

Houston Community College System

PSYC 2317: Statistical Methods in Psychology CRN(s): 48285 and 48286

Spring 12 Week: February 14 – May 17th, 2015

Instructor: Carol L. Watson MA, JD

How to contact the instructor: Please use the quick mail tool on the Eagle Online course homepage to contact the instructor. **PLEASE BE ADVISED THAT RESPONSES TO QUICKMAIL appear on your HCC email account. As such you MUST activate your HCC email to receive emails.**

Also, and very important to your overall success in this course, please visit the DE Student Handbook for policies and procedures, if you have not done so. <u>http://de.hccs.edu/de/de-student-handbook</u> is the site. Please visit it.

Office Hours and location: Students should use the e-mail tool on the Eagle On Line course homepage to contact the instructor. Please do not hesitate to email me regarding any questions or concerns.

Course Semester Credit Hours: 3.0 Credit Hours

HCCS MISSION STATEMENT

The Houston Community College System is an open-admission, public institution of higher education offering associate degrees, certificates, academic preparation, workforce training, and lifelong learning opportunities that prepare individuals in our diverse communities for life and work in an increasingly international and technological society.

COURSE DESCRIPTION

An introduction to the use of scientific methods in psychology and to the statistical

analysis of data. Attention is given to descriptive, and inferential statistical

methodology.

REQUIRED INSTRUCTIONAL MATERIALS

How to access your Aplia course

PSYC 2317 Statistical Methods Psychology SS 2015 Instructor: Carol Watson Start Date: 02/14/2015 What is Aplia?

In just 10 years, more than one billion answers have been submitted through Aplia, the premier online assignment solution. Millions of students use Aplia to better prepare for class and for their exams. Join them today!

Registration

- 1. Connect to http://login.cengagebrain.com/course/2XHF-62JS-YGF9.
- 2. Follow the prompts to register for your Aplia course.

Payment **Payment**

After registering for your course, you will need to pay for access using one of the options below:

Online: You can pay online using a credit or debit card, or PayPal.

Bookstore: You may be able to purchase access to Aplia at your bookstore. Check with the bookstore to find out what they offer for your course.

Free Trial: You can access Aplia until 11:59 PM on 03/06/2015 during your free trial. After the free trial ends you will be required to pay for access.

Please note: At the end of the free trial period, your course access will be suspended until your payment has been made. All your scores and course activity will be saved and will be available to you after you pay for access.

If you already registered an access code or bought Aplia online, the course key to register for this course is: 2XHF-62JS-YGF9

The ebook version of the textbook is included with your Aplia purchase. Please note that you can print chapters of the text from Aplia as needed. The text book for the class is Gravetter and Wallnau//Essentials of Statistics for the Behavioral Science,8e.

If prefer a preprinted textbook, please purchase the looseleaf version of the textbook from the campus bookstore. The looseleaf version comes with the Aplia course key.

DO NOT BUY THE TEXTBOOK ALONG. YOU MUST HAVE APLIA.

In addition to you book, you will need a calculator which has a squared and a square root key.

Online Instruction

This is a computer online course. This course is completely online there will not be any "face to face" instruction. The online components of the course can be accessed by any computer that has Internet access.

INSTRUCTOR GRADING CRITERIA

EVALUATION

Overview of Lesson Format and Course Grades: The work in this course is structured in 11 lessons (see chart below). Each lesson includes an Aplia Online quiz over the required reading and one or more online problem set. All quizzes and problem sets are found on Aplia.. All components of the lessons must be completed by the dates shown on the Course Assignment Schedule. NO LATE WORK IS ACCEPTED.

Course grades – To ascertain how you are doing you may add up your total points for all assignments given.

Grade	Points Required
А	1800+ (90%+)
В	1600 -1799 points (80-89%)
С	1400 - 1599 points (70-79%)
D	1200 -1399 points (60-69%)
F	1199 and below points (<60%)

Chapter Problem Sets: The problem sets are found on the APLIA course page. The problem sets can be repeated up to 3 times. Your grade will be the average of the scores received. **The maximum point value for all problem sets is 300 points.**

Chapter Quizzes: A quiz covering each chapter is on the APLIA course page along with the applicable due dates. You may use any resources you want to prepare for and complete the quizzes. All of the quizzes will be available at the beginning of the semester, so if you want to work ahead you can. Each quiz must be completed by the date shown in the schedule below. Each quiz has a maximum point value of 100 points. The maximum point value for all quizzes is 1000 points.

