Math 1308 – Elementary Statistics
Section 501

Course Instructor

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Textbook and Materials

You have a couple of options for this course depending on personal preference. If you choose to purchase your items through the UTA Bookstore, please contact Shiva in the bookstore: shiva@uta.edu.

1. **Access Code and Textbook Bundle**: *Fundamentals of Statistics*, 4th Ed., Sullivan, Pearson Ed. Inc., 2014. ISBN# 1323042555; containing MyLabsPlus (MLP) access code.
2. **Access Code for MyLabsPlus**: Purchase your stand-alone access code at the UTA bookstore— or purchase online at www.uta.mylabsplus.com on the first class day. There is a free E-book within the MLP website.

Additional materials include an optional graphing or scientific calculator. Please note that calculators that have excessive text and storage capabilities are not allowed.

Software and System Requirements:

Mozilla Firefox and Google Chrome are the recommended and supported browsers for this course. The course also has the following options for system requirements:

- Windows 7.0 or higher
- Mac OS x 10.8 or higher

Students are encouraged to use the Browser Check on the initial page within the MLP system in order to check and/or update (free download) the following software requirements:

- Adobe Flash Player version 11.9 or higher
- Adobe Reader version XI or higher

Course Elements

Course Lectures and Webcasts

Content material and instructions can be found in the unit tabs within blackboard. The course is separated into 3 units of material which will correspond to the 3 chapter tests. Within each unit there are two blocks with specific details and assignment requirements. Preparation will take place within blackboard and all graded assignments are found within the MLP system.

You will have weekly webcasts with your course instructor. See Webcast Schedule for details and times. You will access the webcasts through the live webcasts tab within blackboard.

Schedule of Lessons and Tests

You must complete all assignments and tests by the due dates. Due dates are listed in **MyLabsPlus** and also in the Course Schedule located in blackboard. **All deadline times are in Central Time**.

Grade Calculation

Homework, Tests, Exam	Percent of Grade
Homework/Quizzes	20%
Chapter Exams (Average of 3 Tests)	50%
Comprehensive Final Exam	30%
Total:	100%

- Two of the lowest homework grades and one quiz grade will be dropped at the end of the semester.
- In the event you are not satisfied with one of your three chapter exam scores, you may ask your instructor for a retake. Only ONE retake on a chapter exam of your choosing will be granted. Please reference the course schedule for specific retake dates. You MUST receive email confirmation from your instructor prior to taking your ONE retake exam. All retakes must be completed prior to the final exam.

Grading Scale

Grades will be computed based on the following distribution. Grades are rounded up accordingly.

90 — 100%	A
80 — 89%	B
70 — 79%	C
60 — 69%	D
Below 60%	F

Homework and Quizzes

All homework and quizzes will be assigned in MyLabsPlus. (www.uta.mylabsplus.com) All homework and quiz assignments are available to you on the first class day.

- **NO late homework or quizzes will be accepted,** so watch the due dates on the MyLabsPlus calendar. You will receive a zero for any assignments not submitted.
- There is a homework assignment covering each section of material, a syllabus quiz, and there are 6 content quizzes. Homework assignments are set for unlimited access up until the due date and you

have 3 attempts per question, however you only have two attempts at each quiz which have a 45 minute time limit and must be completed once opened. Quizzes cannot be saved and resumed later.

- All homework assignments contain learning aids to help you through the material. Be careful not to become overly dependent on these aids or you may not perform well on the exams. You have three chances at a question per attempt. To gain access to the next attempt once a question is marked wrong; simply select the "similar exercise" button at the bottom of the homework screen. Quizzes are designed to check your knowledge retention and therefore do not contain the learning aids except in review mode once the quiz has been submitted.
- If you have trouble completing the assignments, please seek some form of tutoring and/or see your instructor or coach for assistance.

Extra Credit: Technology Assignments

This course contains three related concept assignments. These assignments will reinforce work done by hand using technology and will count as bonus points on a chapter exam based on the percentage score earned on each assignment. No more than 5 points can be earned on any given test. Extra credit will be applied at the end of the semester and cannot apply to the final exam.

Tests

There will be three online proctored chapter tests throughout the course of the semester. (Please reference the course schedule for exact dates.)

