Course Description
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. Students will learn both conceptual and technical aspects of location and dispersion measures, regression and correlation, hypothesis testing, z-tests, t-tests, and analysis of contingency tables. Proficiency with algebra is necessary; however, no mathematics beyond algebra will be taught in this course.

Course Website and Class Materials
https://elms.umd.edu (use your Testudo login to access the ELMS site)
Prior to coming to class each day students are expected to access whatever lecture materials are posted, if any. Materials should be posted by noon on the day of class, although probably earlier. Note, however, that whereas students may be accustomed in many courses to receiving handouts containing all of the lecture notes, this class will often require students to take notes in addition to whatever handouts may be provided. Please be prepared to take notes. This also underscores the importance of not missing class.

Required Course Material
Readings: There is no textbook for this course. Readings will be posted on-line for students to access. As lectures are only able to provide a skeleton of the course content, students are expected to read the associated materials.
Software: We will use SPSS (Statistical Package for the Social Sciences), which you may purchase for your laptop or home computer. There are versions for PC (https://terpware.umd.edu/Windows/Title/1880) and Mac (https://terpware.umd.edu/Mac/Title/1880). You may purchase a license from the Terrapin Technology Store (http://www.it.umd.edu/techstore/) in Stamp Union, and get it installed on your computer. In addition, the computer lab in the College of Behavioral and Social Sciences (LeFrak ground floor) has SPSS on its computers (http://www.oacs.umd.edu/ComputerLabServices.asp) and can be used for homework.

Teaching Assistants / Tutors / Study Groups
The TAs are here to help. Use them as soon as you feel something is unclear. Do not wait. Also, although I don’t believe that paying a tutor is necessary to do well in this course, you are welcome to secure a tutor if you feel that is necessary for you. Of course, I can’t endorse any tutors nor can I guarantee the accuracy of any information provided by tutors to students. Responsibility for course material ultimately rests solely with each student. I do highly recommend forming study groups that meet regularly (once or twice a week) to go over class materials; this can be an extremely valuable (and cheaper) option.

Calculator
You will need a calculator that is capable of calculating square roots for the homework, quizzes, and examinations. On in-class assessments you may NOT use your smartphone. Instructors will not provide calculators on in-class assessment days so be sure to bring a calculator on these days (and check the batteries beforehand).

Classroom Etiquette
Please have phones off and away during class meetings. Also, if you use a laptop or tablet to take notes, please refrain from personal web browsing, chatting, and other distracting and discourteous behaviors. Class is only 75 minutes; please give it your full attention.
Possible Guest Lecturers
Occasionally a guest lecturer may teach class, either because I have conflicting commitments or because I am giving others mentored teaching experience. In such cases class material is still mandatory and students are expected to show our guest the highest courtesy.

Keys to Success in This Class
BE HERE. In every sense – physically, mentally, and attitudinally. When you’re in class, pay attention. Bring posted notes to class and take notes on them, manually or electronically. Go over the class notes after every lecture. Study regularly with a group; go over all practice problems together as they are made available (not just right before an exam). As soon as you need help, ask a TA. And above all, be willing to learn. The instructor and TA can’t make you learn; you have to choose to engage. YOU CAN DO THIS!

Special Needs
If you have a registered disability that will require accommodation, please see the instructor so necessary arrangements can be made. If you have a disability and have not yet registered with the University, please contact Disability Support Services in the Shoemaker Building (301.314.7682, or 301.405.7683 TTD; http://www.counseling.umd.edu/DSS/) as soon as possible. All requests for academic accommodations should be made at the beginning of the semester.

Religious Observances
The University's policy on religious observance and classroom assignments and tests states that students should not be penalized for participation in religious observances and that, whenever feasible, they should be allowed to make up academic assignments that are missed due to such absences. Students are responsible for notifying the instructor of projected absences within the first two weeks of the semester. This is especially important for final examination, given that failure to reschedule a final examination before the conclusion of the final examination period may result in loss of credits during the semester.

