College of Marine Sciences & Maritime Studies

Department of Foundational Sciences

MATH 151 Syllabus

Section 502 (30257)
Engineering Mathematics I
Spring 2026 - Galveston

Course Information

Meeting Times: Meeting Type: LEC
Meeting Days: TR
Start Time: 09:35AM
End Time: 10:50AM
Start Date: 01/12/2026
End Date: 05/05/2026
Meeting Location: PMEC 151
Meeting Times: Meeting Type: LAB
Meeting Days: TR
Start Time: 12:45PM
End Time: 1:35PM
Start Date: 01/12/2026
End Date: 05/05/2026
Meeting Location: PMEC 242

Credit Hours: 4

Instructor Details

Francis Adjei
Email: fkadjei@tamu.edu
Office: CLB 108A

Phone: 409-740-4523
Office Hours
MWF: 8:00 AM - 9:00 AM

TR: 8:30 AM - 9:30 AM or by Appointment

Catalog Description

(MATH 2413) Engineering Mathematics I. (3-2). Credit 4. Rectangular coordinates, vectors, analytic geometry, functions, limits, derivatives of functions, applications, integration, computer algebra. MATH 171 designed to be a more demanding version of this course. Only one of the following will satisfy the requirements for a degree: MATH 131, MATH 142, MATH 147, MATH 151 or MATH 171. Prerequisite: Grade of C or better in MATH 150 or equivalent or acceptable score on TAMU Math Placement Exam; also taught at Galveston and Qatar campuses.

Course Prerequisites

Prerequisite/Corequisite(s): Grade of C or better in MATH 150 or equivalent or acceptable score on TAMU Math Placement Exam; also taught at Galveston and Qatar campuses.

Special Course Designation

This is a CORE curriculum course in Mathematics equivalent to MATH 2413. Courses in this category focus on quantitative literacy in logic, patterns, and relationships. Courses involve the understanding of key mathematical concepts and the application of appropriate quantitative tools to everyday experiences.

KMTH - Core Mathematics

Course Learning Outcomes

Upon completion of this course, the learner will be able to:

- Understand vectors and vector functions, both graphically and quantitatively, and apply them to real world situations involving velocity, forces, and work.
- Construct vector and parametric equations of lines and understand vector functions and their relationship to parametric equations.
- Understand the concept of a limit graphically, numerically, and algebraically, and apply the relationship between limits, continuity, and differentiability in determining where a function is continuous and/or differentiable.
- Define the limit definition of the derivative and calculate derivatives using the limit definition, differentiation formulas, the chain rule, and implicit differentiation, with applications to tangent line and velocity problems.
- Calculate limits and derivatives of vector functions with applications to physics such as computing velocity and acceleration vectors.
- Identify exponential, logarithmic, and inverse trigonometric functions, and compute limits and derivatives involving these classes of functions.
- Apply the derivative to mathematically model velocity and acceleration as well as real world related rate applications, such as calculating the rate at which the distance between two moving objects is changing or the rate at which the volume of a cone being filled with water is changing.
- Approximate functions and function values using the derivative and the tangent line.
- Identify and understand indeterminate forms and apply the derivative to calculate limits using L'Hospital's Rule.
- Understand and apply the Intermediate Value Theorem and the Mean Value Theorem, and be able to logically determine when these theorems can be used.
- Use calculus and logic to sketch graphs of functions and analyze their properties, including where a function is increasing/decreasing and in describing the concavity of the function.
- Determine the maximum/minimum values of functions, including applied optimization problems.
- Compute antiderivatives and understand the concept of integration as it relates to area and Riemann sums.
- Articulate the relationship between derivatives and integrals using the Fundamental Theorem of Calculus, and evaluate definite integrals using the Fundamental Theorem of Calculus.
- Use a Computer Algebra System to solve problems.

Core Objectives

Critical Thinking

- Students will think critically about limits in determining how the limit conceptually relates to the behavior of the function.
- Students will think critically about continuity and differentiability to justify whether a function is continuous and or differentiable at a point.
- Students will evaluate the proper technique to use when computing limits and derivatives of functions.
- Students will synthesize data determined from the first and second derivatives to determine the properties and shape of a function.
- Students will use inquiry to determine on what intervals a function is increasing/decreasing and to determine the intervals of concavity of the function by analyzing the signs of the first and second derivatives.
- Students will innovatively think about how to solve related rate word problems and optimization problems.
- Students will analyze functions using continuity and the derivative in determining the maximum and minimum values of the function, and if they exist.
- Students will develop a critical understanding of the relationship between the derivative and the integral using the Fundamental Theorem of Calculus.

Communication Skills

- Students will recognize and construct graphs of basic functions, including polynomials, exponential functions, logarithmic functions, and trigonometric functions.
- Students will justify solutions to optimization problems in writing.
- Students will interpret information from the derivatives of a function in order to develop a visual sketch of the graph of the function and to communicate in writing the properties of the function.
- Students will identify points of discontinuity and non-differentiability by examining the graphs of functions.
- Students will express mathematical concepts, such as the definition of the derivative, both abstractly with equations and in writing solutions to problems.
- Students will develop solutions to problems that involve the use of theorems, such as the Squeeze Theorem, the Intermediate Value Theorem, and the Mean Value Theorem.
- Students will use graphs of functions to determine the value of definite integrals as they relate to area.

- Students will be required to communicate orally with other group members when working on Computer Algebra System projects or other group activities.
- Students will communicate orally in group discussion in the required weekly recitation (lab) sessions.

