



THE UNIVERSITY OF TEXAS AT EL PASO
COLLEGE OF SCIENCE
DEPARTMENT OF MATHEMATICAL SCIENCES
¡BIENVENIDOS (WELCOME)!

note: From the top of <http://www.math.utep.edu/Faculty/lesser/schedule.html>, you can access this syllabus if you misplace yours, want to explore its many links or see any addendums. Syllabus is subject to change by the instructor to meet course needs, especially for unexpected school disruptions or big changes in class size, resources, etc.

Course Number: MATH 4370-0 (CRN# 15578)

Course Title: Topics Seminar (Probability and Statistics for Middle School Teachers)

Credit Hours: 3

Term: Fall 2014

Prerequisite: STAT 1380

Course Fee: none

Course Meetings & Location: MW 4:30-5:50 in QUIN 202 (room may be subject to change). If there's a major disruption (e.g., H1N1 epidemic, subzero weather, etc.), be prepared to maintain course progress via alternative means (e.g., phone, Internet, a Blackboard course shell, etc.) and check your email (especially your UTEP account) regularly.

Instructor: Dr. Larry Lesser (rhymes with 'Professor', spelled like <). I began teaching university courses (especially stats!) in 1988 (at UTEP since 2004), and I've also worked as a state agency statistician, a full-time HS math teacher, and a half-time director of UTEP's teaching center. In 2012, I taught a lesson to local first and second graders on surveys for a children's educational TV show (see http://kcostv.org/localprograms/flowplayer/Videos/bb_season2/Video2.php)! I've served on national statistics education journal editorial and research advisory boards and have published in statistics education journals aimed at researchers (e.g., *SERJ*, *JSE*) as well as journals aimed at teachers (e.g., *Teaching Statistics*, *Mathematics Teacher*, *Statistics Teacher Network*, *STEW: Online Journal of K-12 Statistics Lesson Plans*).

Office Location: Bell Hall 213 (but I am sometimes across the street in UGLC 122)

Contact Info: Phone: (915) 747-6845 (if I'm in UGLC 122, it's 747-8940)

Email **Lesser (at) utep.edu** (please include 4370 in the subject line)
also, note that emailing me from your miners address is recommended because it reduces the chance of the UTEP server rejecting it and provides more security

Homepage: <http://www.math.utep.edu/Faculty/lesser/>

Fax: (915) 747-6502 (note: this is a departmental fax, so be sure to have my name clearly on it; be aware that staff are not available to relay faxes to me outside the math dept's hours of M-F 8-12, 1-5)

Emergency Contact: (915) 747-5761 (during math dept office hours)

Office hours: initial office hours are MW 3:14-4:14 and by appointment;
 additional office hours or changes will be announced or posted later;
 you are also welcome to try stopping by anytime for short questions; for
 longer questions, just email me several possible appointment times that
 would work and I will reply with which option works in my schedule; I
 expect to be assigned a TA who can offer some hours at yet additional
 times in the MaRCS or elsewhere: _____

Textbook(s), Materials:

Required textbook: Perkowski, D. A. & Perkowski, M. (2007). *Data and Probability Connections: Mathematics for Middle School Teachers*. Upper Saddle River, NJ: Pearson Prentice Hall.

Subject to change based on timing, resources and interest, we plan to (un)cover the entire book in order, but moving through the early chapters at a faster pace (due to the foundation you gained from Stat 1380). There may also be occasional supplementary material provided on topics for which you are also responsible, such as the geometric distribution. You are expected to read each chapter and try the selected HW problems for that chapter (see below) before the class meeting we discuss that chapter (so that you are able to understand more and offer more) and to **bring your book to each class**. Depending on factors such as available TA support, I will usually assess your keeping up with reading/exercises by giving a quiz (with or without advance notice) on the same topic, and I will give at least one class period’s advance notice for any chapters where I collect written homework.

chapter	HW	chapter	HW
1	3,4,5,7,8	6	4,5a,6a,7abefg,8,10abc,12
2	3,5,7f, 9,10	7	3,6,11,13-15,18defgh,20
3	3cd, 4acfgk,6,7,9,11,14,15ab	8	3,5-7,8de,10,14,15
4	3,4,5,7bc, 8,9	9	3,9,11,15
5	4,6,8-12, 14,16	10	3,4,9,10,15

Note: Don’t worry about continuity correction (p. 223) or classical approach (p. 322). H_0 will never be an inequality in our class (see pp. 304-5)

Required technology:

