Linear Algebra Math 3311-003  
Department of Mathematics and Statistics  
Spring 2020

A. COURSE INFORMATION

Course number/section: Math 3311-003  
Class meeting time: MW 5:30-6:45pm  
Class location: CI 107  
Course Website: bb9.tamucc.edu

B. INSTRUCTOR INFORMATION

Instructor: Dr. Aubrey Rhoden  
Office location: CI 213B  
Office hours: 1-3 pm TWR  
Telephone: 361-825-3445  
e-mail: aubrey.rhoden@tamucc.edu  
Appointments: Appointments outside of office hours are available by request

C. COURSE DESCRIPTION

Catalog Course Description  
Fundamentals of linear algebra and matrix theory. Topics include vectors, matrix operations, linear transformations, fundamental properties of vector spaces, systems of linear equations, eigenvalues and eigenvectors. Applications.

D. PREREQUISITES FOR THE COURSE

Prerequisites  
Math 2413 (Calculus I)

Corequisites  
None

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES

Required Textbook(s)  
Introduction to Linear Algebra, 4th Ed. By Gilbert Strang

Optional Textbook(s) or Other References  
none

Supplies  
Paper and pen or pencil
F. STUDENT LEARNING OUTCOMES AND ASSESSMENT

Assessment is a process used by instructors to help improve learning. Assessment is essential for effective learning because it provides feedback to both students and instructors. A critical step in this process is making clear the course’s student learning outcomes that describe what students are expected to learn to be successful in the course. The student learning outcomes for this course are listed below. By collecting data and sharing it with students on how well they are accomplishing these learning outcomes students can more efficiently and effectively focus their learning efforts. This information can also help instructors identify challenging areas for students and adjust their teaching approach to facilitate learning.

By the end of this course, students should be able to:

1. Make calculations as needed with vectors and matrices using addition, scalar multiplication, matrix multiplication and inner (dot) products.

2. Solve general linear systems of equations using inverses, the Gauss-Jordan method (from row operations to LDU factorization) and other methods.

3. Understand and apply concepts of vector spaces including defining properties, linear independence, spanning, basis, dimension and subspaces (especially null- and column-).

4. Understand and apply orthogonality to find projections, least square solutions and orthogonal bases.

5. Find eigenvalues and eigenvectors using determinants or other means as needed. If time permits, understand and apply the Spectral Theorem.

6. If time permits, understand and apply linear transformations.

G. INSTRUCTIONAL METHODS AND ACTIVITIES

Weekly Quizzes and Homework: Homework will be assigned each week and is due the next week. You will be given in-class quizzes which assume your having completed and mastered the homework.

Attendance: Attendance for this course is required. Excellent attendance records as well as positive group evaluations will help your grade in that borderline course-grade decisions will be influenced by these records. It is in your best interest to arrive on time to class (quizzes take place during the last ten minutes of class and homework is due at the beginning of class)
H. MAJOR COURSE REQUIREMENTS AND GRADING

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<thead>
<tr>
<th>ACTIVITY</th>
<th>% of FINAL GRADE</th>
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<tbody>
<tr>
<td>Homework</td>
<td>10%</td>
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<tr>
<td>Quizzes</td>
<td>10%</td>
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<tr>
<td>Midterm 1</td>
<td>20%</td>
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<td>Midterm 2</td>
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<td>Midterm 3</td>
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<tr>
<td>Final Exam</td>
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<tr>
<th>LETTER GRADE</th>
<th>FINAL %</th>
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<tr>
<td>A</td>
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<tr>
<td>B</td>
<td>80-90%</td>
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<tr>
<td>C</td>
<td>70-80%</td>
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<td>D</td>
<td>60-70%</td>
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<td>F</td>
<td>BELOW 60%</td>
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I. COURSE CONTENT/SCHEDULE

Important dates:

- January 20: Martin Luther King, Jr. Holiday
- January 21: Classes Begin
- January 28: Last Day to Late Register
- February 12: Midterm 1
- March 9-13: Spring Break
- March 18: Midterm 2
- April 8: Midterm 3
- April 10: Last Day to Drop
- May 6: Last Day of Classes
- May 7: Reading Day-No Class
- May 11: Final Exam 4:30 - 7:00 pm
### Tentative Schedule:

| Week 1 starting Jan. 20 | Syllabus and 1.1 |
| Week 2 starting Jan. 27 | 1.2, 2.1, and 2.2 |
| Week 3 starting Feb. 3 | 2.3, 2.4, and 2.5 |
| Week 4 starting Feb. 10 | Review and Test |
| Week 5 starting Feb. 17 | 2.6, 2.7, and 3.1 |
| Week 6 starting Feb. 24 | 3.2, 3.3, and 3.4 |
| Week 7 starting Mar. 2 | 3.5 and 3.6 |
| Week 8 starting Mar. 9 | Spring Break |
| Week 9 starting Mar. 16 | Review and Test |
| Week 10 starting Mar. 23 | 4.1 and 4.2 |
| Week 11 starting Mar. 30 | 4.3 and 4.4 |
| Week 12 starting Apr. 6 | Review and Test |
| Week 13 starting Apr. 13 | 6.1 and 6.2 |
| Week 14 starting Apr. 20 | Differential Equations |
| Week 15 starting Apr. 27 | Diff. Eq. Cont. and Graph Theory |
| Week 16 starting May 4 | Review |
| Week 17 starting May 11 | Final Exam |

