PSY 2100-001 Statistical Methods / Fall 2017
Department of Psychology
University of Toledo
Tuesdays & Thursdays 11:10 am – 12:30 pm; UH 5000

Instructor: Dr. Gregory Meyer Office: UH 1065 (1st floor) Telephone: (419) 530-4312 E-mail: gregory.meyer@utoledo.edu Hours: T 3:00-4:00 pm by appt. R 1:00-4:00 pm Grad only; by appt. R 5:00-6:00 pm by appt.	**TA**: Olivia Aspiras Office: UH 6509 (6th floor) E-mail: olivia.aspiras@rockets.utoledo.edu Office hours: TR 2:30-4pm

Course Information

Required Text:	Nolan, S. A., & Heinzen, T. E. (2017). *Statistics for the behavioral sciences* (4th edition). New York, NY: Worth. See also the online supplement: (6 months for $90, https://tinyurl.com/yblyvzq3).
Prerequisite:	C- or better in Math 1320 (or a higher math)
Calculator:	Required (nothing fancy, just needs a square root function)

Course Description

This course provides a basic understanding of the statistics used most commonly by social scientists. Topics to be covered include summarizing data with graphs and numbers, generalizing from samples to a population, and determining the effect of one variable on another. The course will also allow you to understand research reports in social science publications and in the press. We will particularly emphasize the application of statistics; using and interpreting statistics as opposed to the mathematical proofs underlying these statistical methods. Even students who say they have "math anxiety" can excel in this class, if they are willing to keep up with the work.

Student Learning Objectives

By the end of this class, you should be able to:

1. summarize and organize data;
2. select and calculate an appropriate statistic to decide whether one variable reliably affects another variable, or whether such findings are driven by chance;
3. critically evaluate research findings in scientific journals and in the media;
4. work with a statistical software program (SPSS); and
5. possess a basic understanding of statistics that can be built upon in future research design and statistics classes.

Course Requirements

Exams

There will be 3 regular exams during the semester plus 1 final exam. Each of the regular exams is worth 100 points and the final exam is worth 150 points. The exams consist of a combination of multiple-choice, calculation, and essay-style questions. Each of the regular exams will cover information presented in class and on assigned readings *since* the previous exam—that is, the regular exams are non-cumulative. The bulk of the final exam is also non-cumulative, with

exception of a 50-point section where you will identify what type of statistical test discussed during the semester would be used for particular examples (I will say more about this later). You must bring a photo ID, pencil, and calculator to each exam. Exams should not be missed, but exams will be rescheduled if the student has a legitimate, university-sanctioned reason for missing the exam. If you can anticipate that you must miss an exam (e.g., for a participatory athletic event, religious holiday), contact me (Dr. Meyer) and the TA (Ms. Aspiras) via email at least *one week prior* to the exam. If you are unable to take an examination on time due to illness or emergency, notify us *before* the exam is scheduled to begin by sending an email or calling our offices, providing a valid reason for missing that day. Be prepared to take the make-up exam at the earliest possible date (to be taken at the Field House Testing Center on the Main Campus). If you do not follow these procedures exactly, you will not be permitted to make up the exam.

Homework Assignments

Homework is essential for success in this course. The assignments will solidify your understanding of the course material. There will be 10 homework assignments worth 10 points each. Assignments will be posted on the course website 1 week prior to the listed due date. At least at the outset of the course, you will upload and submit homework (and any other materials for class) to Blackboard prior to the beginning of class. If you anticipate missing a homework assignment, please notify us via email at least *one week prior* to the assignment's due date. If you are ill or have an emergency on a day that a homework assignment is due, you must notify us *before* class and be prepared to hand in your assignment as soon as possible. If you did not hand the assignment in on time and did not contact us in advance with a valid reason (as noted above), assignments will receive 2.5 points off for each class period handed in late (thus, if handed in after class, the assignment will be worth up to 7.5 points; if turned in 1 week late, it would be worth up to 5 points; if handed in 2 weeks late or more, the assignment would be worth 0 points).