Academic Integrity
The University of Maryland, College Park has a student-administered Honor Code and Honor Pledge. For more information on the Code of Academic Integrity or the Student Honor Council, please visit http://shc.umd.edu/SHC/Default.aspx. This Code sets standards for academic integrity at Maryland for all undergraduate and graduate students. As a student you are responsible for upholding these standards for this course. It is very important for you to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. The code prohibits students from cheating, fabrication, facilitating academic dishonesty, and plagiarism. Instances of this include submitting someone else’s work as your own, submitting your own work completed for another class without permission, or failing to properly cite information other than your own (found in journals, books, online, or otherwise). Any form of academic dishonesty will not be tolerated, and any sign of academic dishonesty will be reported to the appropriate University officials.

Importance of Attendance
In a class of this size I cannot possibly manage your attendance. YOU are responsible for attending this course, and for all of the material covered. In the rare instance that you miss a lecture, TAs are not responsible for giving you personal lectures that you missed. Also, and importantly, the nature of this subject matter is highly cumulative. Typically, if you miss any material then you lack the vocabulary and/or principles needed to succeed in the next topic. Then this snowballs out of control very quickly. Do not miss class.

Excused absences for missed assignments or assessments:
According to University policy, excused absences for missed assignments or assessments may include religious observances, mandatory military obligation, illness of the student or illness of an immediate family member, participation in university activities at the request of university authorities, and compelling circumstances beyond the student’s control (e.g., death in the family, required court appearance). Absences stemming from work duties other than military obligation (e.g., unexpected changes in shift assignments) and traffic/transit problems do not typically qualify for excused absence.

To receive accommodation for missed assignments or assessments due to an excused absence:
- The student must notify the instructor in a timely manner. The notification should be provided either prior to the absence or as soon afterwards as possible. In the case of religious observances, athletic events, and planned absences known at the beginning of the semester, the student must inform the instructor during the schedule adjustment period. All other absences must be reported as soon as is practical.
- The student must provide appropriate written documentation of the absence (documentation from a physician or the University Health Center, religious calendar, court summons, death announcement, etc.).

University Course-Related Policies
For a complete list of the University of Maryland's undergraduate course-related policies, see: http://www.ugst.umd.edu/courselatedpolicies.html.
Course Evaluations
As a member of our academic community, students have a number of important responsibilities. One of these responsibilities is to submit course evaluations each term through CourseEvalUM in order to help faculty and administrators improve teaching and learning at Maryland. All information submitted to CourseEvalUM is confidential. Campus will notify you when CourseEvalUM is open for you to complete your evaluations for fall semester courses. Please go directly to the website (www.courseevalum.umd.edu) to complete your evaluations. By completing all of your evaluations each semester, you will have the privilege of accessing online, at Testudo, the evaluation reports for the thousands of courses for which 70% or more students submitted their evaluations.

Formal Course Assessment

Check Yourself practice problems:
Practice questions will be posted fairly frequently for you to be able to check yourself; these are not to be handed in. Also, these will not be able to cover all materials for which students are responsible, but will give students a chance to work on some of the core skills. I highly recommend that you DO THESE IMMEDIATELY while the material is still fresh in your mind, and if you have problems check with your study group and/or a TA. As I stated before, the material in this course snowballs very quickly and it is not a course you want to play catch-up in.

On-Line Quizzes:
On four dates (tentatively: Sept 8-9, Oct 6-7, Nov 3-4, Dec 1-2) a relatively short quiz will be administered on-line, with a 24-hour window. Each quiz will cover material from the lessons since the last quiz or exam (unless otherwise specified). Students who miss a quiz will not be able to make it up unless prior arrangements have been made with the instructor. Do not wait until the last minute to take the quiz, as extensions will not be given for technical problems. Quizzes will typically require a calculator. Students are to complete quizzes entirely on their own.

Exams:
There will be three in-class examinations (tentatively: Sept 22, Oct 20, Nov 17) and a “quasi-cumulative” final exam (tentatively: Dec 14). The final exam will primarily cover material since the last class examination (Exam 3), 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 functional calculator to the exams, NOT a smartphone.

