PSY 2100-004 Statistical Methods / Spring 2018
Department of Psychology; University of Toledo
Updated 01/17/18
Tuesdays & Thursdays 9:35 am – 10:55 pm; UH 5150F

Instructor: Dr. Gregory Meyer Office: UH 1065 (1st floor) Telephone: (419) 530-4312 E-mail: gregory.meyer@utoledo.edu Hours: T 1:30-4:30 pm Grad only; by appt. R 1:00-4:00 pm by appointment	**TA**: Emily O'Gorman, M.S. Office: UH 1069 (1st floor) E-mail: Emily.OGorman@rockets.utoledo.edu Office hours: M 10:00am-12:00pm or by appt.

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); not a phone

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, and 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 the SPSS statistical software program; 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 regular exams is worth 100 points; the final 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; they 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 to use 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. Exams will be rescheduled if you have documentation about 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 the TA and me by email at least *one week before* the exam. If you are unable to take an exam on time due to illness or emergency, notify us *before* the exam starts 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. Nothing is more important. The assignments solidify your understanding of the course material. There will be 10 assignments worth 10 points each. Assignments will be posted on the course website 1 week prior to the listed due date. 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. It is very important to stay caught up with the assignments. If you do not upload an assignment on time and do not contact us in advance with a valid reason (as noted above), we will deduct 2.5 points for each starting class time that passes before you upload it. Thus, if you upload it after class starts, it will be worth up to 7.5 points; if it is 1 week late, it will be worth up to 5 points; if uploaded 2 weeks late or more, it will 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 and Their Percentage and Point Values

A	93+%	≥ 512	C	73-76.9%	402-423
A-	90-92.9%	495-511	C-	70-72.9%	385-401
B+	87-89.9%	479-494	D+	67-69.9%	369-384
B	83-86.9%	457-478	D	63-66.9%	347-368
B-	80-82.9%	440-456	D-	60-62.9%	330-346
C+	77-79.9%	424-439	F	$< 60.9\%$	≤ 329

Class Policies
- No cell phones or other electronic devices (except calculator). Please turn them off when entering class. No browsing the internet while on the computer during class.

- Arrive on time and do not leave early.
- The computers at 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 is not 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 are not 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 requires modification of seating, testing, or other class requirements. Students must contact the Office of Student Disability Services (Rocket Hall 1820; 419-530-4981; http://www.utoledo.edu/offices/student-disability-services/) for an evaluation and a form specifying what accommodations are judged reasonable for that student. Please contact the instructor after class or during office hours so that appropriate arrangements may be made.

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.

Resources Related to Sexual or Gender-based Violence and Harassment

The University of Toledo cares greatly about the health and well-being of our students, staff, and faculty, and takes all sexual or gender-based violence and harassment very seriously. If you have experienced sexual assault, sexual harassment, intimate partner violence, and/or stalking and want a confidential place to obtain support and information, please contact the Center for Student

Advocacy and Wellness on the main campus in Health and Human Services Room 3017. You can call 419-530-2497 during regular business hours and 419-530-3431 for 24-hour assistance from a trained advocate. In-person, walk-in appointments are also available Monday-Thursday from 8:30 a.m. to 5 p.m. The Center for Student Advocacy and Wellness provides free and confidential advocacy and counseling services to students, faculty and staff. The YWCA H.O.P.E. Center also can be accessed as an off-campus confidential resource at 419-241-7273. Faculty, teaching assistants, and other university employees are mandated reporters of any incidents of sexual or gender-based violence or harassment. Thus, any disclosures of sexual or gender-based violence or harassment on or off campus made to faculty or teaching assistants, or other university employees must be forwarded to the Title IX Coordinator. The Title IX Office will then contact you regarding your rights, your option to participate in the investigation, interim safety measures and/or academic accommodations, and the need to proceed with an investigation (even if none is requested). Your participation in the process is voluntary. You may call 419-530-3152 to file a complaint or visit the following website for more information and resources: http://www.utoledo.edu/title-ix/. Policies relating to Title IX can be found at: http://www.utoledo.edu/title-ix/policies.html.

How to Succeed in this Course

Many students dread the statistics requirement for psychology. Some may even wonder why statistics is necessary for psychology majors. Others think back to math courses, which causes anxiety. Even though students may be nervous about taking 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, and new material builds upon previously learned material. Therefore, if you fall behind in the readings or do not understand a key concept, this will 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 what is mentioned above, make use of other resources on an off campus. Use your textbook. Complete Appendix A (a basic math self-test and refresher) in the first two weeks of the semester. Complete all of the "Check Your Learning" sections in the textbook. Review all the "How It Works" sections near the end of each chapter. Complete at least all the odd item Exercises at the end of each chapter (the answers are in Appendix C). Also, talk with us during office hours and use 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/). Also make use of campus resources, like 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.

UT also has useful campus resources for students in need. The **Rocket Recovery Emergency Fund** provides students with emergency assistance to help cover expenses related to housing or rent, a car issue, childcare, or a health issue. http://www.utoledo.edu/studentaffairs/omss/omss-2017/Rocket_Recovery.html. The **Food Pantry** is available for students in need: http://www.utoledo.edu/studentaffairs/food-pantry/. For **Other Emergency Needs**, students can contact Daniel Boyle, the Student Advocate and Student Involvement Specialist (Daniel.Boyle2@utoledo.edu or 530-5923). If that is insufficient, students also may contact the Dean's Office at 530-4616. They aim to do everything they can to get students the assistance they need to be successful in their classes.

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

Week	Date	Topic	Reading	Assignment
1	01/16	Introduction: Science and Statistics	Chapter 1	
	01/18	Variables and Measurement		
2	01/23	Data Organization	Chapter 2 & 3	Assignment 1 due
	01/25	Data Organization and SPSS	Chapter 4	
3	01/30	Central Tendency	Chapter 4	
	02/01	Variability		Assignment 2 due
4	02/06	Standardized (z) Scores	Chapter 6 (≤ 148)	Assignment 3 due
	02/08	Standardized (z) Scores		
5	02/13	**Exam # 1 (Chapters 1-4 & 6)**		
	02/15	Sampling & Probability	Chapter 5	
6	02/20	Sampling & Probability	Chapter 6 (149+)	
	02/22	Hypothesis Testing Basics	Chapter 7 & 8	Assignment 4 due
7	02/27	Single-sample z-tests		
	03/01	t-statistic and Single-sample t-tests	Chapter 9	Assignment 5 due
8	*03/06*	*No class (Spring break)*		
	03/08	*No class (Spring break)*		
9	03/13	t-statistic and Single-sample t-tests		
	03/15	Independent Groups t-tests	Chapter 11	Assignment 6 due
10	03/20	Correlated Groups t-tests	Chapter 10	
	03/22	**Exam # 2 (Chapters 5-11)**		
11	03/27	Analysis of Variance (ANOVA)	Chapter 12	
	03/29	Analysis of Variance (ANOVA)		
12	04/03	Repeated Measures ANOVA	Chapter 13	Assignment 7 due
	04/05	Two-Factor ANOVA	Chapter 14	Assignment 8 due
13	04/10	**Exam # 3 (Chapters 12-14)**		
	04/12	Correlation	Chapter 15	
14	04/17	Correlation & Regression	Chapter 16	
	04/19	Chi-square	Chapter 17	Assignment 9 due
15	04/24	Chi Square		
	04/26	Choosing the Right Statistic		Assignment 10 due
	05/03	**Exam #4 (final exam)**	8:00-10:00 am	

FINALS WEEK: Exam #4 (Cumulative, but emphasis on Chapters 15-17)
Thursday, May 3, 8:00-10:00am