PSYC 2354 Statistics and Laboratory

Section:	PSYC 2354.001	**Instructor:**	Dr. Brandon Bretl, PhD
Days:	TuTh	**Email:**	BBRETL@uttyler.edu
Times:	12:30 a.m. – 1:50 a.m.	**Phone:**	903-566-7390
Location:	STE 127	**Office:**	BEP 246
		Office Hours:	T,W,Th 11:00 a.m. – 12:15 pm (and by appointment)

Contacting Me

- For any questions regarding the course or course content, contact your TA first.
- See Canvas for TA contact info.
- To contact me, email is best: BBRETL@uttyler.edu
- I do my best to respond within 48 hours. If I don't, please resend.
- Use your UTT email to contact me. I won't respond to unknown email addresses.

Official Course 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

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. 2 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)

All materials for course provided through Canvas.

Grading

Scale
A: 90.0% of points or above
B: 80.0% - 89.9% of points
C: 70.0% - 79.9% of points
D: 60.0% - 69.9% of points
F: 59.9% of points or below

Tentative Percentages
15% - Online Quizzes
35% - Midterm Assessments (Exams)
5% - Final Data Project
20% - Participation & Projects (Worksheets/Handouts)
25% - Data Projects

More information on all assignments, including due dates and submission guidelines will be posted on Canvas.

Attendance
I take attendance on a regular basis. Students lose a point for each unexcused absence after their first unexcused absence.

Worksheets
For selected chapters (mainly hypothesis testing topics) we will also have additional worksheets to complete. Roughly, we should have a total of 2-4 worksheets through the semester. Worksheets will be posted in Canvas.

- Submit via Canvas. Due a class session after the topic covered in class (check detailed schedule to be sure) at 11:59PM
- The TA and I recommend the use of MS Office Lens. A link to a short demo is posted in Canvas.
- You get to drop one worksheet without it affecting your grade.

Data Projects
There will be data assignment for each of the topics we cover (roughly 8 assignments total). You will perform the analysis in jamovi. The due date for these assignments will be Mondays 11:59 pm the week after the topic has been covered. You will complete these assignments in pairs. Sign up for a pair during the first week of the semester.

Submitting Data Projects:

- LastNamePartner1.LastNamePartner2.AssignmentName.PSYC2354 (.doc, .docx, or .pdf).
- No .pages or links to google drive documents.
- Name the jamovi file in the same way with the extension .omv

Find a lab partner:

- Sign up for pair in Canvas, simply find the page and use the edit button, then write in your name. You should be able to contact everyone in the course through Canvas by searching for their name in the Inbox section.
- You only need to submit ONE file with both partners' name. Feel free to leave a Canvas comment with both partners' names along with your submission.

Grading:

- I have a template for the data projects as well as a APA style examples for all topics. Use them.
- You get to drop one data project without it affecting your grade.
- 20% deduction for every day the project is late.
- Anonymous Feedback I will select a paper for each project, remove personal identifying information. I will provide feedback and share with the rest of the class. The goal is that the rest of the class have a good compass on to what constitutes a quality submission for the data projects.

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 Canvas. 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.

The assignments and grade points are approximations and are subject to change. Canvas will always have the most up-to-date information on assignments and grades.

Midterms

Midterm Assessment #1

We will have an exam covering the following chapters:

- Introduction to Variables
- Measures of Central Tendency
- Measures of Variability
- z-scores & Central Limit Theorem

Midterm Assessment #2

(Tentative) Topics for Midterm Assessment #2

- Hypothesis Testing
- t-test & Confidence Interval
- Two samples hypothesis test

Datathon: Final Data Project

- I will provide a data set and research questions. You will select the appropriate statistical method to answer the research question and submit a write-up in APA style of your findings. This write up should include:
  - Hypotheses
  - Research Question
  - Methods section including descriptive for participants and/or variables
  - Results section using appropriate statistical analysis
- You must submit the final or you will receive an automatic F in the course.

- Students are responsible for making sure their online submissions have been appropriately submitted. If a student submits an incorrect file they will receive a grade of zero.