Final Exam: The final exam, which comprises 25% of your final grade, is comprehensive and will be available on APLIA during the period indicated in the course schedule below. There is no time limit. **The total point value for the final is 500 points.**

Class Participation: It is very important that your adhere to the course assignment schedule. We will be covering a large amount of material over the course of the class. The lessons in this class build upon the information that you learn in each successive chapter we cover. As such, you are required to complete each assignment each week as assigned. By completing each of the assignments as scheduled you will earn **200** class participation points. It is all or nothing, so you must keep up!

THIS IS NOT A SELF PACED COURSE. YOU ARE REQUIRED TO ADHERE TO THE COURSE SCHEDULE.

COURSE ASSIGNMENTS

ASSIGNMENT	DATE DUE
Aplia Introduction Problem Set	2/20/2015
Read Ch 1 Statistical Notation	2/20/2015
Ch 1 Aplia Problem Set	
Quiz 1 - Statistical Notation	
Read Ch 2 Frequency Distributions	2/27/2015
Ch 2 Aplia Problem Set	
Quiz 2 - Frequency Distributions	
Read Ch 3 - Central Tendency	3/6/2015
Ch 3 Aplia Problem Set	
Quiz 3 Central Tendency	
Read Ch 4 - Variability	3/13/2015
Ch 4 Aplia Problem Set	
Quiz 4 Variability	
Read Ch 5 Z-Scores	3/20/2015
Ch 5 Aplia Problem Set	
Quiz 5 Z-Scores	
Read Ch 6 Probability	3/27/2015
Ch 6 Aplia Problem Set	
Quiz 6 Probability	
Read Ch 7 Sampling Distributions	4/3/2015
Ch 7 Aplia Problem Set	
Quiz 7 Sampling Distributions	
Read Ch 8 Hypothesis Testing	4/10/2015
Ch 8 Aplia Problem Set	
Quiz 8 Hypothesis Testing	
Read Ch(s) 9 and 10 T-Statistics	4/17/2015
Ch(s) 9 and 10 Problem Sets	
Quiz 9 - T-Statistics	
Read Ch(s) 12 and 13 ANOVA	4/24/2015
Ch(s) 11 and 12 Aplia Problem Sets	
Quiz 10 - Aova	
Read Ch 14 Correlation	5/1/2015
Ch 14 Aplia Problem Set	
Quiz 11 - Correlation	
MAKE- UP WEEK	5/2 - 5/6
YOU MAY MAKE UP ANY MISSED	
QUIZZES DURING THIS WEEK. THERE	
WILL BE A 10 POINT PENALTY FOR	
QUIZZES TAKEN DURING THIS PERIOD	
FINAL EXAM	5/13/2015
Will open on 5/7/2015 at 12:00 am and will	
close on 5/13/2015 at 11:59 pm	

Instructor Policies & Student Responsibilities

- Quick mail on the Eagle On Line e-mail is the primary means of communication between the instructor and students. Please be advised that my response to quickmails will appear in your HCC email. YOU MUST ACTIVATE YOUR HCC EMAIL AND CHECK IT FOR THIS COURSE. Students should use the e-mail tool on the Eagle On Line course homepage to contact the instructor.
- 2. This is a Distance Education, Internet-delivered course in which instruction will be delivered via the World Wide Web utilizing Eagle On Line software.
- 3. Students with disabilities who require modifications must notify the instructor of the specific need as soon as possible after enrollment. To be eligible for modifications, students must clients of the HCCS office serving students with disabilities or of a comparable department at their home institution. Distance Education will advise us of these accommodation needs.
- 4. Instructions for submission of all assignments must be followed. If an assignment specifies electronic submission of materials, no other format is acceptable.
- 5. Students are expected to read the syllabus, read the textbook as assigned, adhere to specified deadlines and policies, and to keep up with assignments.
- 6. Assignments, quizzes, and other materials that have specific due dates must be submitted by 11:59 PM (Central time) on the date indicated in the course schedule.
- 7. Questions for the instructor are to be submitted via Eagle On Line e-mail.
- 8. Students who are dropped from the class for administrative reasons (e.g. TASP/THEA compliance, failure to pay) may not submit assignments or take exams until documentation of correction of the problem is provided to the instructor.
- 9. A grade of "I" (incomplete) will be considered only for those students who have completed at least 80% of quizzes, exams, and assignments. Only students who are unable to complete the class because of illness or other extraordinary circumstance may receive an I. In addition, only students who discuss their situation with the instructor prior to the end of the semester may receive an I. In all cases, regardless of circumstances, the instructor reserves the right to refuse to award an I.
- 10. The instructor reserves the right to change the syllabus at any time during the course.

