I. Course Information:

- Meeting MTWR 4:00-5:55, CI 122
- Professor: Dr. Jose H. Guardiola
- Office CI 309
- Phone 361-825-5544
- E-mail jose.guardiola@tamucc.edu
- Class URL: bb9.tamucc.edu
- Office Hours MW 1:00 -2:15 pm, TR 2:40 – 3:55; other times by appointment.

II. Course Description

This is an introduction to statistical methods. Emphasis is placed on interpretation and understanding of statistical concepts. A computer statistical package will be used to work with real data. Students use data analysis to learn and detect patterns and structure in data. They explore the basic concepts of statistics such as discrete and continuous distributions, numerical summary measures, probability, sampling distributions, fitting a line to bivariate data, estimation, confidence intervals and hypothesis testing.

III. Prerequisites for the course

MATH 2413, Calculus I, or the equivalent.

IV. Text and Other Supplies

- Text Devore, Jay L., Probability and Statistics for Engineering and the Sciences, 8th edition. Although this is listed as “Required”, I will discuss in class the extent to which you really need this.
- Software Since pretty much everyone has access to Excel, many of you are familiar with it, and you can do what you need with Excel, occasionally with extra work, I’ve decided to use Excel as our software tool. Be aware, though, that Excel has well-documented flaws as a statistical tool (see <http://www.practicalstats.com/xlsstats/excelstats.html> for a list of some).
- Calculator: You will need one. No specific calculator is required, but many students have found that the TI graphing calculators are helpful at various points in the course. I am not an expert on the differences between the TI 8X-9X calculators. If you are contemplating buying one, go online at <education.ti.com> and download the pdf manual for the one you are contemplating. For it to do you good, it should have the following built-in functions: binomcdf and binompdf, poissoncdf and poissonpdf, normcdf and invnorm, tpdf and invT and functions for computing confidence intervals and performing hypothesis tests.

V. Student Learning Outcomes

At the end of this course, students will be able to:

- Perform elementary probability calculations
- List important statistical distributions, both discrete and continuous, along with common uses of each in modeling settings
- Explain the relationship between probability, sampling distributions, and inferential statistics such as confidence intervals and hypothesis tests
- Explain the advantages and disadvantages of using parametric probability models and of using bootstrap methods to estimate sampling distributions, and justify why one or the other choice might be better in a given situation
• Construct confidence intervals for unknown parameters using bootstrap and parametric methods
• Perform hypothesis tests for unknown parameters using bootstrap and parametric methods
• Choose among the various inferential statistical methods from this course to answer specific research questions
• Display data graphically in an appropriate way
• Interpret and write up appropriately the results of statistical calculations to answer research questions

VI. Instructional Methods and Activities

Classroom meetings will be primarily lecture, with some demonstrations and in-class problem solving. There will substantial homework and computer assignments.

VII. Evaluation and Grade Assignment

• Homework/Quizzes: My intent is to assign homework weekly to turn in. However, this assumes I am permitted to hire a HW grader and that I can find one. If I am unable to get a HW grader, I will give weekly in-class quizzes instead. However this works out, it’ll be worth 30% of your grade.
• Tests: There will be one in-class mid-semester tests, worth 35%. This test is currently scheduled for: Wednesday, June 20th;
• Final Exam: The Final Exam is worth 35%. The Final Exam will be on Friday, July 5th, 4:00-5:50 pm.

Grade Scale:
From these evaluations, your grade will be computed using the standard scale: A = 90-100; B = 80-89; C = 70-79; D = 60-69; F = below 60.

