PSY 2100-002 Statistical Methods / Fall 2021
Department of Psychology
University of Toledo
DL Online

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Course Information

Required Texts: *Statistics: Plain and Simple* (2017, 4th edition) (Jackson)

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, or using and interpreting the statistics (rather than 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 a 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.

University Policies

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 Accommodations (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 Accommodations 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.

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 development of the 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 documentation;
- 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;
- Commencing 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 examination;
- Submitting the same written work to fulfill the requirements for more than one course.

Course & In-Class Policies

Communication: I am happy to help you out if you are struggling in the course, so feel free to email me with questions about course content. Please use the address above instead of Blackboard email (I don't check it). **Before you email me, double-check the syllabus. If your question is addressed somewhere therein, I will not respond to your email.** I rarely respond to emails between 10 p.m. and 8 a.m., so please do not email me repeatedly if I do not respond within a couple of hours. I generally respond to emails within 24 hours, but do note that this may vary on weekends or during a holiday/break (e.g. Spring break). If there are assignments that are due during or upon return of a

holiday, please plan accordingly to work on assignments in a manner that will give you enough time to email me with questions and receive a response in enough time before the assignment due date.

Please also make sure that you are checking your email regularly. If I need to make the class aware of something (such as an exam needing to be postponed due to unforeseen circumstances, etc.), I will send an email to everyone. Make sure you check and read emails on a regular basis.

Attendance: This is an online course, so you obviously will not be "attending" class in the traditional sense. When I have taught this course in-person, I typically taught the material for the day, and there would sometimes be a practice worksheet for students to complete at the end of the class session. You can find these worksheets in Blackboard following the links to the video lectures for each lesson, along with the key to that practice worksheet. You do not have to complete these, but they are a very good way to test yourself, so I encourage you to use them.

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 lectures 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). 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 via email at least *one week prior* to the exam's due date. If you are unable to take an examination on time due to illness or emergency, notify me as soon as possible so that we can discuss making up the missed exam. If you do not have a university-sanctioned reason for missing an exam, you will not be permitted to make it up.

Homework Assignments: Homework is essential for success in this course. The assignments will solidify your understanding of course material and serve as good practice for the exams. There will be 10 homework assignments worth 10 points each. Assignments and any accompanying materials will be posted on Blackboard. Assignments must be submitted electronically through Blackboard **before** the start of class on the day they are due. If you anticipate missing a homework assignment, please notify me via email *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 me *before* class and be prepared to hand in your assignment as soon as is possible.

Late Assignments: If you did not hand the assignment in on time and did not contact me in advance with your excuse (as noted above), 2.5 points will be deducted for each class period handed in late (thus, if handed in 1 week late, the assignment would be worth 5 points at most; 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

How to Succeed in this Course

I have seen first-hand that many students dread this statistics requirement. Many wonder why a statistics class is necessary for psychology majors. Others think back to math courses with considerable anxiety. I am aware that many students are nervous about this class and, above all, I want to help you succeed in this course. Moreover, I will do my best throughout the semester to convince you that it is quite natural for psychology and statistics to exist together.

Mastering the basics of statistics is much like learning a new language – it requires practice, practice, practice. New material builds on older material, and it is essential that you keep up with the class material. Here are some general strategies to consider when going through the course:

Attend Class

Attending class is critical for success in this course. 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 to get all the information covered on exams.

Read, Study, and Take Notes Actively

Research shows that many individuals read and write passively, that is, without thinking about the meaning of what they are covering. In 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.

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, I have included homework assignments (in addition to the 4 exams). The purpose of the assignments is two-fold: 1) they allow you more opportunities to earn points in the course, and 2) they will give you critical practice for building your understanding of the material for exams and facilitate your use/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. Keep up with the readings and ask questions when things are unclear! Come talk to me before or after class, or send me an email if you aren't understanding something we've discussed in class.

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

Week	Date	Topic	Reading	Assignment
1	1/21	Introduction: Science and Statistics	Module 1	
	1/23	Variables and Measurement	Module 2	
2	1/28	Data Organization		
	1/30	Data Organization & SPSS	Module 3	Assignment 1 due
3	2/4	Measures of Central Tendency	Module 4	
	2/6	Variability	Module 5	Assignment 2 due
4	2/11	Variability		
	2/13	Standardized (Z) Scores	Module 6	Assignment 3 due
5	2/18	**Exam # 1 (Modules 1-6)**		
	2/20	Sampling & Distributions	Module 7	
6	2/25	Sampling & Distributions		
	2/27	Hypothesis Testing Basics	Module 8	Assignment 4 due
7	3/3	Single-sample z-tests	Module 9	
	3/5	t-statistic and Single-sample t-tests	Module 10	Assignment 5 due
8	3/10	NO CLASS – SPRING BREAK		
	3/12			
9	3/17	t-statistic and Single-sample t-tests		
	3/19	Independent Groups t-tests	Module 11	Assignment 6 due
10	3/24	Dependent Groups t-tests	Module 12	
	3/26	**Exam # 2 (Modules 7-12)**		
11	3/31	Analysis of Variance (ANOVA)	Modules 13-14	
	4/2	Analysis of Variance (ANOVA)		
12	4/7	RM ANOVA	Modules 15-17	Assignment 7 due
	4/9	Two-Factor ANOVA		Assignment 8 due
13	4/14	**Exam # 3 (Modules 13-17)**		
	4/16	Correlation	Modules 18-19	
14	4/21	Correlation & Regression	Module 20	
	4/23	Chi Square	Module 21	Assignment 9 due
15	4/28	Choosing the Right Statistic		Assignment 10 due
	4/30	Review for final		
FINALS WEEK: Exam #4 (Modules 18-21); Tuesday, May 5, 2:45pm-4:45pm				