11. NO LATE WORK WILL BE ACCEPTED, for any reason!

NOTICES

Last Day to Receive a W

If you decide to withdraw from the course, you must do so by the designated school deadline. Please check with the counselors in the Distance Education Department about the withdrawal policy. If you fail to withdraw from the course prior to the deadline, you will receive a grade for the term. To speak to a Distance Education counselor please call 713-718-5275.

Repeater Notice

Students who repeat a course three or more times are subject to additional course fees at HCC and other Texas public colleges and universities. If you are considering course withdrawal because you are not earning passing grades, confer with your instructor/counselor as early as possible about your study habits, reading and writing homework, test-taking skills, attendance, course participation, and opportunities for tutoring or other assistance that might be available.

Students with Disabilities

Any student with a documented disability (e.g. physical, learning, psychiatric, vision, hearing, etc) who needs to arrange reasonable accommodations must contact the appropriate HCC Disability Support Service (DSS) Counselor at the beginning of each semester. Faculty are authorized to provide only the accommodations requested by the Disability Support Services Office. Students who are requesting special testing accommodations must first contact the appropriate DSS counselor for assistance.

International Students

Receiving a W in a course may affect the status of your student visa. Once a W is given for the course, it will not be changed to an F for the purpose of maintaining an international student's visa. Please contact the International Student Office at 713-718-8520 if you have any questions about your visa status and other transfer issues.

HCC POLICY STATEMENT

The Houston Community College System is an open-admission, public institution of higher education offering associate degrees, certificates, academic preparation, workforce training, and lifelong learning opportunities that prepare individuals in our diverse communities for life and work in an increasingly international and technological society. http://hccs.edu/student-rights

HCC GRADING SCALE

A = 90-100%

- B = 80-89%
- C = 70-79%
- D = 60-69%
- F = 59% and below

COURSE PREREQUISITES

- PREREQUISITE(S):
 - MATH 0312
 - Must be placed into college-level reading (or take GUST 0342 as a corequisite) and
 - be placed into college-level writing (or take ENGL 0310/0349 as a corequisite)

FREQUENT REQUISITES

- ENGL 0310 or 0349
- College Level Writing
- GUST 0342 (9th -11th Grade Reading)
- College Level Reading

CORE CURRICULUM OBJECTIVES

This course addresses core competencies as follows:

Reading: Students are required to read a college-level textbook. **Writing:** Students are required to write explanations for statistical findings. **Speaking:** Students are required to participate in class discussions. **Listening:** Students are required to attend and participate in lecture sessions. **Critical Thinking:** Students are required to respond to make inferences about statistical findings.

Academic Discipline/CTE Program Learning Outcomes

- 1. Define terms and concepts that students will encounter in advanced courses taken by psychology majors.
- 2. Define terms and concepts that students will encounter in advanced psychology and psychology-based courses taken by students majoring in fields such as nursing and education.
- 3. Define psychological terms and concepts that students will encounter in news reports, selfhelp materials, and as part of the process of seeking and engaging in psychotherapy.

COURSE STUDENT LEARNING OUTCOMES (SLO)

- 1. Define and identify basic general concepts in statistics.
- 2. Describe and explain concepts and procedures of descriptive statistics.
- 3. Describe and explain probability theory and hypothesis testing procedure.
- 4. Describe, explain, and compare various inferential statistical procedures

LEARNING OBJECTIVES

1. Define and identify basic general concepts in statistics.

1. 1.1. CORE DOMAIN 1: General Statistical Concepts and Terminology Define

- 1.1.1. Statistics
- 1.1.2. Population
- 1.1.3. Sample
- 1.1.4. Parameter
- 1.1.5. Statistic
- 1.1.6. Descriptive statistics
- 1.1.7. Inferential statistics
- 1.1.8. Sampling errors
- 1.2. CORE DOMAIN 2: Methodology

Define

- 1.2.1. The correlational method
- 1.2.2. The experimental method
- 1.2.3. Nonexperimental methods (quasi-experimental method)
- 1.3. CORE DOMAIN 3: Variables and Measurement
- Define
- 1.3.1. Discrete variable
- 1.3.2. Continuous variable

