I. COURSE INFORMATION

- Meeting Time & Place: CS-112, Monday and Wednesday 5:30 to 6:45 PM
- Professor: Dr. Jose Guardiola
- Office Phone: 825-5544
- Office Address: CI 309
- E-MAIL Address: jose.guardiola@tamucc.edu
- Web Page Address: http://www.sci.tamucc.edu/~jguardiola
- Office Hours: TR: 3:20 - 5:20 pm, F 9:00-10:00 am, other times by appointment

Others by appointment

II. Course Description

This course concentrates on the mathematical foundations of statistics. Topics covered include:

- The mathematics of probability theory, set theory, counting techniques, probability axioms
- Random Variables
- Probability density functions and cumulative density functions
- Mathematical Expectations
- Common discrete and continuous distributions and their applications
- Functions of random variables, transformation techniques
- Sampling distributions
- An introduction to statistical estimation and hypothesis testing
- Method of Moments, Maximum Likelihood estimation, Bayesian estimation, Likelihood ratio test.
- Regression and correlation

III. Prerequisites for the Course

MATH 3311, MATH 3342 and MATH 3470 or the equivalent, or instructor’s permission.

Supplement for graduate students:

Course equivalent to Calculus I, and an elementary course in Statistics.

IV. Required Textbook and Supplies

Recommended:


V. Course Objectives

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

1. Prove and derive basic statistical ideas from the axioms of probability
2. Develop distributions of new random variables using transformations
3. Prove and derive statistical theorems from basic identities, underlying assumptions, related theorems and axioms
4. Analyze and construct bivariate and multivariate distributions and their relationship to random samples
5. Analyze and compare different types of distributional convergence
6. Construct estimators and hypothesis tests, verify properties and use them for the purpose of statistical inference
7. Understand and discuss published articles in the literature

VI. Instructional Methods and Activities

Methods and activities for instruction include the following:

- Lecture
- Homework
- Discussion
- Computer analysis
- Discussion of related literature

VII. Evaluation and Grade Assignment

Methods of evaluation and the criteria for grade assignments are as follows:

Final course standing will be based upon homework, two tests, and a final exam each weighted as follows:

Homework – 25%       2 Tests - 50% (25% each)       Final Exam – 25%

Graduate students will be required to complete additional work on assignments and exams in order to receive full credit. Additional topics for assignments and discussion of journal articles may be required.

Grading Scale:

A – 90%–100%       B - 80%–89.99%       C – 70%–79.99%       D - 60%–69.99%       F - below 60%
VIII. Tentative Schedule

Available online at BlackBoard

IX. Class Policies

- Homework is assigned regularly and it is due as specified. No late homework will be accepted unless there is a valid excuse. Late homework will be limited to half credit. Homework will be due at the beginning of the class.
- Two semester tests will be administered on Wednesday, February 25th, and Wednesday April 8th. If extra points are given for any reason, the total score should not exceed 100%. No points will be “saved” toward the next examination. Pages of notes and/or calculators can not 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%.
- Final exam will be administered on Wednesday, May 13th from 4:30 to 7:00 pm. It is a comprehensive examination over all material covered during the semester.
- 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. Cell phones and such must be turned off before class. 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, forgery, or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work.) For the complete statement, see http://catalog.tamucc.edu/content.php?catoid=10&navoid=313%23Academic_Integrity#Academic_Honesty
- 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. Friday, April 12th, 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.
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 CCH 116B.

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 (College of Science and Engineering Version)

As stated in University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures, 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 Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at http://www.tamucc.edu/provost/university_rules/index.html, and the College of Science and Engineering Grade Appeals webpage (http://sci.tamucc.edu/students/GradeAppeal.html). For assistance and/or guidance in the grade appeal process, students may contact the chair or director of the appropriate department or school, the Office of the College of Science and Engineering Dean, or the Office of the Provost.