SYLLABUS

Course No & Title: MATH 2318.05, Linear Algebra	**Instructor:** Dambaru Bhatta
Term: Fall 2021	**Phone:** (956) 207-9156
Meeting Info: MW: 8:00pm-9:15pm. Room EMAGC 1.202	**Email:** dambaru.bhatta@utrgv.edu
Course Modality: Please see below	**Office Hrs**: MW:5:00-5:45 pm

COURSE DESCRIPTION, PREREQUISITES & MODE OF LEARNING

Topics include systems of linear equations, matrices and their algebraic properties, determinants, vectors, Euclidean n-space, linear transformations and their matrix representations, vector spaces, eigenvalues and eigenvectors, and applications to the sciences and business. Use of mathematical technology will be incorporated throughout the course.

MODE OF LEARNING (Course Modality):

Although this is a Traditional/Face to Face course, due to the current circumstances, it will be offered as a HYBRID class, meaning all face-to-face meetings will also be streamed live through zoom, for at least the first month of the semester, giving students the opportunity to attend the class remotely if they feel more comfortable. Student participation and attendance are required (either face-to-face or live through zoom). If the situation improves, the class will change back to a traditional face to face model.

Exams are scheduled to be taken in the class room (this might also change later in the semester).

I have two different zoom links: one for the class and other for office hours. Please use the correct one made for that purpose.

Zoom Link for CLASS: https://utrgv.zoom.us/j/82462820129

For office hours please use the zoom link below:

Zoom Link for Office Hours: https://utrgv.zoom.us/j/83904714706

Prerequisites: MATH 2413 (or MATH 2487) with a grade of 'C' or better.

TEXTBOOK, TECHNOLOGY, AND/OR RESOURCE MATERIAL

Textbook (Open Edition): "Linear Algebra with Applications", W. Keith Nicholson.

Book URL: https://lyryx.com/linear-algebra-applications

COVID-19 RESOURCES:

Please visit the UTRGV COVID-19 protocols web page for the most up-to-date COVID-19 campus information and resources. The COVID-19 Frequently Asked Questions (FAQs) web page offers additional guidance to specific questions. To submit a question for the FAQ, please email WelcomeBack@utrgv.edu.

UTRGV VACCINE PORTAL

UTRGV Students are eligible to receive the COVID-19 Vaccine. Students may access and complete their vaccine profile via the UTRGV Vaccine Portal. For additional information on the COVID-19 Vaccine, please visit the UTRGV Vaccine web page.

CORE MATHEMATICS STUDENT LEARNING OUTCOMES:

1. To apply arithmetic, algebraic, geometric, higher-order thinking, and statistical methods to modeling and solving real-world situations.
2. To represent and evaluate basic mathematical information verbally, numerically, graphically, and symbolically.
3. To expand mathematical reasoning skills and formal logic to develop convincing mathematical arguments.
4. To use appropriate technology to enhance mathematical thinking and understanding and to solve mathematical problems and judge the reasonableness of the results.
5. To interpret mathematical models such as formulas, graphs, tables and schematics, and draw inferences from them.
6. To recognize the limitations of mathematical and statistical models.
7. To develop the view that mathematics is an evolving discipline, interrelated with human culture, and understand its connections to other disciplines.

STUDENT LEARNING OUTCOMES: After successfully completing this course you will be able to:

1. Solve linear systems using matrices and Gaussian elimination, understand the different types of solutions that are possible, and use these ideas in applied problems.
2. Perform the common operations of matrix algebra and use them to solve applied problems.
3. Compute the determinant of a square matrix and understand its properties.
4. Understand the ideas of linear independence, spanning set, basis, and change of basis of a linear transformation, rank of a matrix, vector space, subspace, and their application to applied problems.
5. Understand eigenvectors and eigenvalues, how they characterize the action of some linear transformations, and how to use them to solve applied problems.
6. (Optional) Use the ideas of inner products, orthogonality, and projections to determine least-squares solutions to a linear system and perform Gram-Schmidt orthogonalization on a set of vectors.

Standards & Assessment:

These SLOs will be assessed based on your demonstrated mastery of each objective on homework, webwork, exams, and final exam according to the weights listed in the next section. Mastery of each technique means writing steps precisely with full justification, using all necessary symbols and wording to explain your work.