Topics & Tentative Schedule

Week 01: Chapter 1: Introduction to Variables
- Watch: Introduction to Research Methods Lecture
- Installation jamovi installation check due Tuesday
- Reading: Textbook Chapter 1 Pages 8 – 35
- Quiz # 1: Introduction to jamovi & course
- Quiz # 2:

Week 02: Chapter 3: Measures of Central Tendency
- Watch: Measures of Central Tendency
- Reading: Textbook Chapter 3 Pages 73 – 94
- Worksheet: You can begin working on the worksheet
- Quiz #3:

Week 03: Chapter 3: Measures of Variability
- Watch: Measures of Variability
- Reading: Textbook Chapter 3 Pages 73 – 94
- jamovi Data Project: Descriptives Data Project.
- Worksheet: Submit worksheet for Chapter 3 & 4
- Quiz #4:

Week 04: z-scores and Probability & Chapter 6: Sampling Distributions: Central Limit Theorem
- Watch: z-scores, Standard Normal Distribution and Central Limit Theorem.
- Watch: Central Limit Theorem
- Reading: Textbook Chapter 4 and 5 Pages 95 – 115 & Chapter 6 Textbook Pages 116 – 125
- Quiz #5:

Week 05: Midterm Assessment #1
- Review
- Midterm Exam

Week 06: Chapter 7: Introduction to hypothesis testing
- Watch: Introduction to hypothesis testing
- Reading: Textbook Chapter 7 Pages 127 – 147
- Worksheet: Submit worksheet for Chapter 7
- Quiz # 6

Week 07: Chapter 8: Hypothesis Testing t-distribution & Confidence Intervals
- Watch: Hypothesis Testing t-distribution and Confidence Intervals.
- Reading: Textbook Chapter 8 Pages 148 – 160
- Worksheet: Submit worksheet for Hypothesis Testing
- Data Project jamovi Data Project t-distribution.
- Quiz # 7

Week 08: Two-sample Hypothesis Testing
- Watch: Two-sample Hypothesis Testing
- Review
- Reading: Textbook Chapter 9 and 10 Pages 161– 191
- jamovi Data Project: T-tests due due Tuesday
- Worksheet: Submit worksheet for Chapter 10 Two-sample Hypothesis Testing
- Quiz #8

Week 09: Midterm Assessment #2

- Midterm Exam 2 Topics: Hypothesis Testing, Hypothesis Testing t-distribution and confidence intervals.

Week 10: 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 ANOVA
- Quiz # 9

Week 11: Chi-Square Tests: Goodness of fit, Independence & McNemar's

- Watch: Chi-Square
- Reading: Textbook Chapter 14 Pages 259 – 269
- jamovi Data Project: Chi-Square
- Quiz #10

Week 12: Chapter 12: Correlation Coefficient: Pearson and Spearman Rank

- Watch: Correlation Coefficient - Pearson and Spearman Rank
- Reading: Textbook Chapter 12 Pages 215 – 240.
- Quiz #11

Week 13: Simple Linear Regression

- Watch: Simple Linear Regression
- Reading: Textbook Chapter 13 Pages 242 – 257
- jamovi Data Project: Correlation and Regression
- Quiz #12

Week 14: Datathon: Final Project Work Week

- Final Data Project opens
- Consulting Sessions

Week 15:

- Final Data Project

Other Course Policies and Expectations

Civility
I expect everyone to come to class with a sincere intention to treat others fairly and respectfully. We are all here to learn. I will give you that chance, and I expect you give me and your classmates that chance as well. This includes treating everyone with respect and kindness. If at any time during the semester you feel uncomfortable, please let me know. I can either address the issue or refer the issue to the appropriate resources on campus. Expressions or actions that disparage a person's or group's race, ethnicity, gender, gender identity, religion, sexual orientation, marital status, parental status, age, or disability are contrary to the mission of the course, department, and university and will not be tolerated.

Academic Integrity
I take academic misconduct seriously and will, as a matter of fairness, always pursue suspected academic misconduct to the full extent of university policy. Examples of academic misconduct include plagiarism, cheating on tests, purchasing papers from others, submitting work that is not yours as your own, and selling or unauthorized distribution of course materials.

Artificial Intelligence Policy (AI Policy)
UT Tyler is committed to exploring and using artificial intelligence (AI) tools as appropriate for the discipline and task undertaken. We encourage discussing AI tools' ethical, societal, philosophical, and disciplinary implications. All uses of AI should be acknowledged as this aligns with our commitment to honor and integrity, as noted in UT Tyler's Honor Code. Faculty and students must not use protected information, data, or copyrighted materials when using any AI tool. Additionally, users should be aware that AI tools rely on predictive models to generate content that may appear correct but is sometimes shown to be incomplete, inaccurate, taken without attribution from other sources, and/or biased. Consequently, an AI tool should not be considered a substitute for traditional approaches to research. You are ultimately responsible for the quality and content of the information you submit. Misusing AI tools that violate the guidelines specified for this course (see below) is considered a breach of academic integrity. The student will be subject to disciplinary actions as outlined in UT Tyler's Academic Integrity Policy.

