Overview

Welcome to EDMS 645! 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. 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 and compare different distributions of data.
- Understand steps of basic statistical analyses, and explain the conceptual benefits and limitations of each (z-test, t-test, correlation, chi-square)
- Analyze and summarize data with descriptive and inferential statistics by hand, and using statistical software.
- Understand the connection between research questions and statistical analysis and be able to create appropriate research questions for different methods.

Required Resources

1. Readings posted on elms.umd.edu

2. You need to purchase a “clicker” and user license. Visit the Students section of www.clickers.umd.edu for details. The device is available for purchase at the UMD Bookstore for $20. You may not use a phone app, and you may want some spare batteries.

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

4. SPSS Statistical Software. Available in campus computer labs.

Dr. Alice Donlan
adonlan@umd.edu

Class Meets
Wednesdays 4:15-7pm

Dr. Donlan Office Hours
Edward St. John 0105B
Mondays, 3-4pm
or by appointment

Teaching Assistant
Jonas Ventimiglia
jonasv@terpmail.umd.edu
Office Hours: Tues 3-4pm
or by appointment
EDU 0202

Prerequisites
None

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 see the University’s website for graduate course-related policies at: https://gradschool.umd.edu/course-related-policies 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 ELMS).
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 exceptional circumstances, the prior notification requirement may be waived.
- 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 waived.
Late Assignments
All assignments are to be turned in online on ELMS before 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 assignments cannot be turned in late without expressed permission of the instructor.
- Assignments more than 5 calendar days late will not be accepted, unless a formal extension has been granted by 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

Pre-Class Quizzes:
Each week before class, students will take a 5-question quiz on ELMS that covers the material they were assigned to read. These quizzes are open note, open internet, and students are welcome to take them while working in groups. However, each student needs to submit their own quiz. These quizzes will be graded and only correct answers will earn points. The quizzes are timed – students will have 15 minutes to complete the quiz. The quiz can be completed at any time during the week, but it is due on Wednesdays at 4:15.

There will be no quiz before a class period with an exam, or on the Wednesday before Thanksgiving.

The purpose of these assignments is to motivate students to keep up with the reading, and complete the practice questions at the end of each notes section before class.
In Class Assignments:
There will be unannounced in class assignments (ICAs) during the semester that cover course material. Expect these to generally occur each week. 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.

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 two 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.

Extra Credit:
There will be an opportunity to earn up to 5 points of extra credit for completing an assignment using RStudio. This is a free software package that can be downloaded here: https://www.rstudio.com/products/rstudio/download/#download (first download R and then download RStudio). Details of this extra credit opportunity will be announced in class.
Calculating Grades

<table>
<thead>
<tr>
<th>Learning Assessments</th>
<th>#</th>
<th>Points Each</th>
<th>Category Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Class Quizzes</td>
<td>11</td>
<td>5</td>
<td>55</td>
</tr>
<tr>
<td>In Class Assignments (ICA)</td>
<td>10</td>
<td>3</td>
<td>30</td>
</tr>
<tr>
<td>Homework</td>
<td>5</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>Exams</td>
<td>2</td>
<td>100</td>
<td>200</td>
</tr>
<tr>
<td><strong>Total Points:</strong></td>
<td></td>
<td><strong>385</strong></td>
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</tbody>
</table>

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 as making the cut (89.992 ≠ 90.00, but 89.995 would be rounded up to 90.00). It would be unethical to make exceptions for some and not others.

<table>
<thead>
<tr>
<th>Final Grade Cutoffs</th>
<th>+</th>
<th>97.00%</th>
<th>+</th>
<th>87.00%</th>
<th>+</th>
<th>77.00%</th>
<th>+</th>
<th>67.00%</th>
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<tbody>
<tr>
<td>A</td>
<td>94.00%</td>
<td>B</td>
<td>84.00%</td>
<td>C</td>
<td>74.00%</td>
<td>D</td>
<td>64.00%</td>
<td>F</td>
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<tr>
<td>- 90.00%</td>
<td>- 80.00%</td>
<td>- 70.00%</td>
<td>- 60.00%</td>
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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

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Reading due before class</th>
<th>Homework Due Dates</th>
<th># Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8/28</td>
<td>Basic Concepts and Displaying Data</td>
<td>1 &amp; 2</td>
<td></td>
<td>68</td>
</tr>
<tr>
<td>2</td>
<td>9/4</td>
<td>Percentiles and Percentile Rank, Measures of Central Tendency, Measures of Variability</td>
<td>3, 4, 5</td>
<td>Homework 1</td>
<td>31</td>
</tr>
<tr>
<td>3</td>
<td>9/11</td>
<td>Linear Transformations/Standard Scores, Sampling Distributions, Intro to Hypothesis Testing</td>
<td>6, 7, 8</td>
<td></td>
<td>25</td>
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<tr>
<td>4</td>
<td>9/18</td>
<td>Intro to Hypothesis Testing, Hypothesis Testing about a Single Mean (Z Test and t Test)</td>
<td>9, 10</td>
<td>Homework 2</td>
<td>19</td>
</tr>
<tr>
<td>5</td>
<td>9/25</td>
<td>Interpreting Results</td>
<td>11</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>6</td>
<td>10/2</td>
<td>Confidence Intervals</td>
<td>12</td>
<td>Homework 3</td>
<td>10</td>
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<tr>
<td>7</td>
<td>10/9</td>
<td>EXAM 1</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>8</td>
<td>10/16</td>
<td>Hypothesis Testing for Dependent Samples</td>
<td>13</td>
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<td>47</td>
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<tr>
<td>9</td>
<td>10/23</td>
<td>Hypothesis Testing for Independent Samples</td>
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<td>25</td>
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<td>10</td>
<td>10/30</td>
<td>Correlation</td>
<td>15</td>
<td>Homework 4</td>
<td>17</td>
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<td>11</td>
<td>11/6</td>
<td>Regression</td>
<td>16</td>
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<td>14</td>
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<tr>
<td>12</td>
<td>11/13</td>
<td>Chi-Squared Goodness of Fit, Chi-Squared Test of Independence</td>
<td>17</td>
<td></td>
<td>23</td>
</tr>
<tr>
<td>13</td>
<td>11/21</td>
<td>Review and Integration</td>
<td></td>
<td>Homework 5</td>
<td></td>
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<tr>
<td>14</td>
<td>11/27</td>
<td>No Class – Thanksgiving Break</td>
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<td></td>
<td></td>
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<tr>
<td>15</td>
<td>12/4</td>
<td>FINAL EXAM</td>
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</tbody>
</table>

**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.