SPSS bonus opportunities:
There will be several brief bonus opportunities that require the use of SPSS software. These are to be submitted through ELMS on dates and times provided in class. Late, incomplete, or incorrect work will not be accepted for bonus points.

Course grades
This course is not graded on a curve. Assessments will be combined according to the percentages shown on the left. A worksheet for computing grades is provided. Final grades will be assigned using the scale to the right (without rounding):

<table>
<thead>
<tr>
<th>assessment</th>
<th>weight</th>
<th>overall course percent</th>
<th>grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total quiz points converted to a percentage</td>
<td>10%</td>
<td>98.0000 % — 100 %</td>
<td>A+</td>
</tr>
<tr>
<td>Total examination points converted to a percentage</td>
<td>60%</td>
<td>92.0000 % — 97.9999 %</td>
<td>A</td>
</tr>
<tr>
<td>Total final exam points converted to a percentage</td>
<td>30%</td>
<td>90.0000 % — 91.9999 %</td>
<td>A-</td>
</tr>
<tr>
<td>SPSS bonus</td>
<td>up to 5%</td>
<td>88.0000 % — 89.9999 %</td>
<td>B+</td>
</tr>
<tr>
<td></td>
<td></td>
<td>82.0000 % — 87.9999 %</td>
<td>B</td>
</tr>
<tr>
<td>Unnecessary computational error has been made, grades will not be changed after the end of the semester. Please do not contact me with “extenuating circumstances” for why your grade should be changed, or requesting more extra credit opportunities. If you find these grading criteria to be unsatisfactory, you should seek out another intro stats course on campus.</td>
<td>80.0000 % — 81.9999 %</td>
<td>B-</td>
<td></td>
</tr>
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<td></td>
<td></td>
<td>78.0000 % — 79.9999 %</td>
<td>C+</td>
</tr>
<tr>
<td></td>
<td></td>
<td>72.0000 % — 77.9999 %</td>
<td>C</td>
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<td></td>
<td></td>
<td>70.0000 % — 71.9999%</td>
<td>C-</td>
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<td>65.0000 % — 69.9999%</td>
<td>D+</td>
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<td>60.0000 % — 64.9999%</td>
<td>D</td>
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<tr>
<td></td>
<td></td>
<td>55.0000 % — 59.9999%</td>
<td>D-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>≤54.9999 %</td>
<td>F</td>
</tr>
</tbody>
</table>

Grades of "Incomplete":
Grades of "Incomplete" will not be given for this course except in cases of extreme emergency.
Readings

Here are the readings students are expected to be doing, whether or not the material is explicitly addressed in class. Because I don't know how long topics will take to cover, I can't give a detailed calendar. The best I can do is provide the following topic list, for which reading materials will be posted throughout the course.

<table>
<thead>
<tr>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction / Basic Concepts</td>
</tr>
<tr>
<td>Displaying Data / Frequency tables</td>
</tr>
<tr>
<td>Percentiles and Percentile Ranks</td>
</tr>
<tr>
<td>Measures of Central Tendency</td>
</tr>
<tr>
<td>Measures of Variability</td>
</tr>
<tr>
<td>Probability</td>
</tr>
<tr>
<td>Normal Distribution / z-score</td>
</tr>
<tr>
<td>Sampling Distributions</td>
</tr>
<tr>
<td>Introduction to Hypothesis Testing</td>
</tr>
<tr>
<td>One-Sample z-test</td>
</tr>
<tr>
<td>One-Sample t-test</td>
</tr>
<tr>
<td>Interpreting Hypothesis Testing Results</td>
</tr>
<tr>
<td>Confidence Intervals</td>
</tr>
<tr>
<td>Independent Samples t-test</td>
</tr>
<tr>
<td>Dependent Samples t-test</td>
</tr>
<tr>
<td>Correlation</td>
</tr>
<tr>
<td>Simple Linear Regression</td>
</tr>
<tr>
<td>Probability Revisited</td>
</tr>
<tr>
<td>Chi-square Goodness-of-Fit Test</td>
</tr>
<tr>
<td>Chi-square Test of Independence</td>
</tr>
</tbody>
</table>
Keys to success in EDMS451

