PSYC 2354.061

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Fall 2020

Course Information: PSYC 2354.061
Classroom: Online Asynchronous
Office Hours: TR 9:30-11 or by appointment via Zoom. You can find the Zoom link and passcode in the homepage of Canvas.

Required Materials

Textbook: Foster, G. C., Lane, D., Scott, D., Hebl, M., Guerra, R., Osherson, D., & Zimmer, H. (2018). An Introduction to Psychological Statistics. This is a free and open source textbook and it is available here: https://open.umn.edu/opentextbooks/textbooks/an-introduction-to-psychological-statistics

Software: We will be using a free and open source software for our data projects called jamovi. To download the software here: https://www.jamovi.org/ and you can watch a tutorial installation here: https://www.youtube.com/watch?v=syx0f4xCxpk

Suggested Textbook: Publication Manual of the American Psychological Association (7th Ed.).(2020).Washington, DC: American Psychological Association.

Suggested Calculator: TI-84 Plus

- Other models such as TI-84, TI-83, TI-89 may have the statistical capabilities so you can always check with me if you have this type of calculator HOWEVER I am not an expert in all calculators mostly I am familiar with TI-84 Plus so it will be your responsibility to learn how to use your device.
- In general, a scientific calculator should work, but I will show you shortcuts in the TI-84. It is up to you if you want to use these shortcuts or not.
- Note for the onlinequizzes, nothing is stopping you from using jamovi, as your calculator.

Course Catalog Description

An introduction to descriptive and inferential statistical methods used in psychological research. Emphasis will be on hypothesis testing with t-tests, analysis of variance, correlation, and selected nonparametric techniques.

Student Learning Outcomes & Assessments

Upon successful completion of the course, the student will be able to . . .

1. Demonstrate an understanding of the differences between and uses of descriptive and inferential statistics. (BS/BA 6.0)
2. Demonstrate an understanding of the differences between parametric and nonparametric statistics (BS/BA 6.0)

a. Define and distinguish between a population and a sample.
b. Define and distinguish between statistics and parameters.

c. Classify data with respect to the four levels of measurement.

3. Compute statistical tests manually (with a calculator) and interpret and explain results. (BS/BA 6.0)

a. Compute and explain measures of central tendency and find the mean, median and mode of a sample and a population
b. Compute and explain variability: range, variance and standard deviation
c. Calculate and interpret standard z scores and information gained through normal distribution tables.
d. Calculate and interpret correlation coefficients using the Pearson and the Spearman.
e. Explain regression and predict y-values using regression equation.
f. Calculate and interpret standard error of the estimate and proportion of variance accounted for.
g. Discuss hypothesis testing and how to state the null and alternative hypotheses
h. Interpret the level of significance of a hypothesis test (p-values)
i. Identify type I and type II errors, and the probabilities associated with them.
j. Discuss the power of an analysis and the factors that affect it.
k. Perform one and two sampled t-tests, determine significance, and interpret the results.
l. Explain an F-test, calculate and interpret a one-way ANOVA
m. Calculate and interpret a two-way ANOVA
n. Calculate and interpret non-parametric tests such as the Mann-Whitney U, the Wilcoxon rank test, and Chi Squares.
o. Graph different types of data manually and describe the information contained in them.

4. Be able to identify the independent and dependent variables of experiments, determine the design and the correct statistical analyses with which to test appropriate hypotheses. (BS/BA 6.0)

Grading

Online Quizzes 15% Exams 40% Participation (Worksheets/Discussion Board/Statistical Study Evaluation) 20% Data Projects 25%

Grading Scale

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90 -  100%    A
80 -   89%    B
70 -   79%    C
60 -   69%    D
 0 -   59%    F
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Evaluation of a Statistical Article

- You will summarize the methodological and statistical content from two studies. Each paper should be 1-2 pages in length, doubled space, with size 12 font. APA Style.
- Instructions, articles and submission will be through Canvas. Due dates can be found in the tentative schedule.

Discussion Board

We will have approximately 5 discussion boards where we will discuss the additional readings assigned. The TA will be grading the discussion any question regarding grades need to be directed to her email.

- The discussion board will open on Monday and will close Sunday 11:59pm.
- You can find the rubric in Canvas.

Worksheets

For selected chapters (mainly hypothesis testing topics) we will also have additional worksheets to complete. I will have additional office hours for these so that you can ask questions as you complete them. Roughly we should have a total of 2-4 worksheets through the semester they will be announced in the schedule.

Data Projects

There will be data assignment for each of the topics we cover (roughly 10 assignments total). You will perform the analysis in jamovi. The due date for these assignments will be Sundays 11:59 for the week each topic is covered. You will complete these assignments in pairs. Sign up for a pair during the first week of the semester. Submit files named as LastName1.LastName2.AssignmentName.docx

Exams

We will have two midterm exams and a final. All our exams will consist of two parts. The midterm exam will be 10-15 questions taken online through Canvas and a project utilizing applied concepts using jamovi and/or interpreting output.