Grading Policy

You earn points in the class as follows:

Assignment	**Possible Points**
3 Regular Exams - 100 points each	300 points
1 Final Exam – 150 points	150 points
10 Homework Assignments - 10 points each	100 points
Total	**550 points**

Letter Grades

A	93+%	≥ 512 points	C	73-76%	402-423
A-	90-92%	495-511	C-	70-72%	385-401
B+	87-89%	479-494	D+	67-69%	369-384
B	83-86%	457-478	D	63-66%	347-368
B-	80-82%	440-456	D-	60-62%	330-346
C+	77-79%	424-439	F	< 60%	≤ 329

Class Policies

- No cell phones or other electronic devices (except calculator). Please turn them off when entering class. No internet browsing while on the computer during class.
- Arrive on time and do not leave early.
- The computers on your desks are to remain off unless we are working on an in-class exercise that requires their use (e.g., for SPSS or Blackboard).
- Do not talk once class begins unless it is part of an assignment or you are asking a question about the class material.

University of Toledo Policy Pertaining to Academic Integrity

Academic dishonesty will not be tolerated. Among the aims of education are the acquisition of knowledge and the development of skills necessary for success in any profession. Activities inconsistent with these aims will not be permitted. Students are responsible for knowing what constitutes academic dishonesty. If students are uncertain about what constitutes plagiarism or cheating they should seek the instructor's advice. Examples of academic dishonesty include, but are not limited to:

- Plagiarizing or representing the words, ideas or information of another person as one's own and not offering proper credit or documentation to the other person;
- Giving or receiving, prior to an examination, any unauthorized information concerning the content of that examination;
- Referring to or displaying any unauthorized materials inside or outside of the examination room during the course of an examination;
- Communicating during an examination in any manner with any unauthorized person concerning the examination or any part of it;
- Giving or receiving substantive aid during the course of an examination;
- Starting an examination before the stipulated time or continuing to work on an examination after the announced conclusion of the examination period;
- Taking, converting, concealing, defacing, damaging or destroying any property related to the preparation or completion of assignments, research, or exams;
- Submitting the same written work to fulfill the requirements for more than one course.

Students with Disabilities

Reasonable accommodations will be made for anyone with a disability that may require some modification of seating, testing, or other class requirements. Students must contact the Office of Student Disability Services (Rocket Hall 1820) for an evaluation and a form specifying what course accommodations are judged reasonable for that student. Please contact the instructor after class or during office hours so that appropriate arrangements may be made.

The contact information for the Office of Student Disability Services is as follows:
Campus Address: Rocket Hall 1820, Mail Stop #342
Phone Number: 419-530-4981
Web: http://www.utoledo.edu/offices/student-disability-services/

Policy Statement on Non-Discrimination on the basis of Disability (ADA)

The University is an equal opportunity educational institution. Please read: The University's Policy Statement on Nondiscrimination on the Basis of Disability Americans with Disability Act Compliance.

How to Succeed in this Course

Many students dread the statistics requirement for psychology. Many wonder why a statistics class is even necessary for psychology majors. Others think back to math courses with considerable anxiety. Even though many students are nervous about this class that does not need to be the case. Anxiety can hamper your ability to study and acquire information. Both the TA and I hope to calm any fears about this class and really want to help all of you succeed in this course. We will do our best throughout the semester to do so, and this course should help convince you that it is quite natural for psychology and statistics to work together to further knowledge.

Mastering the basics of statistics is much like learning a new language – it requires practice, practice, practice – and then a bit more practice. New material builds on older material, and it is essential that you stay up to date with the course material. This means studying regularly and completing all assignments on time. Here are some general strategies to use to maximize success when going through the course:

Attend Class

Attending class is critical for success. In fact, research has shown that one of the best predictors of grades in courses is class attendance, and even the brightest students gain more insight by attending classes regularly. This is especially important in a class like statistics, as it is helpful to consume information multiple times and in a number of different formats (e.g., reading, lectures). Moreover, there will be some course material presented in class that does not appear in the book; thus, you will need to attend class to ensure you have all the information covered on exams.

Actively Read, Study, and Take Notes

Research shows that many individuals read and write passively, that is, without thinking about the meaning of what they are covering. When reading and studying textbook-type material, everyone (professors included) must read actively, and as a result somewhat slowly. Research shows that learning is much more effective if new information is related to old information. Passively writing down what is on the overhead screen or what is discussed in class without thinking about it will not help you learn or understand the material. A good approach to reading any type of text is the SQ3R method (https://en.wikipedia.org/wiki/SQ3R), in which you **S**urvey the material to be learned (e.g., all or part of a chapter), generate preliminary **Q**uestions about the material to guide your reading, **R**ead the material actively and thoughtfully, verbally **R**ecite what it is that you have learned, and then **R**eview the material again and what it is that you have learned, including answers to your initial questions.