GRADING POLICIES:

There will be Three Tests and one Comprehensive Final. There will be online homework through WeBWorK system. *WeBWorK is an Internet-based system for generating and delivering homework problems to students.* For each computer-based assignment, there will be a fixed date-range to submit the work. After closing date, you will not be able to submit your work.

Exam	**Points**
WeBWorK	20%
Test-1	20%
Test-2	20%
Test-3	20%
Final	20%

Grade Scale: **A:** 90-100% **B**: 80-89% **C:** 70-79% **D:** 60-69% **F:** below 60%.

BEST PRACTICES

Keep up the good work:	Please do your best to keep up with the homework and try it as soon as the material has been covered in class. There isn't much time to catch up. This means you have to be sure to allow yourself plenty of time to do the homework and to study.
Participate in class:	You are expected to actively participate in this class. This includes asking questions in class, participating in class discussions and other in-class activities, helping other students, coming to office hours with questions, and actively participating in lab discussions.
Ask questions:	If you don't understand something, or you aren't clear about something, or if you think I (or the courseware) have made a mistake, or if you have any other questions, please ask. Don't let confusion accumulate. If you don't want to ask in class, come to our office hours (or email/call) and ask. It is much easier to ask a question now than to miss it on the test. Believe me, you will get much more out of the class if you become actively involved in it.
Details are Important:	It is important that you understand the processes involved in solving problems. This is more important than getting the right answer. If you demonstrate clear understanding, I will usually give partial credit for a problem, even if you made a mistake at some point. If you don't show your work, I may not give you full credit, even if the answer is right. It is also very important that you write what you mean with all necessary symbols and wording to explain your work.
Practice makes perfect:	To do homework and study requires two or three times as much time outside of class as the time you spend in class in order to succeed in this course. If you need more out-of-class help than you can obtain in my office hours, free tutoring is available. Please see the Student Services section at the end of the syllabus.

BLACKBOARD SUPPORT

If you need assistance with course technology at any time, please contact the Center for Online Learning and Teaching Technology (COLTT).

Campus:	**Brownsville**	**Edinburg**
Location:	Casa Bella (BCASA) 613	Education Complex (EEDUC) 2.202
Phone:	956-882-6792	956-665-5327

Toll Free: 1-866-654-4555

Office Hours: Monday - Friday, 7:30 a.m. - 6:00 p.m.

Support Tickets Submit a Support Case via our Ask COLTT Portal

24/7 Blackboard Support

Need Blackboard assistance after hours? You can call our main office numbers, 956-882-6792 or 956-665-5327, to speak with a support representative.

ATTENDANCE:

Students are expected to attend all scheduled classes and may be dropped from the course for excessive absences (please denote the specific number of unexcused absences which will trigger a "drop-by-instructor" in your class.) UTRGV's attendance policy excuses students from attending class if they are participating in officially sponsored university activities, such as athletics; have been provided such an accommodation by Student Accessibility Services (SAS); for observance of religious holy days; or for military service. Accommodations related to COVID-19 should also go through SAS. Students should contact the instructor in advance of the excused absence and arrange to make up missed work or examinations.

ABSENCE/SICK POLICY:

When setting your attendance policy for the Fall semesters, please consider COVID-19-related extenuating circumstances. For instance, you may encounter students who cannot attend class at the scheduled time of a face-to-face, hybrid or synchronous course because they have been advised by the UTRGV COVID-19 response team based on their exposure. It will be important to consider how you will accommodate students in these and similar situations and share your approach with students in the syllabus. Based on the student reporting protocol on the UTRGV COVID-19 protocol web page the student will be able to provide you documentation from the UTRGV COVID-19 response team.

ACADEMIC INTEGRITY:

Members of the UTRGV community uphold the Vaquero Honor Code's shared values of honesty, integrity and mutual respect in our interactions and relationships. In this regard, academic integrity is fundamental in our actions, as any act of dishonesty conflicts as much with academic achievement as with the values of honesty and integrity. Violations of academic integrity include, but are not limited to: cheating, plagiarism (including self-plagiarism), and collusion; submission for credit of any work or materials that are attributable in whole or in part to another person; taking an examination for another person; any act designed to give unfair advantage to a student; or the attempt to commit such acts (Board of Regents Rules and Regulations, STU 02-100, and UTRGV Academic Integrity Guidelines). **All violations of Academic Integrity will be reported to Student Rights and Responsibilities through Vaqueros Report It.**