- All chapter tests are found within MLP and are comprised of questions that must be completed within 90 consecutive minutes. Tests cannot be opened, saved, and returned to at a later time. Tests are opened a few days prior to the deadlines.
- You may use one 3x5 index card with notes front and back, an approved calculator (no cell phones), approved formula sheets, and blank scratch paper. No additional materials are allowed.
- The approved formula sheets are located in the back of your textbook in a foldout chart. These formulas pages will also be posted to blackboard.
- All exams are either taken in the Math Computer Lab (PKH 308) on the UTA campus by appointment only or by making arrangements for online proctoring with Proctor U which requires prior scheduling and a webcam. Students are solely responsible for their own scheduling and the fees associated with using the service. See tab in blackboard called Testing/Proctor U for details.
- Use of any unauthorized electronic devices or notes during an exam will result in a grade of ZERO.

Final Exam

The final exam is a comprehensive, proctored exam containing material from all sections covered over the course of the semester. (Please reference the course schedule for exact dates.)

- The final is found within MLP and is comprised of questions that must be completed within 150 consecutive minutes. The final cannot be opened, saved, and returned to at a later time. It will be opened a few days prior to the deadline.

- You may use two 3x5 index cards with notes front and back, an approved calculator (no cell phones), approved formula sheets, and blank scratch paper. No additional materials are allowed.
- The approved formula sheets are located in the back of your textbook in a foldout chart. These formulas pages will also be posted to blackboard.
- The final exam can either be taken in the Math Computer Lab (PKH 308) on the UTA campus by appointment only or by making arrangements for online proctoring with Proctor U which requires prior scheduling and a webcam. Students are solely responsible for their own scheduling and the fees associated with using the service. See tab in blackboard called Testing/Proctor U for details.
- Use of any unauthorized electronic devices or notes during an exam will result in a grade of ZERO.

Announcements: Found in *MyLabsPlus or UTA email (MyMav – mavs.uta.edu).*

- Students are responsible for all information found in these announcements.
- Students should check for new announcements at least twice a week.

Help for Students

- Online Coach – information is found on the opening page of the Blackboard website.
- Supplemental Instruction – information is found on the opening page of the Blackboard website.
- Math Emporium – computer lab located in Pickard Hall 308, offers free daily tutoring. For details and scheduling visit the website, http://www.uta.edu/math/emporium/
- Math Clinic – located in Pickard Hall 325, offers free daily help.
- SOAR is a cost/share tutoring service Ransom Hall 205.
- Maverick Resource Hotline (817-272-6107).
- Online help: khanacademy.org.

Course Objectives

Learning Objectives and Outcomes

After completing the course, students should be able to demonstrate the following competencies:

1.0 Use statistical vocabulary and explain the use of data collection and statistics as tools to reach reasonable conclusions.
2.0 Recognize, examine, and interpret the basic principles of describing and presenting data, using tools such as frequency distributions and various graphs.
3.0 Compute, compare, and interpret summary data descriptions.
4.0 Compute and interpret empirical and theoretical probabilities using counting techniques and probability theory.
5.0 Explain the role of probability in statistics for both discrete and continuous random variables.
6.0 Examine, analyze, and compare various sampling distributions for both discrete and continuous random variables, including the normal distribution.
7.0 Describe and compute confidence intervals.
8.0 Perform hypothesis testing using statistical methods and interpret the results.
9.0 Solve linear correlation and regression problems.

Course Competencies

1.0 To demonstrate competency in statistical vocabulary, the student should be able to:
    1.1 Use the proper terms to be able to communicate statistical ideas.

    1.2   Determine the difference between descriptive statistics and inferential statistics.

    1.3   Demonstrate an ability to understand the statistical terms that are commonly used in textbooks, newspapers, magazines, and on television and radio in society today.

2.0 To demonstrate competency in frequency distributions and graphs, the student should be able to:

    2.1   Organize a frequency distribution.

    2.2   Draw histograms, frequency polygons, and gives to illustrate data in frequency distributions.

    2.3   Interpret and draw other commonly used graphs including time series graphs, Pareto charts, pie graphs, and stem and leaf plots.

3.0 To demonstrate competency in data description, the student should be able to:

    3.1   Calculate and interpret common measures of central tendency such as mean, median, mode, and mid-range using both grouped and ungrouped data.

    3.2   Calculate a weighted mean.

    3.3   Calculate and interpret common measures of variability such as range, standard deviation, and variance for both grouped and ungrouped data.

    3.4   Calculate z-scores (standard scores), percentile ranks, and quartiles to determine the relative positions of raw scores in a data set.