- The “low-tech” clicker we’ll call **the “ABCD Card”**, and it needs to be this particular one (because there are different color schemes out there): <http://www.math.utep.edu/Faculty/lessor/ABCDclassResponseCard.pdf>
 If you don’t have a color printer, print the card from the URL above in black-and-white and color it in with its color scheme. See the “Participation” section later in this syllabus for more information
- **TI-83/84+ calculator brought to each class.** This calculator not only is commonly used in secondary school classes like Algebra I, AP statistics, etc., but also our textbook includes specific support for it and I will often demonstrate things with it (and occasionally with the TI-73 as well). Having a common course calculator also creates a “level playing field” and streamlines instruction. You’ll be allowed to use it on virtually all activities and

assessments (but it really has to be a separate calculator, because you aren't allowed to use devices such as a laptop or cell phone on tests). You still need to be able to show enough work so I can follow your process and give full credit for your work. Example: to find mean of {3, 4, 5, 5, 8}, don't just say "5", but write out $(3 + 4 + 5 + 5 + 8) / 5 = 5$. Websites such as www.prenhall.com/esm/app/calc_v2/ help you get the most out of your calculator.

As logistics and interest allow, I'll expose you to how stats are computed with applets, graphing calculator, spreadsheet (Excel), software (e.g., Minitab, Fathom, Tinkerplots), etc., and resources for accessing/using some of these are at <http://www.math.utep.edu/Faculty/lesser/ResearchResources.html>.

See <http://admin.utep.edu/Default.aspx?tabid=65399> to access Minitab from home and it is often in some UTEP labs (e.g., Bell 130, CRBL 401, or Library). Browse its Calc, Stat, & Graph pulldown menus.

You may be able to download a temporary/limited copy of **TinkerPlots** from <http://www.keycurriculum.com/thank-you-for-purchasing-tinkerplots-dynamic-data-exploration> and **Fathom** from <http://concord.org/fathom-dynamic-data-software>.

Course Objectives (Learning Outcomes): Students will be able to....

- gain more mathematical foundations and connections for the statistical literacy you were exposed to in Stat 1380,
- gain understanding some additional topics given little or no attention in Stat 1380, such as the binomial and geometric distributions, residual analysis in regression, combinations/permutations, inferential statistics, etc.
- increase your ability to carry out the collection, interpretation, and communication of real-world data to explore questions of interest.
- gain awareness of connections to current/recent middle school curricula and the most up-to-date guidelines, principles and standards for instruction being advocated by national mathematics/statistics organizations, such as:
NCTM Standards,
<http://www.nctm.org/standards/content.aspx?id=16909>
(120-day free access: <http://standardstrial.nctm.org/triallogin.asp>;
also, see <http://www.nctm.org/standards/content.aspx?id=26824>,
<http://www.nctm.org/standards/content.aspx?id=26813>,
and Appendix A of <http://www.amstat.org/publications/jse/v18n3/metz.pdf>)
GAISE Pre-K-12 Curriculum Framework,
http://www.amstat.org/Education/gaise/GAISEPreK-12_Full.pdf;
Common Core State Standards in Mathematics,
http://www.corestandards.org/assets/CCSSI_Math%20Standards.pdf);
Texas Essential Knowledge and Skills,
<http://ritter.tea.state.tx.us/rules/tac/chapter111/ch111b.html>
- gain background to handle probability and statistics questions on the TExES/ExCET (<http://cms.texas-ets.org/texas/prepmaterials/tests-at-a-glance/>, then click on "Mathematics 4-8 (115)")

Course Activities/Assignments: Students will participate in in-class activities, demonstrations, discussions, readings, and assessments. Assigned homework exercises from the textbook are listed previously on this syllabus where the textbook is stated.

Assessment of Course Objectives: Assessments include written homework (which may include reflections or projects), quizzes, and exams.

Course Schedule: Census Day: Sept. 10 for UTEP
Midterm Exam: currently set for Oct. 8, but subject to change
Deadline to Drop with a “W”: Oct. 31
Last Regular Class Meeting: Wed., Dec. 3
Finals Week Exam: Mon., Dec. 8 (as set by UTEP registrar, with approval needed for any modifications; covers material AFTER the material covered by the midterm)

Grading Policy: after any rescaling needed for all components to be on the 0-100 scale, the grade is determined by the usual cutoffs of 90-80-70-60 based on these 3 parts:

* Midterm Exam (25%) at least a week or two in advance, I’ll confirm the exact material covered, the date, and what formulas from the textbook will be provided; you must bring your own calculators (see p. 2 of the syllabus) and #2 pencils; the main emphasis of the exam is not on memorization or rote procedures, but on being able to recognize, apply, critique, and interpret concepts in context (e.g., in newspaper articles or graphs), even if the questions have a multiple-choice format; it is recommended that you study with a partner your class notes, the textbook chapters, homework and quizzes.

* Finals Week Exam (35%) – see above

* Homework/One-page Reflections/Projects/Quizzes (40%): The exact details for these will be announced in class and may be affected by class size and availability of TA grading support.

