



Introduction to Educational Statistics

EDMS 451

Spring 2017

Section 0401

Overview

Welcome to EDMS 451! This course is designed to teach introductory concepts in statistics as applied in the social sciences, particularly education. The course will provide a presentation of commonly used statistical procedures. Proficiency with algebra is necessary; however, no mathematics beyond algebra will be taught in this course.

This course will provide a foundation for future study in statistics, but is also designed to be useful to students who never plan to take another statistics course. Basic statistics are used in non-academic ways such as opinion polling, advertising, and sales, and this course will guide you to become a savvy consumer of information across multiple contexts. Statistics are often used to try to convince people that a particular point of view is correct – this class will help you judge those arguments and decide for yourself if they can hold water.

Learning Outcomes

After successfully completing this course you will be able to:

- Describe, summarize, and compare different distributions of data.
- Understand the logic behind basic statistical analyses, and understand the conceptual benefits and limitations of each (t-test, correlation, ANOVA, multiple regression)
- Demonstrate an ability to analyze data with novice-level descriptive and inferential statistics.
- Understand the connection between research questions and statistical analysis, and be able to write appropriate research questions for different methods.

Required Resources

1. Statistical Methods for the Social Sciences (Fourth Edition)



Alan Agresti & Barbara Finlay

ISBN-13:978-0-13-027295-9

Available to rent or purchase used on amazon for around \$45

2. You need to purchase a “clicker” and user license. Visit the Students section of www.clickers.umd.edu for details. You may not use a phone app, and you will want some spare CR2032 batteries.

3. A pocket calculator. This may NOT be the calculator on your cell phone. You need something like this: <http://amzn.to/2g09iLD>

Dr. Alice Donlanadonlan@umd.edu**Class Meets**

Mondays & Wednesdays
2:00pm - 3:15pm
JMZ 0220

Office Hours

4120 McKeldin Library
(Location may change during the semester)
Fri 1-2pm
and by appointment

Teaching Assistants

Devon Blumenthal

dmb Blumen@terpmail.umd.edu

Prerequisites

Sophomore standing or higher

Course Communication

Course announcements and materials will be posted to ELMS (elms.umd.edu).

Please cc the TA on any emails to the instructor, unless they have sensitive content

Resources on writing professional emails can be found here: ter.ps/email

Campus Policies

It is our shared responsibility to know and abide by the University of Maryland's policies that relate to all courses, which include:

- Academic integrity
- Student and instructor conduct
- Accessibility and accommodations
- Attendance and excused absences
- Grades and appeals
- Copyright and intellectual property

Please visit www.ugst.umd.edu/courserelatedpolicies.html and follow up with me if you have questions about any of the policies described on that page.

Course-Specific Policies

In this course, students will be expected to:

1. Read this syllabus thoroughly, and ask any questions that arise in a timely manner.
2. Be respectful of the instructor, fellow students, and the educational mission of the course.
3. Attend all classes and arrive on time.
4. Complete all assigned reading and tasks by the date specified.

Grading

Earned grades for all student work will be reflective of the extent to which the student fulfilled the assignment requirements in the rubrics. Any questions about grading should be brought to the instructor's attention in a respectful, timely manner (i.e., within one week after the grade is received) and should include information regarding:

1. On which section of the grading rubric you think you earned more points (the rubrics are posted on blackboard).
2. How many more points you believe you earned, with a justification using the rubric and the text of your paper or assignment.
3. How any grade changes would be fair to the rest of the class.

After this information is submitted, the instructor will decide whether any grade changes are warranted.

Any unsubstantiated requests for unearned points will not be tolerated or considered.

Any issues or questions about assignments need to be asked well in advance of the due date. It is the students' responsibility to read all assignment directions, ask questions, and keep the instructor apprised of any issues in a timely manner. Students who ask questions near the due date run the risk of having their questions go unanswered. Students who do not inform the instructor of life emergencies/illnesses/questions until after the due date will not be granted retroactive extensions or revisions.

Make Up Assignments/Exams

You may NOT make up graded classroom activities or exams for which you are absent unless you notify the instructor **PRIOR** to class, AND

- Within **one week** provide written documentation that your absence complies with the University of Maryland policy. In extremely exceptional circumstances, the prior notification requirement may be waved.
- All make-up activities and exams must be completed as soon as possible.
- Exams **must** be made up within **two weeks** of the original exam date. In exceptional circumstances, this requirement may be waved.

Late Assignments

All assignments are to be turned in at the **start** (i.e., the first 5 minutes) of class the day the assignment is due. Papers turned in after the start of class will be counted as one day late. I do not accept email submission of assignments. **I do not accept any version, variety, or derivation of computer/printer/flash drive/hard drive/software or other technology-related problems as acceptable explanations for late submission of assignments.**

Information about turning in late assignments:

- Late assignments will be penalized 10% for each **calendar day** beyond the deadline.
- In class assignment cannot be turned in late without expressed permission of the instructor.

Technology Policy

My preference is that you do not use a laptop during our class meetings. I understand and have considered arguments for permitting laptop and tablet computers in the classroom. However, in my experience (and based on the research evidence) the reality is that they present an irresistible distraction and detract from the cooperative learning environment. Researchers have found that these distractions do in fact interfere with learning and active participation. For that reason, the use of computers and phones will not be permitted during class meetings (except when required for DSS accommodations). If a computer is needed to accomplish a class objective for the day I will provide it or give you advanced notice to bring one with you.