    3.5   Apply Chebyshev's Theorem to data sets in order to calculate expected proportion of outcomes in given intervals.

    3.6   Read and interpret percentile graphs.

    3.7   Calculate inter-quartile range and quartiles for data sets.

    3.8   Determine outliers for a set of data.

    3.9   Draw box plots for data sets.

4.0 To demonstrate competency in elementary probability theory and the use of counting rules to find probabilities, the student should be able to:

    4.1   Calculate probabilities by using sample spaces.

    4.2   Determine the complement of an event and to calculate the corresponding probability.

    4.3   Recognize the difference between classical, empirical, and subjective probability.

    4.4   Calculate probability using the addition rules.

    4.5   Recognize mutually exclusive events in order to correctly calculate the corresponding probabilities.

    4.6   Find the probability of two or more independent events.

    4.7   Find the probability of two or more dependent events.

    4.8   Apply the formula for conditional probability.

    4.9   Calculate probabilities using terms such as "and," "or," and "at least one."

    4.10 Use tree diagrams as a counting technique.

    4.11 Calculate with counting techniques using multiplication rules.

    4.12 Recognize permutations and to count outcomes using permutation formulas.

    4.13 Recognize combinations and to count outcomes using combination formulas.

    4.14 Use counting rules to find probabilities.

5.0 To demonstrate competency in discrete probability distributions, the student should be able to:

    5.1   Construct a probability distribution for a random variable.

    5.2   Determine the mean, variance, standard deviation, and the expected value for a discrete random variable.

    5.3   Find the exact probability for x successes in n trials for a binomial experiment.

6.0 To demonstrate competency in the Normal Distribution, the student should be able to:

    6.1   Identify distributions as symmetrical or skewed.

    6.2   Identify the properties of the Normal Distribution.

    6.3   Find the area under the Standard Normal Distribution given various z values.

    6.4   Find probabilities for a normally distributed variable by transforming it into a standard normal variable.

    6.5   Find specific data values for given percentages using the Standard Normal Distribution.

    6.6   Use the Central Limit Theorem to solve problems involving sample means for large and small samples

    6.7   Use the normal approximation to compute probabilities for a binomial variable.

7.0 To demonstrate competency in confidence intervals, the student should be able to:

    7.1   Find the confidence interval for the sample mean.

    7.2   Estimate the confidence interval for the population mean.

7.3   Find confidence intervals and sample size for proportions.

8.0   To demonstrate competency in hypothesis testing, the student should be able to:

    8.1   Understand the definitions used in hypothesis testing.

    8.2   State the null and alternative hypotheses.

    8.3   Find critical values for the z value.

    8.4   State the five steps used in hypothesis testing.

    8.5   Test means using the z test (introduce P-value method).

    8.6   Test means using the t test.

    8.7   Test proportions using the z test.

    8.8   Explain the relationship between type I and type II errors.

    8.9   Test the difference between two large sample means using the z test.

    8.10 Test the difference between two proportions using the z test.

9.0   To demonstrate competency in the concepts of correlation and regression, the student should be able to:

    9.1   Draw a scatter plot for a set of ordered pairs.

    9.2   Find the Pearson Product Moment correlation coefficient.

    9.3   Perform a hypothesis test to see if there is any significant positive or negative correlation.

    9.4   Find the equation of the regression line.

    9.5   Make predictions when an appropriate correlation exists.

Course Policies

Drop Policy:

If you withdraw from the course for any reason, you must follow University procedures. It is your responsibility to execute these procedures correctly and within the deadlines. **Instructors are unable to drop students**. The Math Department Office can help with the withdrawal process. We strongly recommend that you drop the course if you are significantly behind in completing the required assignments. Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance.** Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (http://wweb.uta.edu/aao/fao).

Accommodations and Americans with Disabilities Act:

The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the *Americans with Disabilities Act (ADA).* All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities at (817) 272-3364.

Title IX:

The University of Texas at Arlington is committed to upholding U.S. Federal Law "Title IX" such that no member of the UT Arlington community shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity. For more information, visit www.uta.edu/titleIX.

Academic Integrity:

It is the philosophy of The University of Texas at Arlington that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. This course includes a zero tolerance policy for academic dishonesty and students are expected to adhere to the UT Arlington Honor Code:

> *I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence. I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.*

All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Discipline may include suspension or expulsion from the University. **Students found guilty of cheating will receive a grade of "F" for the course.**

> *"Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts." (Regents' Rules and Regulations, Series 50101, Section 2.2)*

Electronic Communication:

UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at http://www.uta.edu/oit/cs/email/mavmail.php.

Student Feedback Survey:

At the end of each term, students enrolled in classes categorized as "lecture," "seminar," or "laboratory" shall be directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student's feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit http://www.uta.edu/sfs.

Student Support Services:

UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at www.uta.edu/resources.

Student Intellectual Property Rights Statement:

A student shall retain all rights to work created as part of instruction or using university technology resources.