Makeup Policy: In general (out of fairness and logistics), **late work will not be accepted**, and may be subject to a penalty in the rare borderline cases that it is accepted at the instructor’s discretion. If an in-class quiz or exam is missed, the instructor will consider a “makeup arrangement” (i.e., the instructor will choose to either offer a makeup assessment or simply replace that part of the grade with the final exam) only if: (1) the student relays to me (by email) within 24 hours (or the earliest medically possible opportunity) why missing the scheduled class exam date was unavoidable for a serious reason, and hand me or email me a written statement or document (e.g., doctor’s note) for my file within 7 calendar days, and (2) the student takes the initiative to contact me by email with available days/times for a makeup exam as soon as possible (if it takes 3 or more calendar days just to get an appropriate email response from the student, I would consider a makeup only in the *most extreme and documented circumstances*).

Attendance Policy: **Attendance is expected** and here’s why: Much of this course involves beyond-the-book group activities, experiences or discussions that are virtually impossible to recreate or “make up.” Successful completion of this course is intended not only to imply you have demonstrated sufficient knowledge acquisition, but also that you have been exposed to key processes, modeling, and experiences (which are especially important for future teachers, for example). Therefore, if you are now in a situation where you expect to have frequent absences, you might consider taking this class in another

section or another semester. Attendance is generally taken each meeting using a sign-in sheet and it's your responsibility to sign it each day you attend *before* the end when I am busy packing up materials. Late arrival, early departure, or blatant nonparticipation may be counted as a half-absence or even a full absence, depending on what is missed.

As the UTEP *Catalog* says, "When in the judgment of the instructor, a student has been absent to such a degree as to impair his or her status relative to credit for the course, the instructor may drop the student from the class with a grade of "W" before the course drop deadline [Oct. 31] and with a grade of "F" after the course drop deadline." In practical terms, this means a student is **subject to being dropped for 5 or more absences** (unless you have given me a written or emailed reason I have approved). If you choose to withdraw, I ask that you submit the formal paperwork and send me an email to let me know rather than just stop attending class and assume you will be withdrawn automatically. On a positive note, a strong record of attendance will be taken into account if your final average is a point below a letter grade cutoff.

It's your responsibility to....

- (1) give me a written note or email by the 15th day of the semester [Sept. 15] if you will have absence for religious holy days (which are excused, of course).
- (2) give me an email or written documentation as soon as possible if you anticipate the possibility of missing large parts of class due to exceptional circumstances such as military service/training, childbirth, or competing on official UTEP athletic teams.
- (3) let me know by email (**Lesser (at) utep.edu**) or voicemail (747-6845) or daytime math dept. fax (747-6502) at the *earliest opportunity* if you have a serious situation which may affect a test, major assessment deadline, the final exam week meeting, or a large number of "regular" class days. If you miss a single "regular class meeting," you don't need to contact me, but you **DO** need to get copies of notes and announcements from a classmate, so **be sure you have contact information for at least 3 classmates** for this purpose.

Academic Integrity Policy: It's UTEP's policy (and mine) for all suspected violations to be referred to the Dean of Students for investigation and disposition (See the [Handbook for Operating Procedures](http://admin.utep.edu/Default.aspx?tabid=73922): <http://admin.utep.edu/Default.aspx?tabid=73922>)

Cheating, plagiarism and collusion in dishonest activities are serious acts which erode the university's purpose and integrity and cheapen the learning experience for us all. Don't resubmit work completed for other classes without specific acknowledgment and permission from me. It is expected that work you submit represents your own effort (or your own group's effort, if it is a group project), will not involve copying from or accessing unauthorized resources or people (e.g., from a previous year's class). You must cite references that you do consult, using **APA style** with complete citations even for websites and people you consult.

For Group Work: Within a group, members are allowed to divide up subsets of the project for which individuals will take the initial responsibility for coordinating efforts, but it is assumed that by the time a group turns in a writeup that all members have read, discussed, contributed to, and understand what is being turned in. Group members may even discuss general ideas and strategies with members of other groups, but **NOT** share parts of actual written work. At a minimum, to be safe, put away all written notes and writing materials and recording devices before having any intergroup conversations. And if you still see a "gray area," play it safe and ask the instructor! Intergroup conversations are not allowed during in-class quizzes taken as teams.