I expect you to make the responsible and respectful decision to refrain from using your cellphone in class. If you have critical communication to attend to, please excuse yourself and return when you are ready. For more information about the science behind the policy watch: <http://youtu.be/WwPaw3Fx5Hk>

Graded Activities and Learning Assessments

In Class Assignments:

There will be unannounced in class assignments (ICAs) during the semester that cover course material. Expect these to occur approximately once each week or so. They could take the form of “clicker” questions, or brief written assignments. Each in class assignment will be worth up to 3 points.

- ICAs are graded on effort. If you complete the assignment, and try your best, you will get credit even if you get a question wrong.
- **Students will be required to complete 10 ICAs during the semester, but at least 13 will be offered.**
- Any additional points from class assignments will count as extra credit. This will be the **only** opportunity for extra credit.

The purpose of these assignments are to provide opportunities for deeper analysis of lecture content, identify topics that students do not yet understand, pose questions, and include student class participation in the final grade.

If a student has a documented, excused absence on the day of an in class assignment, that student will have the option completing the assignment at home and turning it in at the next class meeting. Students are required to find out from a classmate that an in class assignment occurred, and email Dr. Donlan for a copy of the assignment before the next class session. Dr. Donlan **will not** reach out to you to let you know you missed an in class assignment.

Homework:

There will be five homework assignments this semester. The due dates are listed in the course calendar at the end of this syllabus. Students can use any resource to complete these homeworks – discussions with peers, faculty experts, the internet, the textbook, etc – except any situation where someone other than the student is completing the work on behalf of the student. Students are welcome to work together to complete assignments, but each student should turn in their own paper.

Homework assignments are posted on ELMS, and must be turned in on ELMS. (elms.umd.edu)

Exams: (“Major Scheduled Grading Events”):

There will be three in-class examinations. All exams will primarily cover material since the last examination, but then also some areas where I believe students may have had trouble throughout the semester. **For each exam, students may use one 8.5"x11" two-sided page of notes**; tables and scratch paper will be provided at the time of the exam as needed. Students should bring a calculator to the exams, NOT a smartphone.

Get Some Help!

Part of “taking personal responsibility” for your own learning means acknowledging when your performance does not match your goals and doing something about it. Everyone can benefit from some expert guidance on time management, note taking, and exam preparation, so I strongly encourage you to visit <http://ter.ps/learn> and schedule an appointment with an academic coach. Sharpen your communication skills (and improve your grade) by visiting <http://ter.ps/writing> and schedule an appointment with the campus Writing Center. Finally, if you just need someone to talk to, visit <http://www.counseling.umd.edu>



Everything is free because you have already paid for it, and **everyone needs help**... all you have to do is ask for it.

Calculating Grades

Learning Assessments	#	Points Each	Category Total
In Class Assignments (ICA)	10	3	30
Homeworks	5	20	100
Exams	3	100	300
Total Points:			430

Final letter grades are assigned based on the percentage of total assessment points earned. To be fair to everyone I have to establish clear standards and apply them consistently, so please understand that being close to a cutoff is not the same this as making the cut (89.992 \neq 90.00, but 89.995 would be rounded up to 90.00). It would be unethical to make exceptions for some and not others.

Final Grade Cutoffs									
+	97.00%	+	87.00%	+	77.00%	+	67.00%		
A	94.00%	B	84.00%	C	74.00%	D	64.00%	F	<60.0%
-	90.00%	-	80.00%	-	70.00%	-	60.00%		



Course Evaluations

As members of our learning community, your personal reflection and feedback is crucial to success of this course, the strength of the campus, and the overall value of your degree. Students often do not realize how much the University values your voice... but it can only have an impact if you speak up. Visit courseevalum.umd.edu to learn more and submit your feedback.

Course Schedule

Date	Due by Start of Class	In Class Event	Topic
Wed 1/25	Read Syllabus		Hello!
Mon 1/30	Ch1		Introduction; Sampling and Measurement
Wed 2/1	Ch2		
Mon 2/6	Ch3		Descriptive Statistics
Wed 2/8			
Mon 2/13	Homework 1 Ch4 (pp. 73-85)		Probability Distributions
Wed 2/15	Ch4 (pp. 85-106)		
Mon 2/20			
Wed 2/22		Exam 1	
Mon 2/27	Ch5 (pp. 107-129, 132-142)		Statistical Inference: Estimation
Wed 3/1			
Mon 3/6			
Wed 3/8	Homework 2 Ch6 (pp. 143-155)		Statistical Inference: Significance Tests
Mon 3/13	Ch6 (pp. 156-165)		
Wed 3/15	Ch6 (pp. 166-182)		
Spring Break			
Mon 3/27	Ch7 (pp. 183-196, 208-220)		Comparison of Two Groups
Wed 3/29			
Mon 4/3	Homework 3		
Wed 4/5		Exam 2	
Mon 4/10	Ch8 (pp. 221-238, 246-254))		Analyzing Association between Categorical Variables
Wed 4/12			
Mon 4/17			
Wed 4/19	Homework 4 Ch9		Linear Regression and Correlation
Mon 4/24			
Wed 4/26			
Mon 5/1			
Wed 5/3	Homework 5 Ch12 (pp. 369-394, 400-412)		Comparing Groups: Analysis of Variance Methods
Mon 5/8			
Wed 5/10			
Final Exam	Saturday May 13, 4-6pm JMZ 0220	Exam 3	

Note: This is a tentative schedule, and subject to change as necessary – monitor the course ELMS page for current deadlines. In the unlikely event of a prolonged university closing, or an extended absence from the university, adjustments to the course schedule, deadlines, and assignments will be made based on the duration of the closing and the specific dates missed.