For this course, you can use AI programs (ChatGPT, Copilot, etc.). These programs can be powerful tools for learning and other productive pursuits, including completing assignments in less time, helping you generate new ideas, or serving as a personalized learning tool. However, your ethical responsibilities as a student remain the same. You must follow UT Tyler's Honor Code and uphold the highest standards of academic honesty. This applies to all uncited or improperly cited content, whether created by a human or in collaboration with an AI tool. If you use an AI tool to develop content for an assignment, you must cite the tool's contribution to your work.

Last Day to Withdraw from Course
The last day to withdraw from course is March 31, 2025.

UNIVERSITY POLICIES

UT Tyler Honor Code
Every member of the UT Tyler community joins together to embrace: Honor and integrity that will not allow me to lie, cheat, or steal, nor to accept the actions of those who do.

Students Rights and Responsibilities
To know and understand the policies that affect your rights and responsibilities as a student at UT Tyler, please follow this link: http://www.uttyler.edu/wellness/rightsresponsibilities.php

Campus Carry
We respect the right and privacy of students 21 and over who are duly licensed to carry concealed weapons in this class. License holders are expected to behave responsibly and keep a handgun secure and concealed. More information is available at http://www.uttyler.edu/about/campus-carry/index.php

Tobacco-Free University
All forms of tobacco will not be permitted on the UT Tyler main campus, branch campuses, and any property owned by UT Tyler. This applies to all members of the University community, including students, faculty, staff, University affiliates, contractors, and visitors. Forms of tobacco not permitted include cigarettes, cigars, pipes, water pipes (hookah), bidis, kreteks, electronic cigarettes, smokeless tobacco, snuff, chewing tobacco, and all other tobacco products. There are several cessation programs available to students looking to quit smoking, including counseling, quitlines, and group support. For more information on cessation programs please visit http://www.uttyler.edu/tobacco-free

Grade Replacement/Forgiveness and Census Date Policies
Students repeating a course for grade forgiveness (grade replacement) must file a Grade Replacement Contract with the Enrollment Services Center (Stewart Hall 230) on or before the Census Date of the semester in which the course will be repeated. Grade Replacement Contracts are available in the Enrollment Services Center or at http://www.uttyler.edu/registrar. Each semester's Census Date can be found on the Contract itself, on the Academic Calendar, or in the information pamphlets published each semester by the Office of the Registrar.

Failure to file a Grade Replacement Contract will result in both the original and repeated grade being used to calculate your overall grade point average. Undergraduates are eligible to exercise grade replacement for only three course repeats during their career at UT Tyler; graduates are eligible for two grade replacements. Full policy details are printed on each Grade Replacement Contract.

The Census Date is the deadline for many forms and enrollment actions of which students need to be aware. These include:
- Submitting Grade Replacement Contracts, Transient Forms, requests to withhold directory information, approvals for taking courses as Audit, Pass/Fail or Credit/No Credit.
- Receiving 100% refunds for partial withdrawals. (There is no refund for these after the Census Date)
- Schedule adjustments (section changes, adding a new class, dropping without a "W" grade)
- Being reinstated or re-enrolled in classes after being dropped for non-payment
- Completing the process for tuition exemptions or waivers through Financial Aid

State-Mandated Course Drop Policy
Texas law prohibits a student who began college for the first time in Fall 2007 or thereafter from dropping more than six courses during their entire undergraduate career. This includes courses dropped at another 2-year or 4-year Texas public college or university. For purposes of this rule, a dropped course is any course that is dropped after the census date (See Academic Calendar for the specific date).
Exceptions to the 6-drop rule may be found in the catalog. Petitions for exemptions must be submitted to the Enrollment Services Center and must be accompanied by documentation of the extenuating circumstance. Please contact the Enrollment Services Center if you have any questions.

Disability Services

Disability/Accessibility Services: In accordance with Section 504 of the Rehabilitation Act, Americans with Disabilities Act (ADA) and the ADA Amendments Act (ADAAA) the University of Tyler at Texas offers accommodations to students with learning, physical and/or psychological disabilities. If you have a disability, including non-visible a diagnosis such as a learning disorder, chronic illness, TBI, PTSD, ADHD, or you have a history of modifications or accommodations in a previous educational environment, you are encouraged to visit https://hood.accessiblelearning.com/UTTyler and fill out the New Student application. The **Student Accessibility and Resources** (SAR) office will contact you when your application has been submitted and an appointment with an Accessibility Case Manager. For more information, including filling out an application for services, please visit the SAR webpage at http://www.uttyler.edu/disabilityservices, the SAR office located in the University Center, # 3150 or call 903.566.7079.

