I. COURSE INFORMATION

- Meeting Time & Place: CS-111, Tuesday and Thursday 5:30 pm to 6:45 pm
- Professor: Dr. José 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:
  - W: 3:00 – 5:00 pm
  - TR: 3:30 – 5:00 pm
  - Others by appointment

II. Course Description

This course concentrates on the basic theory for linear models. Topics covered include: Matrix Algebra (Review), Random vectors and matrices, Multivariate normal distributions, Least squares estimation, the Gauss-Markov Theorem, Cochran theorem, estimability, identifiability, Maximum likelihood estimation, Restricted maximum likelihood estimation, Likelihood ratio tests, One way and two way ANOVA, ANCOVA, mixed models.

III. Prerequisites for the Course

Required Math 3311, Math 3342 and MATH 3470.

IV. Required Textbook and Supplies


Recommended:


V. Learning outcomes

- Students will be able to understand the principles of linear models theory, derived from statistical and mathematical principles.
- Students will be able to understand a geometric interpretation of the theory of linear models.
- Students will be able to formulate and perform computations of theoretical and applied linear models problems.
- Students will be able to analyze an experimental situation and to determine the appropriate linear statistical model to be used.
- Students will be able to interpret computer output from statistical packages and will be able to explain results clearly in writing.
- Students will be able to use appropriate technological tools to perform computations and tests.
- Students will be able to read linear model articles published on Journals.

VI. Instructional Methods and Activities

Methods and activities for instruction include the following:

- Students will follow the theoretical development of linear models using the sequence of theorem, proof, example and a practically oriented exercise.
- Discussion of a geometric interpretation of the theory of linear models.
- Problem solving activities for assignments.
- Group discussions with student participation and questioning.
- Students will perform statistical analysis of data provided with the text and also by the instructor.
- Use a statistical and/or mathematical packages.
- Review of the literature in linear models.

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, midterm exams, and a final exam each weighted as follows:

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

The lowest score only one of the two midterms will be replaced by the score on the final examination, provided that the final score is better than the midterm score. The final score will not be replaced by the midterm scores.

Grading Scale:

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

VIII. Tentative Schedule

TBA – Please see my website
IX. Class Policies

- Homework will be assigned regularly and it is due one week after it was assigned and at the beginning of the class unless otherwise specified. Late homework will be accepted within a week after due date and will be limited to half credit unless there is a valid excuse.

- Two semester test will be administered in class on Tuesday September 27th and Thursday November 3rd. These dates may be subject to changes announced in class. You will be 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 for any reason, the total score should not exceed 100%. No points will be “saved” toward the next examination.

- Final exam will be administered on Thursday December 8th from 4:30 to 7:00 pm. It is a comprehensive examination over all material covered during the semester unless otherwise specified.

- 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, excessive talking or performed 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, 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. Friday November 4th, 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 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.htmlhttp://www.tamucc.edu/provost/uni

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