- Attend every lecture. Period. This includes attending class when we go over the topics prior to each exam, and attending class afterwards when we go over each exam. And everything in between.
- Be present in class mentally and attitudinally. Put away your phone. Don’t play on the web with your laptop or tablet while in class. Give the lectures your full attention.
- Print/download slides before coming to class; bring them and write/type notes on them. *Don’t just take pictures of what is written on the slides in class.*
- Form a study group that meets regularly (once or twice a week) to go over class materials.
- If something in class is unclear, and your fellow students cannot help you to clarify it, go see a TA immediately.
- Go see a TA if you want them to ask YOU questions – help them to find where your knowledge has holes.
- Do the supporting readings, either right before class or right after class – definitely before the next class. If anything is unclear, and your fellow students cannot help you to clarify it, go see a TA immediately. *It doesn’t work to just skim the readings right before an exam.*
- Do any practice problems in the readings before the next class. If you have trouble, and your fellow students cannot help you to clarify it, go see a TA immediately. *It doesn’t work to just try the problems right before an exam.*
- If there are Check Yourself problems, do them right after class – definitely before the next class. Work on them with fellow students if you can. If you have trouble, and your fellow students cannot help you to clarify it, go see a TA immediately. *It doesn’t work to just try the problems right before an exam.*
- Before each test go back through the readings, notes, practice problems and Check Yourself problems. This should not be the first time you have encountered these, though. Statistics is *not* a subject you can “cram” for.
- When you get your exam or quiz score, if going over the exam/quiz in class wasn’t enough, then go see a TA immediately to go over the items that you missed so you don’t continue to have those holes in your knowledge as we get new material that depends on that old material.
- Do the SPSS extra credit opportunities.


### Course Grade Worksheet

<table>
<thead>
<tr>
<th>Quiz 1</th>
<th>Quiz 2</th>
<th>Quiz 3</th>
<th>Quiz 4</th>
<th>Average of best 3 quizzes</th>
</tr>
</thead>
<tbody>
<tr>
<td>your score as a %:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Exam 1</th>
<th>Exam 2</th>
<th>Exam 3</th>
<th>Average of 3 exams</th>
</tr>
</thead>
<tbody>
<tr>
<td>your score as a %:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Final exam**

<p>| |</p>
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>your score as a %:</td>
</tr>
</tbody>
</table>

**SPSS Bonus**

<table>
<thead>
<tr>
<th>Assessment</th>
<th>weight</th>
<th>decimal</th>
<th>your % score</th>
<th>decimal × % score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes</td>
<td>10%</td>
<td>.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exams</td>
<td>60%</td>
<td>.60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final Exam</td>
<td>30%</td>
<td>.30</td>
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</tr>
</tbody>
</table>

\[
\text{TOTAL} + \text{SPSS BONUS}
\]

**FINAL COURSE GRADE:**

<table>
<thead>
<tr>
<th>Total weighted course %</th>
<th>grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>98.0000 % — 100 %</td>
<td>A+</td>
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<tr>
<td>92.0000 % — 97.9999 %</td>
<td>A</td>
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<tr>
<td>90.0000 % — 91.9999 %</td>
<td>A-</td>
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<tr>
<td>88.0000 % — 89.9999 %</td>
<td>B+</td>
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<tr>
<td>82.0000 % — 87.9999 %</td>
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<td>80.0000 % — 81.9999 %</td>
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<tr>
<td>78.0000 % — 79.9999 %</td>
<td>C+</td>
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<tr>
<td>72.0000 % — 77.9999 %</td>
<td>C</td>
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<td>70.0000 % — 71.9999 %</td>
<td>C-</td>
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<tr>
<td>65.0000 % — 69.9999%</td>
<td>D+</td>
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<td>60.0000 % — 64.9999%</td>
<td>D</td>
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<tr>
<td>55.0000 % — 59.9999%</td>
<td>D-</td>
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<tr>
<td>≤54.9999%</td>
<td>F</td>
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