Civility Statement: You are expected to follow basic standards of courtesy (e.g., "Student Conduct" and "Disruptive Acts Policy" in the UTEP *Catalog*:

<http://catalog.utep.edu/undergrad/academic-regulations/student-life-policies-and-procedures/>) and may be dismissed from class for blatant or sustained disruptive behavior. Your comments during classroom discussions need to focus constructively and respectfully on the intellectual merit of a position, *not* critiquing the person expressing it. You should avoid side conversations when one person (me, or another student) is talking to the whole class. If you need to have a laptop open (for taking notes during lectures or appropriately accessing an electronic copy of our textbook), please minimize distractions to other students by sitting by a back wall or side wall. Whether the “weapon of math disruption” is a phone or laptop, engaging in activities such as texting, Facebook, YouTube, phone conversations, or emailing are generally inappropriate, especially when they distract and disrupt class participation. If you truly are expecting an urgent call on your cell phone or pager, please let me know and sit near the door to minimize disruption (and have your phone on vibrate/silent instead of anything loud), and have it handy so you don’t have to dig through a backpack for it). Otherwise, please keep your phone/pager off during class. Feel free to give your family member or childcare provider the phone number for the campus police (747-5611) or the academic office or lab nearest our classroom so you can rest assured that you can be reached quickly if there is a true emergency.

Disability Statement: If you have or believe you have a disability requiring accommodations, you may wish to self-identify by contacting the Center for Accommodations and Support Services (CASS; 747-5148; Union East Building 106; cass@utep.edu; <http://sa.utep.edu/cass/>) to show documentation or register for testing and services. CASS will ask you to discuss needed accommodations with me within the first 2 weeks of the semester or as soon as disability is known, and at least 5 working days before an exam. You are responsible to make sure I receive any CASS instructions and accommodation letters. CASS provides note taking, sign language, interpreter, reader and/or scribe services, priority registration, adaptive technology, diagnostic testing for learning disabilities, assistance with learning strategies/tutoring, alternative testing location and format, and advocacy.

Military Statement: Give me an email or written documentation as soon as possible if you anticipate the possibility of missing large parts of class due to military service.

ADDITIONAL INFORMATION

Professionalism Statement: Beyond the previously mentioned Civility Statement, students in this course are required to exhibit professionalism that goes beyond avoiding negative behaviors. This includes making a good faith effort in preparation for and participation in individual and collaborative class activities. A classroom culture must be actively supported that understands that “wrong answers” are usually correct answers to a different question or valuable learning opportunities to address a common misconception. Also, be open to local opportunities for professional growth or service. For example, future teachers may consider encouraging K-12 students to enter an **ASA Project or Poster** (due April 1; <http://www.amstat.org/education/posterprojects/>) or joining (at cheaper student rates!) professional mathematics/statistics education organizations, such

as TCTM (<http://tctmonline.org/TCTMdrupal/content/membership>), NCTM (<http://www.nctm.org/membership/content.aspx?id=7618>), TODOS, our local GEPCTM, or ASA: <http://www.amstat.org/education/pdfs/EducationResources.pdf>).

Participation: Part of your daily class participation involves answering questions posed by the instructor. These questions are ongoing assessment designed to give feedback to you as well as to the instructor. Some questions will be answered “simultaneously and anonymously” using the research-backed, classroom-tested Ed Prather ABCD Class Response Card. **Each student is responsible for bringing to each class the ABCD Card** that has the same color scheme as the one located at the following URL: <http://www.math.utep.edu/Faculty/lesser/ABCDclassResponseCard.pdf>.

Confidentiality: UTEP policy requires that inquiries about confidential information such as grades cannot be done over the phone, but must be from your miners.utep.edu account and accompanied by your 800 number. If you want to know your final course grade before UTEP puts grades online, I will post it on our Blackboard course shell when I have it ready.

Other Resources:

UTEP Library: I’ve put some statistics books with other conceptual intuition or real-world connections on reserve at the circulation desk under “Lesser” or “Stat 1380.” On the 2nd floor, free walk-in tutoring is available for this course (<http://marcs.utep.edu>; Library 218; 747-5366), and you’ll have best results with the tutors specifically listed on the tutoring lab schedule as having a statistics background. Also available in the Library is free help with writing papers (Writing Center, Library 227, 747-5112, <http://uwc.utep.edu/>).

study tips: <http://www.math.utep.edu/Faculty/lesser/mathtips.html>

Classroom connections (interesting for all, especially future teachers):

<http://www.amstat.org/education/stn/> (e.g., browse issue #64)

<http://www.wiley.com/bw/journal.asp?ref=0141-982X&site=1> (UTEP students have access through the UTEP library webpage) or <http://www.rsscse-edu.org.uk/tsj/>

<http://www.causeweb.org/resources/>

<http://www.amstat.org/education/webinars/>

<http://www.amstat.org/education/stew/>

<http://www.math.utep.edu/Faculty/lesser/STATResources.html>

Also, be aware that there are lots of free statistics textbooks online that can be consulted as references as well (in GOOGLE, type: online statistics textbooks) and there are various resources at www.math.utep.edu/Faculty/lesser/STATResources.html.

My “welcome to the wonderful world of STAT ED website”

(<http://www.math.utep.edu/Faculty/lesser/StatEdIntro.html>) has resources that not only will help your own understanding in this course, but also offer further context and connections with some topics you might teach (at a more basic level). Please let me know of other resources you find particularly helpful that I may not know about.