Study the Summaries and Section Headings Before and While You Read

Summaries and headings help you mentally organize what you read. The authors did not just throw a bunch of information together randomly; they present an organized framework of ideas and information. You should seek to discover and understand their organization. Research shows

that information is learned best when it is part of an organized mental framework.

Alter Your Expectations for Studying

Research consistently shows that students greatly underestimate the effort and time it takes to do a quality job of learning the new and complex material that is part of most courses. Academic experts generally agree that for a typical three-credit semester-long course, spending at least 6 hours per week outside of class working on learning is the norm for reasonable achievement.

Do the Homework Assignments

In order to facilitate your mastery of basic statistics, the course includes 10 homework assignments (in addition to the 4 exams). The purpose of these assignments is two-fold: 1) they allow you more opportunities to earn points in the course, and 2) they give you critical practice for building your understanding of the material to prepare for the exams and to facilitate your use and retention of the information.

Keep up with Class Material and Ask Questions

There is a large amount of information to learn in this course, and most of the new material builds upon previously-learned material. Therefore, if you fall behind in the readings or don't understand a key concept, this will severely hurt your progress in the course. So keep up with the readings and ask questions when things are unclear!

Make Use of Available Resources

Besides attending class, reading the text, completing the homework assignments we assign, and taking the exams, make use of other resources on an off campus. Other resources include completing Appendix A (a basic math self-test and refresher) in the first two weeks of the semester, completing all of the "Check Your Learning" sections in the textbook, reviewing all the "How It Works" sections near the end of each chapter, completing all the Exercises at the end of each chapter (the answers for all the odd items are in Appendix C), talking with the TA or me during office hours, making use of online resources (e.g., https://www.youtube.com/user/how2stats/videos; https://www.youtube.com/playlist?list=PL87D6C3431177ED5C; http://www.psychology.emory.edu/clinical/bliwise/Tutorials/), and making use of campus resources. The latter includes tutoring in statistics at the library (http://www.utoledo.edu/success/lec/tutoring/) and online (http://www.utoledo.edu/success/lec/onlinetutoring.html). The university offers an array of other general resources as well that pertain to health and safety; please see: http://www.utoledo.edu/offices/provost/utc/docs/CampusHealthSafetyContacts.pdf.

Tentative Course Schedule
(Subject to change based on in-class announcements)

Week	Date	Topic	Reading	Assignment
1	Aug 29	Introduction: Science and Statistics	Chapter 1	
	Aug 31	Variables and Measurement		
2	Sep 5	Data Organization	Chapter 2 & 3	Assignment 1 due
	Sep 7	Central Tendency	Chapter 4	
3	Sep 12	Variability	Chapter 4	Assignment 2 due
	Sep 14	Variability		
4	Sep 19	Standardized (Z) Scores	Chapter 6 (≤ 148)	Assignment 3 due
	Sep 21	Standardized (Z) Scores		
5	Sep 26	**Exam # 1 (Modules 1-6)**		
	Sep 28	Sampling & Distributions	Chapter 5	
6	Oct 3	Sampling & Distributions		
	Oct 5	Hypothesis Testing Basics	Chapter 6 (149+)	Assignment 4 due
7	Oct 10	Single-sample z-tests	Chapter 7	
	Oct 12	t-statistic and Single-sample t-tests	Chapter 9	Assignment 5 due
8	Oct 17	No class (Fall break)		
	Oct 19	t-statistic and Single-sample t-tests		
9	Oct 24	Independent Groups t-tests	Chapter 11	Assignment 6 due
	Oct 26	Correlated Groups t-tests	Chapter 10	
10	Oct 31	**Exam # 2 (Modules 7-12)**		
	Nov 2	Analysis of Variance (ANOVA)	Chapter 12	
11	Nov 7	Analysis of Variance (ANOVA)		
	Nov 9	RM and Two-Factor ANOVA	Chapter 13	Assignment 7 due
12	Nov 14	RM and Two-Factor ANOVA	Chapter 14	Assignment 8 due
	Nov 16	**Exam # 3 (Modules 13-17)**		
13	Nov 21	Correlation	Chapter 15	
	Nov 23	No class (Thanksgiving break)		
14	Nov 28	Correlation & Regression	Chapter 16	
	Nov 30	Chi-square	Chapter 17	Assignment 9 due
15	Dec 5	Chi Square		
	Dec 7	Choosing the Right Statistic		Assignment 10 due
	Dec 14	**Exam #4 (final exam)**	10:15-12:15	

FINALS WEEK: Exam #4 (Modules 18-21)
Thursday, December 14, 10:15-12:15pm