Online Quizzes

CANVAS Online quizzes will be assigned for every chapter. The quizzes will be available under the "Quizzes" section in Canvas. Roughly we should have a total of 12-13 quizzes, depending on how slow/fast the class moves. - You will be allowed to take the quiz up to 3 times. - The quizzes are not timed. - A tentative schedule is available in this syllabus. If the schedule changes I will announce it in class. - No make-ups. You get to drop the lowest 2 quiz grades without it affecting your grade. No questions asked. Do not email me for asking for a make-up, the answer is "no." If you have issues/questions with a quiz, your first point of contact should be the class TA.

Extra Credit Opportunities

There are three different Extra Credit Opportunities. The number of points awarded will be 5 points. You can only do one of these three opportunities. You may choose to do all of them, but I will only give you extra credit for one of them. There will be no other extra credit opportunities so please do not ask.

Extra Credit Option #1: Mentor Center Participation

Students who choose this extra credit option will be required to 1) complete a series of assessments measuring study skills and strategies, self-efficacy, academic emotion regulation, belongingness, and a number of other constructs that contribute to students' academic success in college; 2) complete an appraisal interview with a graduate student mentor; and 3) engage in three meaningful interactions with their mentor via in-person meet ups, phone conversations, text, or e-mail. Students must complete these requirements by TBA, 2020. Please

note: The College of Education and Psychology is dedicated to ensuring students receive ample academic support. For this reason, Psychology and Education undergraduate faculty are able to refer students they believe are struggling to the Academic Success Assistance Program (ASAP) through the Mentor Center for mandatory mentoring services. Should you be referred to the Mentor Center by one of your professors, your participation will become mandatory. You will still receive extra credit in PSYC 2354 as long as you complete the mentoring requirements outlined above by TBA 2019.

Extra Credit Option #2: Counseling Clinic

You can participate in the Counseling Clinic. Students who choose this extra credit option need to participate in at least five counseling sessions. The need to let the staff know they want the extra credit for PSYC 2354. If your name does not appear on the end of the semester list, neither the TAs or me will make an inquiry on your behalf. A graduate student will make an announcement during the first week of class and you can give your contact information if you wish to take part in this activity.

Extra Credit Option #3: Research Component

The Department of Psychology and Counseling requires that all students taking 1000- and 2000-level psychology courses to complete a research requirement. Certain 3000- and 4000-level courses also may include some type of research experience as either a course requirement or as extra credit.

In order to fulfill this requirement, all students should register in Sona within the first week of class. The registration will take only a few minutes, and will include a brief survey to collect demographic data. This data will serve as a screening tool to determine potential survey eligibility.

Once you register in the system, there are two ways to fulfill the research requirement:

Options:

1. You may complete research credits by participating in psychology studies. One credit is earned for every 30 minutes of research participation. Most studies are worth one credit.
2. The number of credits required varies from one course to the next, and your instructor will tell you how many credits are required to complete the research requirement in his or her specific course. Generally speaking, the 1000- and 2000-level course research requirement is 6 credits.

Contact Me

Email Netiquette:

- I will respond to email Monday to Friday from 8-5 pm. I will do my best to respond in the next 48 hours of receiving your email
- Make sure your question isn't addressed in this syllabus.
- When you email me identify what course you are in. State what section, day and time you are in. I teach more than one statistics class, and more than one section every day.
- Address me as Dr. Estrada. Do not begin your email with "hey"
- Use your UTT email at all times. Do not email me from your private account (eg. coolguy23@gmail.com). If you email me from private email I will NOT respond.
- Do not email me inquiring about your final grade or to help you predict your final grade, unless you believe there should be a correction, the grades will be available in Canvas and you should know what you need to pass the course.
- You have a issues with the quizzes. You should contact the TA for the class.

When to contact the Teaching Assistant (TA): * TAs change semester by semester, to find their information more accurately you can look in the homepage of our class Canvas. * For question regarding worksheet grades you should contact the TA. * Questions regarding tutoring or review sessions. * Issues with the online quizzes (typos, grades, etc)

The University of Texas at Tyler Academic Calendar including: deadlines, important dates and more can be found here: https://www.uttyler.edu/schedule/files/academic-calendar-19-20.pdf

Please read UT Tyler's Coronavirus Precautionary Information https://www.uttyler.edu/coronavirus/

***I may modifiy this syllabus at any time during the semester

Week 01, 08/24 - 08/30

Chapter 1: Introduction to Variables.

- ☐ **Watch:** Introduction to Research Methods Lecture
- ☐ **Reading**: Textbook Chapter 1 Pages 8 – 35
- ☐ **Discussion Board:** Introductory video
- ☐ **Jamovi Data Project:** Data import and data entry
- ☐ **Quiz # 1**

Week 02, 08/31 - 09/06

Chapter 2: Describing Data using Distributions and Graphs.