STUDENTS WITH DISABILITIES:

Students with a documented disability (physical, psychological, learning, or other disability which affects academic performance) who would like to receive reasonable academic accommodations should contact **Student Accessibility Services (SAS)** for additional information. In order for accommodation requests to be considered for approval, the student must apply using the *mySAS* portal. and is responsible for providing sufficient documentation of the disability to SAS. Students are required to participate in an interactive discussion, or an intake appointment, with SAS staff. Accommodations may be requested at any time but are not retroactive, meaning they are valid once approved by SAS. Please contact SAS early in the semester/module for guidance. Students who experience a broken bone, severe injury, or undergo surgery may also be eligible for temporary accommodations.

Pregnancy, Pregnancy-related, and Parenting Accommodations

Title IX of the Education Amendments of 1972 prohibits sex discrimination, which includes discrimination based on pregnancy, marital status, or parental status. Students seeking accommodations related to pregnancy, pregnancy-related condition, or parenting (reasonably immediate postpartum period) should submit the request using the form found at https://www.utrgv.edu/pregnancyandparenting for review by **Student Accessibility Services.**

Student Accessibility Services:
Brownsville Campus: Student Accessibility Services is located in 1.107 in the Music and Learning Center building (BMSLC) and can be contacted by phone at (956) 882-7374 or via email at ability@utrgv.edu.

Edinburg Campus: Student Accessibility Services is located in 108 University Center (EUCTR) and can be contacted by phone at (956) 665-7005 or via email at ability@utrgv.edu.

MANDATORY COURSE EVALUATION PERIOD:
Students are encouraged to complete an ONLINE evaluation of this course, accessed through your UTRGV account (http://my.utrgv.edu); you will be contacted through email with further instructions. Students who complete their evaluations will have priority access to their grades. Online evaluations will be available on or about:

Fall Module 1 (7 weeks)	October 6-12, 2021
Fall Regular Term 2021	November 12- December 1, 2021
Fall Module 2 (7 weeks)	December 1-7, 2021

SEXUAL MISCONDUCT and MANDATORY REPORTING:
In accordance with UT System regulations, your instructor is a "Responsible Employee" for reporting purposes under Title IX regulations and so must report to the Office of Institutional Equity & Diversity

(OIED@utrgv.edu) any instance, occurring during a student's time in college, of sexual misconduct, which includes sexual assault, stalking, dating violence, domestic violence, and sexual harassment, about which she/he becomes aware during this course through writing, discussion, or personal disclosure. More information can be found at www.utrgv.edu/equity, including confidential resources available on campus. The faculty and staff of UTRGV actively strive to provide a learning, working, and living environment that promotes personal integrity, civility, and mutual respect that is free from sexual misconduct, discrimination, and all forms of violence. If students, faculty, or staff would like confidential assistance, or have questions, they can contact OVAVP (Office for Victim Advocacy & Violence Prevention) at (956) 665-8287, (956) 882-8282, or OVAVP@utrgv.edu.

COURSE DROPS:

According to UTRGV policy, students may drop any class without penalty earning a grade of DR (drop) until the official drop date. Following that date, students must be assigned a letter grade and can no longer drop the class. Students considering dropping the class should be aware of the "3-peat rule" and the "6-drop" rule so they can recognize how dropped classes may affect their academic success. The 6-drop rule refers to Texas law that dictates that undergraduate students may not drop more than six courses during their undergraduate career. Courses dropped at other Texas public higher education institutions will count toward the six-course drop limit. The 3-peat rule refers to additional fees charged to students who take the same class for the third time.

STUDENT SERVICES:

Students who demonstrate financial need have a variety of options when it comes to paying for college costs, such as scholarships, grants, loans and work-study. Students should visit the Student Services Center (U Central) for additional information. U Central is located in BMAIN 1.100 (Brownsville) or ESSBL 1.145 (Edinburg) or can be reached by email (ucentral@utrgv.edu) or telephone: (956) 882-4026. In addition to financial aid, U Central can assist students with registration and admissions.

Students seeking academic help in their studies can use university resources in addition to an instructor's office hours. University Resources include the Advising Center, Career Center, Counseling Center, Learning Center, and Writing Center. The centers provide services such as tutoring, writing help, counseling services, critical thinking, study skills, degree planning, and student employment. In addition, services such as the Food Pantry are also provided. Locations are listed below.

