

Instructor: John Burke

E-mail: burkej@arc.losrios.edu

Web Page: professorburke.org

Telephone: 916-484-8601

Office hours: Howard Hall 148, MW 11:30 – 1:00, T 11:30 – 12:30, TTh 4:00 – 5:00, F 12:00 – 1:00

Prerequisite: MATH 120 (*Intermediate Algebra*), 125 (*Intermediate Algebra with Applications*), 129 (*Elementary and Intermediate Algebra*), or 133 (*Combined Algebra Part III*) with a grade of "C" or better, or placement through the assessment process.



Text and Other Materials: Elementary Statistics 12th Ed, Mario Triola, Addison Wesley (ISBN 9780321869470); includes access code for MyStatLab (our course code: **burke02681**). Alternatively, you may just purchase the access code for MyStatLab, either at the bookstore or online since MyStatLab contains the ebook. The operation of a statistically enabled scientific calculator (mean, standard deviation and correlation coefficient calculations at a minimum) is **essential** for success in this course. You may select any suitable model for your



calculator needs; however, a Texas Instruments **TI-83+** calculator or a **TI-84+** calculator is **strongly recommended**. These calculators will be demonstrated and utilized by the instructor in this course.

Description: This course is an introduction to probability and statistics. Topics include elementary principles and applications of descriptive statistics, counting principles, elementary probability principles, probability distributions, estimation of parameters, hypothesis testing, linear regression and correlation, and Analysis of Variance (ANOVA). Applications use data from various disciplines including business, social sciences, psychology, life and health sciences, and education. Statistical analysis using a computer statistics package or graphing calculator is required.

Student Learning Outcomes: *Upon completion of this course, you will be able to:*

- identify methods of obtaining data and related advantages and disadvantages of each.
- distinguish between types of data as well as their different scales of measurement and corresponding implications.
- organize and display data appropriately using tables and graphs.
- analyze data by computing measures of central tendency, measures of dispersion, and measures of position.
- analyze bivariate data for linear trends using the least-squares regression model and the correlation coefficient.
- distinguish between probability models appropriate to different chance events and calculate probability according to these methods.
- analyze both discrete and continuous probability distributions, including binomial probability, normal distributions, and t-distributions by examining and interpreting areas under the graph of a histogram or a normal curve.
- apply inferential statistical methods to compare population parameters, make predictions, and draw conclusions about hypotheses.

- select the appropriate hypothesis test, perform the necessary computations and comparisons for the test (including significance of p-values and type I/II errors), and explain the conclusion of the test.
- test the significance of correlation and make predictions based on linear trends using the least-squares regression model.
- create and interpret confidence interval estimates for population parameters based on appropriate probability models.
- analyze and interpret applications using data from various disciplines including business, social sciences, psychology, life sciences, health science, and education.
- use statistical software or graphing calculator to calculate single-variable and two-variable statistics and analyze the results.

Homework: You learn statistics by doing statistics. Working out problems is critical to learning and understanding statistics. Weekly online homework problems (MyStatLab) will be assigned for each section covered in the course. Do not get behind in doing the online homework assignments; there will be no extensions of the due dates. Quizzes (see below) may have problems drawn from the online homework as well as classroom examples. The cumulative online homework will be worth 5% of your final grade.

Exams: There will be three (3) in-class tests during the semester, plus a comprehensive final exam (see schedule for dates and time). You may have one 8½ by 11 sheet of paper (both sides) of notes on each test and 3 on the final exam. All in-class exams will have room for you to show your handwritten work. No Scantron forms or blue books will be used. If you know that you will not be able to attend class on an exam day, let me know in advance and we can try to make alternate arrangements. Make-up exams will be given **only in extraordinary circumstances**. Tests will count for 25% of your final grade.

Quizzes: Quizzes will be a nearly daily occurrence and will generally cover 1 to 3 concepts. Each concept will be graded on a 0 to 4-point scale (see grading below).

Standards for Written Work: When solving problems in this course, you are expected to write clear, complete, and sufficiently detailed solutions in order to demonstrate your understanding. These solutions must communicate the reasoning and method of solving the problem. Math should never be done in ink; always use pencil. **Do not use ratty paper torn from a spiral notebook for the quizzes.** Treat the course, the instructor and yourself with respect and you will do better. **Neatness does count, both subjectively and objectively in determining your grade. Partial credit will only be considered if your work is legible.**

Attendance: (Read carefully!) Attendance at every class is expected and attendance will be taken. If you have four (4) unexcused absences, you may be dropped from the class. However, if you decide that you need to withdraw from this class, remember that it is still YOUR responsibility to do so. Do not assume that you will be dropped from the class just because you have stopped attending. The last date to withdraw with a "W" is Sunday, April 16.

Academic Honesty: Academic honesty is expected; cheating will not be tolerated. The giving **or** receiving of assistance during exams or quizzes or the using of an instructor's edition of the text or the instructor's solution manual, will be considered cheating and will be immediately reported to the campus administration for disciplinary action.