Student Absence due to Religious Observance
Students who anticipate being absent from class due to a religious observance are requested to inform the instructor of such absences by the second class meeting of the semester.

Student Absence for University-Sponsored Events and Activities
If you intend to be absent for a university-sponsored event or activity, you (or the event sponsor) must notify the instructor at least two weeks prior to the date of the planned absence. At that time the instructor will set a date and time when make-up assignments will be completed.

Social Security and FERPA Statement:
It is the policy of The University of Texas at Tyler to protect the confidential nature of social security numbers. The University has changed its computer programming so that all students have an identification number. The electronic transmission of grades (e.g., via e-mail) risks violation of the Family Educational Rights and Privacy Act; grades will not be transmitted electronically.

Emergency Exits and Evacuation:
Everyone is required to exit the building when a fire alarm goes off. Follow your instructor's directions regarding the appropriate exit. If you require assistance during an evacuation, inform your instructor in the first week of class. Do not re-enter the building unless given permission by University Police, Fire department, or Fire Prevention Services.
Student Standards of Academic Conduct: Disciplinary proceedings may be initiated against any student who engages in scholastic dishonesty, including, but not limited to, cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.
(i) "Cheating" includes, but is not limited to:

- copying from another student's test paper;
- using, during a test, materials not authorized by the person giving the test;
- failure to comply with instructions given by the person administering the test;
- possession during a test of materials which are not authorized by the person giving the test, such as class notes or specifically designed "crib notes". The presence of textbooks constitutes a violation if they have been specifically prohibited by the person administering the test;
- using, buying, stealing, transporting, or soliciting in whole or part the contents of an unadministered test, test key, homework solution, or computer program;
- collaborating with or seeking aid from another student during a test or other assignment without authority;
- discussing the contents of an examination with another student who will take the examination;
- divulging the contents of an examination, for the purpose of preserving questions for use by another, when the instructors has designated that the examination is not to be removed from the examination room or not to be returned or to be kept by the student;
- substituting for another person, or permitting another person to substitute for oneself to take a course, a test, or any course-related assignment;
- paying or offering money or other valuable thing to, or coercing another person to obtain an unadministered test, test key, homework solution, or computer program or information about an unadministered test, test key, home solution or computer program;
- falsifying research data, laboratory reports, and/or other academic work offered for credit;
- taking, keeping, misplacing, or damaging the property of The University of Texas at Tyler, or of another, if the student knows or reasonably should know that an unfair academic advantage would be gained by such conduct; and
- misrepresenting facts, including providing false grades or resumes, for the purpose of obtaining an academic or financial benefit or injuring another student academically or financially.

(ii) "Plagiarism" includes, but is not limited to, the appropriation, buying, receiving as a gift, or obtaining by any means another's work and the submission of it as one's own academic work offered for credit.

(iii) "Collusion" includes, but is not limited to, the unauthorized collaboration with another person in preparing academic assignments offered for credit or collaboration with another person to commit a violation of any section of the rules on scholastic dishonesty.
(iv) All written work that is submitted will be subject to review by SafeAssign™, available on Blackboard.

UT Tyler Resources for Students:

- UT Tyler Writing Center (903.565.5995), writingcenter@uttyler.edu, http://www.uttyler.edu/writingcenter/
- UT Tyler Tutoring Center (903.565.5964), tutoring@uttyler.edu, https://www.uttyler.edu/tutoring/
- The Mathematics Learning Center, RBN 4021, This is the open access computer lab for math students, with tutors on duty to assist students who are enrolled in early-career courses.
- UT Tyler Counseling Center (903.566.7254) https://www.uttyler.edu/counseling/

COLLEGE OF EDUCATION AND PSYCHOLOGY (CEP) VISION AND MISSION

Vision: The College of Education and Psychology is nationally recognized and respected for its academic programs and opportunities. It is a center of academic excellence, scholarly inquiry, and public service. The College prepares leaders to meet the critical challenges of the 21st Century through productive contributions to local and global communities and toward individual and cultural equity.

Mission: The mission of the College of Education and Psychology is to provide a positive environment that fosters the acquisition of knowledge and skills. The mission is individually and collectively realized through a community of scholars that contributes to knowledge through scholarly inquiry; organizes knowledge for application, understanding and communication; and provides leadership and service. We affirm and promote global perspectives that value individual and cultural diversity to enhance learning, service, and scholarship.