- 1.3.3. Real limits
- 1.3.4. Scales of measurement
- 1.3.5. The nominal scale
- 1.3.6. The ordinal scale
- 1.3.7. The interval scale
- 1.3.8. The ratio scale
- 1.3.9. Summation notation (upper case sigma, for summation)
- 2. Describe and explain concepts and procedures of descriptive statistics.
- 1. 2.1. CORE DOMAIN 1: Frequency Distributions
- Describe and explain the procedure to construct
- 2.1.1 Frequency distribution tables
- 2.1.2. Frequency distribution graphs
- 2.1.3. Histograms
- 2.1.4. Polygons
- 2.1.5. Bar graphs
- 2.2 CORE DOMAIN 2: The Shape of a Frequency Distribution
- Describe
- 2.2.1. Symmetrical distribution
- 2.2.2. Positively skewed distribution
- 2.2.3. Negatively skewed distribution
- 2.3 CORE DOMAIN 3: : Central Tendency
- Describe and explain
- 2.3.1. Central tendency
- 2. 3.2. Types of central tendency
- 2.3.3. Features of the mean
- 2.3.4. Features of the median
- 2.3.5. Features of the mode
- 2.4. CORE DOMAIN 4: : VARIABILITY
- Describe and explain
- 2.4.1. Variability
- 2. 4.2 Ranges
- 2.3.2. Interquartile Range
- 2.3.4. Variance
- 2.3.5. Standard deviation
- 2.5 CORE DOMAIN 5: Z-Scores (Standardized Scores)
- Describe and explain
- 2.5.1. Z Scores, formula and application
- 2.5.2 Features of the Z distribution
- 2.5.2. Other standardized distributions based on z-scores
- 3. Describe and explain probability theory and hypothesis testing procedure.
- 1. 3.1. CORE DOMAIN 1: Probability
- Describe and explain the computation of
- 3.1.1 Probability
- 3.1.2. Probability in a normal distribution (using the Unit Normal Table)
- 3.1.3. The Sampling Distribution of the mean
- 3.2. CORE DOMAIN 2: Sampling and Probability
- Describe and explain
- 3.2.1. The distribution of sample means
- 3.2.2. The central limit theorem
- 3.2.3. The expected value of the sample means
- 3.2.4. The standard error
- 3.3 CORE DOMAIN 3: Hypothesis Testing
- Describe and explain
- 3.3.1. Hypothesis testing steps
- 3.3.2. Types of hypotheses: Null and Alternative
- 3.3.3. Nondirectional (two-tailed) and Directional (one-tailed) tests
- 3.3.4. Region of rejection or critical values as a criterion
- 3.3.5. Types of decision: Reject and Fail to reject null hypothesis.
- 3.3.6. Type I errors
- 3.3.7. Type II error

3.3.8. Statistical Power

3.3.9. Effect size (Cohen's d)

4. Describe, explain, and compare various inferential statistical procedures.

1. 4.1 CORE DOMAIN 1: Single-Sample t test

Describe and compute

4.1.1. The single t test and it's assumptions

4.1.2. The t formula

4.1.3. The t distribution

4.1.4. Degrees of Freedom

4.1.5. Effect size

4.2. CORE DOMAIN 2: The t test for independent samples

Describe and compute

4.2.1. The independent t test

4.2.2. The pooled variance

4.2.3. Effect size

4.2.4. Homogeneity of variance assumption

4.3. CORE DOMAIN 3: The t test for related samples

Describe and compute

4.3.1. The t for related samples.

4.3.2. Repeated-measures design

4.3.3. Matched-subjects design

4.3.4. Pros and cons of repeated-measures design

4.3.5. Effect size

4.4 CORE DOMAIN 4: Estimation

Define and interpret

4.4.1. Purpose of Estimation

4.4.2. Point Estimation

4.4.5. Confidence Intervals

4.4.6. Estimation based on single-sample t

4.4.7. Estimation based on independent-measures t

4.4.8. Estimation based on related sample t

4.5 CORE DOMAIN 5: Analysis of Variance (ANOVA)

Explain and compute:

4.5.1. ANOVA: The F test and its assumptions

4.5.2. F Distribution

4.5.3. Types of degrees of freedom: Between and Within

4.5.4. Types of Sum Squares: Between and Within

4.5.5. Types of Mean Squares: Between and Within

4.5.6. The ANOVA summary table, SSs, DFs, F5

4.6. CORE DOMAIN 6: Correlation

Explain and describe:

4.6.1. Pearson's r

4.6.2. Types of correlations

4.6.3. Hypothesis testing with r

4.7. CORE DOMAIN 7: Regression

Explain and compute:

4.7.1. Regression and regression line

4.7.2. The least-squares solution

4.7.3. Coefficient of determination

4.7.4. Standard error of estimate