Note: Changes in this course schedule may be necessary and will be announced to the class by the Instructor. The assignments and exams shown are directly related to the Student Learning Outcomes described in Section F.

### J. COURSE POLICIES

#### Attendance/Tardiness

Attendance for this course is required.

#### Late Work and Make-up Exams

Late work is not accepted unless previously approved. In the event of an excused absence for an exam, it is the student’s responsibility to arrange for a time to make up the exam as soon as possible.

#### Extra Credit

Extra credit will be given on some assignments for completing advanced problems, but there will be no extra credit assignments given to students on an individual basis to improve a grade.

#### Cell Phone Use

Cell phone use is not allowed during class.

#### Laptop Use

Laptop or tablet use is not allowed during class.

#### Food in Class

Food is not allowed in the classroom.
Missed Exam
All absences from class or exams will be considered unexcused unless they are docu-
mented in advance as excusable with the instructor or as soon as possible in the case
of emergencies. No credit will be awarded for work missed resulting from unexcused
absences.

Participation
Participation in class discussion is important, and students that actively participate
generally gain a better understanding of the material.

K. COLLEGE AND UNIVERSITY POLICIES

• Academic Integrity (University)
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 ex-
aminations 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 failing grade.

• Classroom/Professional Behavior
Texas A&M University-Corpus Christi, as an academic community, requires that
each individual respect the needs of others to study and learn in a peaceful at-
mosphere. Under Article III of the Student Code of Conduct, classroom behavior
that interferes with either (a) the instructor’s ability to conduct the class or (b) the
ability of other students to profit from the instructional program may be considered
a breach of the peace and is subject to disciplinary sanction outlined in article VII
of the Student Code of Conduct. Students engaging in unacceptable behavior may
be instructed to leave the classroom. This prohibition applies to all instructional
forums, including classrooms, electronic classrooms, labs, discussion groups, field
trips, etc.

• Statement of Civility
Texas A&M University-Corpus Christi has a diverse student population that rep-
resents the population of the state. Our goal is to provide you with a high quality
educational experience that is free from repression. You are responsible for follow-
ing the rules of the University, city, state and federal government. We expect that
you will behave in a manner that is dignified, respectful and courteous to all people,
regardless of sex, ethnic/racial origin, religious background, sexual orientation or
disability. Behaviors that infringe on the rights of another individual will not be
tolerated.

• Deadline for Dropping a Course with a Grade of W (University)
I hope that you never find it necessary to drop this or any other class. However,
events can sometimes occur that make dropping a course necessary or wise. Please
consult with your academic advisor, the Financial Aid Office, and me, before you
decide to drop this course. 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. Please consult the Academic Calendar (http://www.tamucc.edu/academics/calendar/) for the last day to drop a course.

• **Grade Appeals (College of Science and Engineering)**

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 at

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.

• **Disability Services**

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 (361) 825-5816 or visit Disability Services in Corpus Christi Hall 116.

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.

http://disabilityservices.tamucc.edu/

• **Statement of Academic Continuity**

In the event of an unforeseen adverse event, such as a major hurricane and classes could not be held on the campus of Texas A&M University Corpus Christi; this
course would continue through the use of Blackboard and/or email. In addition, the syllabus and class activities may be modified to allow continuation of the course. Ideally, University facilities (i.e., emails, web sites, and Blackboard) will be operational within two days of the closing of the physical campus. However, students need to make certain that the course instructor has a primary and a secondary means of contacting each student.

L. OTHER INFORMATION

• Academic Advising
The College of Science & Engineering requires that students meet with an Academic Advisor as soon as they are ready to declare a major. The Academic Advisor will set up a degree plan, which must be signed by the student, a faculty mentor, and the department chair. Meetings are by appointment only; advisors do not take walk-ins. Please call or stop by the Advising Center to check availability and schedule an appointment. The College’s Academic Advising Center is located in Center for Instruction 350 or can be reached at (361) 825-3928.

GENERAL DISCLAIMER

I reserve the right to modify the information, schedule, assignments, deadlines, and course policies in this syllabus if and when necessary. I will announce such changes in a timely manner during regularly scheduled lecture periods.