Grading

This course is comprised of 25-30 concepts like “Creating a Histogram”, “Calculating Mean, Median and Standard Deviation”, “Binomial Distributions”, “Applications of Normal Distributions”, “Estimating a Population Mean”, and “Tests of Independence”. On quizzes, tests, even one-on-one office visits, I will give you problems to assess how well you understand each concept. I use the levels below to score conceptual understanding:

0. **No Basis for Assessment.** No information or only scant work provided. Usually means missed assessment.
1. **Entry Level of Understanding.** Demonstrates an initial, partial understanding. Limited answer, may include incorrect work or misunderstandings.
2. **Basic, Incomplete.** Demonstrates some understanding of main concepts. Analysis of the problem is evident with some accuracy.
3. **Competent, Adequate.** Demonstrates a decent understanding and analysis of the main concept, but some details or nuance are missing.
4. **Proficient, Accomplished, Skillful.** Demonstrates a complete and thorough understanding. Shows conceptual analysis and skills independently with high accuracy.
5. **Mastered.** Demonstrates repeated understanding by achieving Proficient (4.0) skill level **two times in a row. You are excused from this concept on future quizzes, but not tests.**

Because I will ask questions about each concept on several quizzes and tests, you'll have multiple times to raise scores on each concept. **Only the most recent concept scores on quizzes and tests get recorded in the grade book.** Older concept scores are simply replaced. Concept level scores tend to go up over time, but it is also possible for them to go down depending upon the quality of the response. If you are unhappy with your concept score at any time, you are welcome to visit me during semester office hours to take another assessment (“concept quiz”) to replace your score on that concept.

On quizzes and tests, I report concept scores on a scale of five (i.e., 0.0, 1.0, 2.0, 3.0, 4.0, and 5.0). Tests, including the final exam, are also graded on a standard percentage accuracy scale. The final exam is special. If you score higher on a concept on the final exam than your concept score going into the final, you get the new concept score for the course. If you score lower or the same on the final exam than your concept score going into the final exam, I take the average; thus, your final concept score could be 2.5, 3.5, etc. To merge overall concept average scores on the 5-level scale with percentage scores on the tests and the final, I convert concept scores to the following percentages: 0 = 0%, 1 = 61%, 2 = 71%, 3 = 81%, 4 = 91%, and 5 = 99%.

Your average score over all the concepts during the semester is worth 70% of your grade. The final exam is worth 10% of your final grade, semester tests are each worth 5% of your final grade and the group project is worth 5% of your final grade.

Grades will be determined based on total points from concepts, semester tests, online homework and the final exam. Grades of A, B, C, D and F will be given for cumulative percentage scores of 90%+, 80% - 89%, 70% - 79%, 60% - 69% and < 60%, respectively.

You will occasionally have opportunities to volunteer to work out problems or answer **directed** questions during class. Each such class participation is worth one (1) point extra credit. Extra credit can also be earned with “Oops Bucks”, by being the first to point out a **significant mathematical mistake** by the instructor during class. Each “Oops Buck” is worth three (3) points.

Project: The purpose of the project is to enhance and expand your experience with the application of statistical methods. You must form a class group to collaborate with on this project. The group should consist of three to five students. Although the work submitted and the grade received will be as a group, each student will be accountable for all aspects of the project. The group is responsible for selecting (with guidance) the topic to investigate. The focus of the project can be anything of interest to the group. The only restriction is that this project must apply one of the inferential statistical analysis procedures covered in class.

The group’s findings should be documented in a written report. The project report must have a title page (that includes an alphabetical list of the group members) and be organized into four sections labeled: (1) Introduction, (2) Methods, (3) Results, and (4) Conclusions. The 1st section, Introduction, gives some background and a summary of what the project is about. The primary question that this project intends to address should be clearly stated somewhere in the introduction. The 2nd section, Methods, describes in sufficient detail how the data was collected and the process utilized in analyzing it. Include any limitations or assumptions made for the procedure applied in this project. The 3rd section, Results, contains the essential elements and supporting information relevant to the outcome of this project. This could include the collected data, results of calculations, constructed tables or graphs, and work generated as the result of the statistical procedure. The 4th section, Conclusions, summarizes the results, answers the specific question proposed in the introduction and includes an analysis and self-critique of the study and methods. The project report should be clear, complete, and concise. Each group will give a 10-minute summary presentation of their project and results to the class on the last class meeting of the semester. The project is worth 5% of your final grade

How to be Successful in this Course: The general rule of thumb for this course is that you should average **at least 8 hours per week outside class** reading, studying and doing homework. Divide your time by first doing the problems assigned at each class and then reading the sections that will be covered in the next class. This will prepare you to follow along in class. I realize there may be times when you cannot spend 8 hours working on the course during a particular week. Try to make up the time so you average at least 8 hours per week over the course of the semester. The course schedule (attached) details when sections will be covered, when tests will be given and when homework is due. In order to benefit from this information and be successful in the course, you should

- (1) Prepare for and attend each class period;
- (2) Read the assigned sections of the textbook;
- (3) Study the examples provided;
- (4) Complete the assigned exercises; and,
- (5) If you encounter any difficulties, try to resolve them immediately by
 - a. Taking advantage of the tutorial services located in the LRC;
 - b. Forming a study group with other students in the class; and/or,
 - c. Seeking help from the instructor.