Center Name	Brownsville Campus	Edinburg Campus
Advising Center AcademicAdvising@utrgv.edu	BMAIN 1.400 (956) 665-7120	EITTB 1.000 (956) 665-7120
Career Center CareerCenter@utrgv.edu	BINAB 1.105 (956) 882-5627	ESTAC 2.101 (956) 665-2243
Counseling Center Counseling@utrgv.edu Mental Health Counseling and Related Services List	BSTUN 2.10 (956) 882-3897	EUCTR 109 (956) 665-2574
Food Pantry FoodPantry@utrgv.edu	BCAVL 101 & 102 (956) 882-7126	EUCTR 114 (956) 665-3663
Learning Center LearningCenter@utrgv.edu	BMSLC 2.118 (956) 882-8208	ELCTR 100 (956) 665-2585
Writing Center WC@utrgv.edu	BLIBR 3.206 (956) 882-7065	ESTAC 3.119 (956) 665-2538

CALENDAR OF ACTIVITIES (Tentative):

Day	Topic	Assignments
Aug 23, 25, 30	System of Linear Equations, Matrices, Elementary Row Operations, Row Echelon Form	HW/WW

Sept 1, 8	Vectors, Determinants.	HW/WW
Sept 13, 15, 20	Matrix Algebra, Eigenvalues, Eigenvectors of a Matrix	HW/WW/Test-1
Sept 22, 27, 29	Vector Spaces: Subspaces, Spanning Sets	HW/WW
Oct 4, 6, 11	Linear Independence, Dimension, Bases,	HW/WW
Oct 13, 16, 20	Finite Dimensional Vector Spaces, Row and Column Spaces, Rank of Matrix, Null and Image Spaces	HW/WW/Test-2
Oct 25, 27, Nov 1	Linear Transformations: Kernel and Image	HW/WW
Nov 8, 10, 15	Eigenvalues and Eigenvectors, Diagonalization, Orthogonality	HW/WW/Test-3
Nov 17, 22, 24	Positive Definite Matrices, Gram-Schmidt, Schur's Theorem	HW/WW
Nov 29, Dec 1	Inner Product Spaces	
Dec 1	Review for Final	
Dec 6, Monday	Time: 8:00pm-9:45pm	Comprehensive Final

Be sure to include important dates relative to the academic calendar. The UTRGV academic calendar can be found on My.UTRGV at the bottom of the screen prior to login. Some important dates for Fall 2021 include:

Fall Module 1

August 25	First day of classes.
August 25	Last day to add a class or register for Fall 2021 Module 1 classes.
October 5	Last day to drop a class or withdraw.
October 13	Final Exams (Term Ends)
October 15	Grades Due at 3 p.m.

Fall Regular Term

August 23	First day of classes.
August 26	Last day to add a class or register for Fall 2021 classes.
November 10	Last day to drop a class or withdraw.
December 2	Study Day – NO classes
December 3-9	Final Exams
December 13	Grades Due at 3 p.m.

Fall Module 2

October 20	First day of classes.
October 20	Last day to add a class or register for Fall 2021 Module 2 classes.
November 30	Last day to drop a class or withdraw.
December 8	Final Exams (Term Ends)
December 10	Grades Due at 3 p.m.

DEAN OF STUDENTS RESOURCES:

The Dean of Students office assists students when they experience a challenge with an administrative process, unexpected situation such as an illness, accident, or family situation, and aids in resolving complaints. Additionally, the office facilitates student academic related requests for religious accommodations, support students formerly in foster care, helps to advocate on behalf of students and inform them about their rights and responsibilities, and serves as a resource and support for faculty and campus departments.

Vaqueros Report It allows students, staff and faculty a way to report concern about the well-being of a student, seek assistance in resolving a complaint, or report allegations of behaviors contrary to community standards or campus policies.

The Dean of Students can be reached by emailing dos@utrgv.edu, by logging into Virtual Office hours in which a representative is available Monday-Friday 9:00-11:00 a.m. and 1:00-4:00 p.m, or by visiting one of the following office locations: Cavalry (BCAVL) 204 or University Center (EUCTR 323). Phone: 956-665-2260.