VIII. Tentative Course Schedule:

• Week 1: Introduction to the course; the nature of data; samples; remedial discrete math Probability (Chapter 2)
• Week 2: Discrete Random Variables (Chapter 3) Chapter 3 and Continuous Random Variables (Chapter 4), Continuous Random Variables (Chapter 4)
• Week 3: Data Exploration & Software & Simulation (Chapter 1), Sampling Distributions & the Bootstrap (Chapter 5); Midterm Test, Sampling Distributions & Parametric Models (Chapter 5), Confidence Intervals (Chapter 7)
• Week 4: Hypothesis Testing I: Single Means (Chapter 8); Hypothesis Testing II: Comparing Two Means (Chapter 9)
• Week 5: Hypothesis Testing III: Comparing Multiple Means (Chapter 10), Correlation and Regression, Review for final (this is probably one hour)

IX. Class Policies

• Homework or quizzes will be assigned regularly. No late homework will be accepted unless there is a valid excuse. I will drop the two lowest scores on quizzes, and that may include missing quizzes that otherwise will be counted as zeros. I do not make up quizzes.
• One midterm test will be administered in class on Wednesday, June 19th. This date may be changed with due notice announced during class time. You are allowed to bring in one page of notes, written or typed on both sides on a sheet not larger than 8.5”x11”. Your name should be written in the top of the page in large and clear letters. Pages of notes and/or calculators cannot be shared. Cell phones cannot be used as calculators. If an extra credit work is assigned, or extra points are given, the total score should not exceed 100%. No points will be “saved” toward the next examination.
• There will be no makeup for a missed midterm test. If the midterm test is missed, its score will be replaced by the score on the final exam. The opposite is not true. A missed final exam will result on a score of 0 points.
Final exam will be administered on Friday July 5th from 4:00 to 5:55 pm. It is a comprehensive examination over all material covered during the semester. You will be allowed to bring in two pages of notes following the same format described above.

Attendance will be taken each class. Talking during class time and tardiness are often disruptive to the whole class and are not appreciated. If you are delayed and arrived late please do so quietly. Excessive tardiness, disruptive talking, disruptive behavior or performing activities not related to the class will be counted as absences and may cancel bonus points for attendance. Cell phones and such must be turned off before class. 95% attendance or more will result in 2% as bonus points added to your total score at the end of the summer session that usually is helpful to determine borderline grades. The instructor is NOT responsible for informing absent students what was covered in previous classes, homework or any other announcements.

A grade of incomplete will only be given in exceptional circumstances, such as a death in the family or personal injury that might prevent someone from taking the final exam. In this case, it is the responsibility of the student to notify me as soon as possible, preferably by email, and to fill the required "Incomplete Form" available from the University Registrar. If this is not done, a score of 0% will be assigned for any incomplete exams and a final grade will be computed using the criteria described above.

Please check carefully the date and time of the tests as I cannot change them for any other reasons not considered truly exceptional, that is; beyond the control of the student.

University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work.) In this class, academic misconduct or complicity in an act of academic misconduct on an assignment or test will result in a grade of 0% on that assignment or test.

Although obviously I hope all goes smoothly for you this semester, events can sometimes occur that make dropping a course necessary or wise. I encourage you to consult with me before you decide to drop to be sure it is the best thing to do. Should dropping the course be the best course of action, you must initiate the process to drop the course by going to the Student Services Center and filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. June 21st is the last day to drop a class with an automatic grade of “W” this term. I cannot personally assign a grade of W.

The instructor reserves the right to make changes to the above with due notice to the students. These changes will be announced in class and each student is responsible for keeping herself/himself informed of such changes.

Special note about schedule conflicts: Please check for possible schedule conflicts during summer I session. If you insist on taking courses with a schedule conflict please notice that you assume full responsibility as there will not be a special treatment for students registered on courses with such a schedule conflict.

X. Legal Statements

Disabilities Accommodations

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please call or visit Disability Services at (361) 825-5816 in Driftwood 101.

If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.
Grade Appeals

As stated in University Rule 13.02.99.C2, Student Grade Appeals, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Rule 13.02.99.C2, Student Grade Appeals, and University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules Web site at:

http://www.tamucc.edu/provost/university\$do6(r)ules/index.html

For assistance and/or guidance in the grade appeal process, students may contact the Office of Student Affairs.