- ☐ **Watch:** Describing Data using Distributions and Graphs
- ☐ **Reading**: Textbook Chapter 2 Pages 36 – 72
- ☐ **Discussion Board:** Open Science
- ☐ **Jamovi Data Project:** Graphs
- ☐ **Quiz #2**

Week 03, 09/07 - 09/13

Chapter 3: Measures of Central Tendency

- ☐ **Watch:** Measures of Central Tendency
- ☐ **Reading**: Textbook Chapter 3 Pages 73 – 94
- ☐ **Worksheet**: Submit worksheet for Chapter 3 due 09/13 at 11:59pm
- ☐ **Quiz #3**

Week 04, 09/14 - 09/20

Chapter 3: Measures of Variability

- ☐ **Watch:** Measures of Variability
- ☐ **Reading**: Textbook Chapter 3 Pages 73 – 94
- ☐ **Discussion Board:** Descriptives
- ☐ **Jamovi Data Project:** Descriptives Data Project
- ☐ **Quiz #4**

Week 05, 09/21 - 09/27

Chapter 4: z-scores and Probability

- ☐ **Watch:** z-scores, Standard Normal Distribution and Central Limit Theorem
- ☐ **Reading**: Textbook Chapter 4 and 5 Pages 95 – 115
- ☐ **Jamovi Data Project:** z-scores Data Project
- ☐ **Quiz #5**

Week 06, 09/28 - 10/04

Chapter 6: Sampling Distributions: Central Limit Theorem

- ☐ **Watch:** Central Limit Theorem
- ☐ **Quiz # 6**
- ☐ **Reading:** Textbook Pages 116 - 125
- ☐ **Exam 1 will open 09/28 and will due 10/04 at 11:59 pm**

Week 07, 10/05 - 10/11

Chapter 7: Introduction to hypothesis testing

- ☐ **Watch:** Introduction to hypothesis testing
- ☐ **Reading**: Textbook Chapter 7 Pages 127 – 147
- ☐ **Evaluation of statistical article:** Messerli (2012)
- ☐ **Worksheet**: Submit worksheet for Chapter 7 due 10/25 at 11:59pm
- ☐ **Quiz # 7**

Week 08, 10/12 - 10/18

Chapter 8: Hypothesis Testing t-distribution & Confidence Intervals

- ☐ **Watch**: Hypothesis Testing t-distribution & Confidence Intervals
- ☐ **Reading**: Textbook Chapter 8 Pages 148 – 160
- ☐ **Worksheet:** Submit worksheet for Chapter 8 due 11/01 at 11:59pm
- ☐ **Quiz # 8**

Week 09, 10/19 - 10/25

Chapter 10: Two-sample Hypothesis Testing

- ☐ **Watch:** Two-sample Hypothesis Testing
- ☐ **Reading**: Textbook Chapter 9 and 10 Pages 161– 191
- ☐ **Jamovi Data Project:** T-tests
- ☐ **Worksheet:** Submit worksheet for Chapter 10 due 11/15 at 11:59pm
- ☐ **Quiz # 9**

Week 10, 10/26 - 11/01

- ☐ **Exam 2 will open 11/02 and will due 12/08 at 11:59 pm**

Week 11, 11/02 - 11/08

Chapter 11: One Way ANOVA and post-hoc test

- ☐ **Watch:** One Way ANOVA and post-hoc test
- ☐ **Reading**: Textbook Chapter 11 Pages 194 – 213
- ☐ **Jamovi Data Project:** ANOVA
- ☐ **Worksheet:** Submit worksheet for Chapter 11 due 11/22 at 11:59pm

- ☐ **Quiz # 11**

Week 12, 11/09 - 11/15

Chapter 12: Correlation Coefficient: Pearson and Spearman Rank

- ☐ **Watch:** Correlation Coefficient - Pearson and Spearman Rank
- ☐ **Reading**: Textbook Chapter 12 Pages 215 – 240
- ☐ **Discussion Board:** Correlation Coefficient
- ☐ **Quiz #12**

Week 13, 11/16 - 11/22

Chapter 13: Regression

- ☐ **Watch:** Regression
- ☐ **Reading**: Textbook Chapter 13 Pages 242 – 257
- ☐ **Jamovi Data Project:** Correlation & Regression
- ☐ **Quiz #13**

Week 14, 11/23 - 11/29

Turkey Break!

Week 15, 11/30 - 12/06

Chapter 14: Chi-Square

- ☐ **Watch:** Chi-Square
- ☐ **Reading**: Textbook Chapter 14 Pages 259 – 269
- ☐ **Jamovi Data Project:** Chi-Square
- ☐ **Evaluation of statistical article:** Tejeda-Delgado, M. D. C. (2009).
- ☐ **Quiz #14**

Week 16, 12/07 - 12/11

- ☐ Final Exam will open 12/07 and will due 12/11 at 11:59 pm