective and verifiable (testable) rather than subjective and untestable.

SCIENCE is a mode of controlled inquiry to develop an objective, effective, and credible way of knowing.

The assumptions one makes regarding the basic qualities of human nature (that is, cognitive, affective, behavioral, and physiological processes) affect how one conceptualizes human behavior.

The two basic functions of scientific approach are 1) advance knowledge, to make discoveries, and to learn facts in order to improve some aspect of the world, and 2) to establish relations among events, develop theories, and this helps professionals to make predictions of future events.

Research Design in Counseling
Heppner, Kivlighan, and Wampold

A **THEORY** is a large body of interconnected propositions about how some portion of the world operates; a **HYPOTHESIS** is a smaller body of propositions. **HYPOTHESES** are smaller versions of theories. Some are derived or born from theories. Others begin as researchers' hunches and develop into theories.

The **PHILOSOPHY OF SCIENCE** decrees we can only falsify, not verify (prove), theories because we can never be sure that any given theory provides the best explanation for a set of observations.

Research Method in Social Relations
Kidder

THEORIES are not themselves directly proved or disproved by research. Even **HYPOTHESES** cannot be proved or disproved directly. Rather, research may either support or fail to support a particular hypothesis derived from a theory.

Scientific research has four general goals: (1) to describe behavior, (2) to predict behavior, (3) to determine the causes of behavior, and (4) to understand or explain behavior.

Methods In Behavioral Research; Cozby

In order to verify the reliability and validity of scientific research it is important to replicate the results. It is the preponderance of evidence that establishes/supports the theory.

http://allpsych.com/researchmethods/replication.html

TERMS OF COURSE REQUIREMENTS:

1. *Late assignments/projects will be discounted an initial 30% and 10% per day after the due date. All late assignments must be turned in within **1** week, otherwise loss of **all** credit will occur.*
2. *Exams and Quizzes are to be taken on the days that they are administered.* Exceptions are to be granted only in extenuating circumstance, otherwise loss of all credit will occur. If you are given the opportunity to take an exam after given in class, you will be given a different exam which may be more comprehensive than the initial one given.
3. *Students will be expected to have read materials prior to each meeting session and completed appropriate assignments.* It is especially important that the student read and do work prior to these meetings due to the breadth of materials covered in such a relatively short period of time.
4. Any instances of academic dishonesty will result in an "FD" (failure for dishonesty) grade for the course and will be subject to the policies and procedures for the college. If you are at all unclear about what constitutes academic dishonesty, refer to catalogued materials.
5. *As a policy, opportunities for extra credit WILL NOT be available. The student begins the course with a perfect score, and will have every opportunity to maintain this score.*
6. The instructor reserves the right to change the schedule of the syllabus when deemed necessary.

University Statement on Academic Honesty

Academic honesty is an essential aspect of all learning, scholarship, and research. It is one of the values regarded most highly by academic communities throughout the world. Violations of the principle of academic honesty are extremely serious and will not be tolerated.

Students are responsible for promoting academic honesty at Chaminade by not participating in any act of dishonesty and by reporting any incidence of academic dishonesty to an instructor or to a University official. Academic dishonesty may include theft of records or examinations, alteration of grades, and plagiarism.

Questions of academic dishonesty in a particular class are first reviewed by the instructor, who must make a report with recommendations to the Dean of the Academic Division. Punishment for academic dishonesty will be determined by the instructor and the Dean of the Academic Division and may range from an 'F' grade for the work in question to an 'F' for the course to suspension or dismissal from the University.

COURSE SCHEDULE CJ/PSY 315

Week	General Topic & Student Schedule	Have Read for Week
1	Course Introduction Introduction to Statistics Averages, Measures of Central Tendency	Text: Ch. 1-2
2-3	**Quiz – Chapters 1-2** Variability Graphic Representations of Data & Distributions	Text: Ch. 3-4
4-5	**Quiz – Chapters 3-4** Correlations	Text: Ch. 5
6	**Midterm Exam #1 – Chapters 1-4** Levels of Measurement, Validity & Reliability	Text: Ch. 6
7-8	Hypotheses **Quiz – Chapters 5-6** Probability	Text: Ch. 7-8
9-10	**Quiz – Chapters 7-8** Statistical Significance	Text: Ch. 9
11	**Midterm Exam #2 – Chapters 5-8** Z Test	Text: Ch. 10
12-13	**Quiz – Chapters 9-10** t Test	Text: Ch. 11-12
14	**Quiz – Chapters 11-12** ANOVA	Text: Ch. 13
15	Correlational Test Statistic Linear Regression *****Final Examination****	Text: Ch. 15-16

The instructor and student will e-mail assignments, notes weekly, usually at the end of each week or beginning (i.e., Sundays or Mondays). Given the course is online, the student will contact the instructor if it is necessary to go over things step-by-step and or if further verbal instruction is seen as beneficial.