Class Conduct: Come to class prepared to work. Have your formulas and tables guide, calculator, pencil(s) and paper. While I strive for a relaxed atmosphere in class, I take the learning of mathematics/statistics seriously and you are expected to do the same. Talking at inappropriate times is both discourteous and distracting to the class. My expectation is that everyone will actively participate. I may call on you at any time to comment. You are encouraged to raise questions and contribute to the class discussion. Arriving late to class is a distraction and discourteous to your fellow students; please be on time. Class will begin promptly. However, coming to class late is better than not coming at all. If you are unavoidably detained, please enter the classroom as unobtrusively as possible. Electronic items, such as cell phones and pagers, must be turned off or silenced and put away before class starts. Absolutely no texting in class. **If a cell phone goes off during class, the owner will be expected to bring cookies for the entire class at the next meeting.**



General Comments: Mathematics and Statistics are subjects that demand **practice, practice, and more practice. You learn statistics by doing statistics.** If you spend the time and do the work suggested, you will be successful. **Mathematics and Statistics are not inherently more difficult than any other subject, just different.**

To register for Stat 300 Elementary Statistics:

1. Go to www.pearsonmylabandmastering.com.
2. Under Register, select **Student**.
3. Confirm you have the information needed, then select **OK! Register now**.
4. Enter your instructor's course ID: [burke02681](#), and **Continue**.
5. Enter your existing Pearson account **username** and **password** to **Sign In**.
You have an account if you have ever used a Pearson MyLab & Mastering product, such as MyMathLab, MyITLab, MySpanishLab, MasteringBiology or MasteringPhysics.
 - > If you don't have an account, select **Create** and complete the required fields.
6. Select an access option.
 - > Enter the access code that came with your textbook or was purchased separately from the bookstore.
 - > Buy access using a credit card or PayPal account.
 - > If available, get temporary access by selecting the link near the bottom of the page.
7. From the You're Done! page, select **Go To My Courses**.
8. On the My Courses page, select the course name **Stat 300 Elementary Statistics** to start your work.

To sign in later:

1. Go to www.pearsonmylabandmastering.com.
2. Select **Sign In**.
3. Enter your Pearson account **username** and **password**, and **Sign In**.
4. Select the course name **Stat 300 Elementary Statistics** to start your work.

To upgrade temporary access to full access:

1. Go to www.pearsonmylabandmastering.com.
2. Select **Sign In**.
3. Enter your Pearson account **username** and **password**, and **Sign In**.
4. Select **Upgrade access** for **Stat 300 Elementary Statistics**.
5. Enter an access code or buy access with a credit card or PayPal account.

Stat 300 (11533)
John Burke

Spring 2017

LA 168
1:30 – 3:35 pm

Tuesday	Thursday
(1) 01/17 Intro; 1-1/1-2	(2) 01/19 1-3/1-4, 2-1/2-2
(3) 01/24 2-3/2-4	(4) 01/26 3-1/3-2
(5) 01/31 3-3/3-4	(6) 02/02 4-1/4-3
(7) 02/07 4-4/4-7	(8) 02/09 Catch-up/Review
(9) 02/14 – Test #1	(10) 02/16 5-1/5-3
(11) 02/21 5-3/5-4	(12) 02/23 6-1/6-2
(13) 02/28 6-3/6-4	(14) 03/02 6-5/6-7
(15) 03/07 7-1/7-2	(16) 03/09 7-3
(17) 03/14 8-1/8-2	(18) 03/16 8-3
(19) 03/21 Catch-up/Review	(20) 03/23 – Test #2
(21) 03/28 8-4	(22) 03/30 9-1/9-2
(23) 04/04 9-3/9-4	(24) 04/06 11-1/11-2
(25) 04/11 – Spring Break	(26) 04/13 – Spring Break
(27) 04/18 11-3	(28) 04/20 10-1/10-2
(29) 04/25 10-3	(30) 04/27 12-1/12-2
(31) 05/02 Catch-up/Review/Project Work	(32) 05/04 – Test #3
(33) 05/09 – Project Presentations Review	Thurs, 05/11 – Final Exam 12:45 – 2:45

Note: The course schedule above is subject to change. This is only an estimate.

I acknowledge that I have read and understand the syllabus for Stat 300 and agree to abide by it.

 Name (Print)

 Signature

 Date

[Detach lower part, sign and return by 01/24/17]