Empirical and Quantitative Skills

- Students will analyze limits numerically to determine the sign of the infinite limit.
- Students will analyze numerical data in determining the signs of the first and second derivative in order to make conclusions on the shape of the graph.
- Students will compute derivatives and interpret the results as they relate to tangent line, velocity, and other rate of change problems.
- Students will numerically approximate the values of a function by using the tangent line approximation.
- Students will calculate antiderivatives of functions and use initial data to determine any unknown constants.
- Students will make conclusions involving maximum and minimum values of functions (both local and absolute) based on information from the derivative.
- Students will manipulate given information to develop a function to be used in optimization problems and then apply calculus to find and interpret the optimal solution.
- Students will approximate the value of a definite integral numerically using Riemann sums.
- Students will compute definite integrals and interpret the results as they relate to area under a curve.
- Students will manipulate given information to create a related rate model involving known quantities, and then apply calculus to solve for an unknown rate of change.

Textbook and/or Resource Materials

Calculus: Early Transcendentals
ISBN: 9781337613927
Authors: James Stewart, Daniel K. Clegg
Publisher: Cengage Learning
Edition: 9th
This material Is: Required
Notes:

You will be required to purchase access to the online homework system, WebAssign, but doing so will automatically give you access to the eBook version of the text. Purchase can be made through the bookstore or directly in WebAssign. There are various purchasing options available such as single term, multi-term. Choose the option that is right for your needs.

Optional Materials

CALCULATOR: Calculators (TI 83, 84 or similar) can be used for homework. A simple scientific calculator can be used in quizzes and exams. Calculators with graphing and calculus capabilities are not allowed in quizzes and exams.

Grading Policy

The course grading will be based on the tables below. At the end of the semester, you will receive the grade you earned, according to the scale given. Due to FERPA privacy issues, I cannot discuss grades over email or phone. If you have a question about your grade, please schedule a one-on-one meeting with me.

Grade Breakdown

Activity	Date	Percentage
Homework	Weekly	8%
Quizzes	Weekly	8%
Lab	Weekly (Python Assignments)	4%
Exam 1	Thursday, February 12	20%
Exam 2	Thursday, March 19	20%
Exam 3	Thursday, April 16	20%
Final Exam	Thursday, April 30 12:30 p.m. - 2:30 p.m.	20%
Total		100%

Grade Scale

Percentage Range	Grade
90 ≤ Average ≤ 100	A
80 ≤ Average < 90	B
70 ≤ Average < 80	C
60 ≤ Average < 70	D
Average < 60	F

Online Homework

Homework assignments will be completed online in WebAssign. Solve each question on paper and document your work.

A link to each assignment can be found in a Canvas Module. You must log in to WebAssign through Canvas the first time you access the homework.

Quizzes

Every week in recitation (on Thursdays), you will take a quiz over lecture material from the previous week after a short review with your TA. In at least one of these assignments, you will be expected to explain your reasoning in a written format. In at least one of these assignments, you will be expected to explain your reasoning in an oral recording. There might be a pop up quiz at any random day during the lecture.

Python Labs

Every week in lab (on Tuesdays), you will work in groups to complete Python coding assignments (using Google Colab) with guidance from your TA. Group members who do not participate in the lab assignment will not receive any credit for the assignment.

Exams (Midterms)

There will be three exams during the semester. Bring your Texas A&M student ID, Laptop, and a pencil to all exams. Exams may be administered in WebAssign or on paper. If the exam is in

WebAssign, you will be required to use a LockDown Browser to access it. You must submit your answers in WebAssign and also turn in your complete written work on paper.

Additional requirements and information about exams will be given closer to exam time.

The tentative exam schedule is as follows:

Exam I: Thursday, February 12

Exam II: Thursday, March 19

Exam III: Thursday, April 16

Final Exam

The final exam will be comprehensive and is required for all students. If your final exam grade is higher than your lowest test grade, the grade on your final will replace that test grade in the final grade calculation.

The final exam schedule is as follows: **Thursday, April 30 @ 12:30 p.m. - 2:30 p.m.**

Notes

- Work submitted on WebAssign is graded automatically. However, exams and quizzes are also graded manually to check the details of the work. If the details are not provided, no credit will be given, and points may be deducted in WebAssign as well.
- **Any attempt of cheating will result into getting an F in the course automatically.**

Appeal Policy

Students have one week upon the return of a lab, quiz, or exam to notify their instructor of any inaccuracies in their graded work. No changes will be made after this one-week period and the grade will stand. You must present the actual, original assignment or assessment to your instructor before any consideration is made. For labs or quizzes, please consult your recitation instructor.

Late Work Policy

Work submitted by a student as makeup work for an excused absence is not considered late work and is exempt from the late work policy (Student Rule 7).

- There are no makeup quizzes and exams except for "University Excused Absences". If an absence is excused, the instructor will provide the student an opportunity to make-up the exam/quiz by appointment. The missed work should be completed within a week from the date it was missed. Reasons for absences that are considered excused by the university are found in Student Rule 7.
- The fact that these are university-excused absences does not relieve the student of responsibility for prior notification and documentation. Failure to notify and/or document properly may result in an unexcused absence.
- Falsification of documentation is a violation of the Honor Code.
- Each homework will have at least a week to work on before it is due.
- There will be no extension on homework under ordinary circumstances.
- Any extraordinary circumstances should be communicated with the instructor on a timely manner.

Course Schedule

Tentative Course Schedule

Week	Sections and Topics
Week 1: Jan 12 - 16	1.5: Inverse Trigonometric Functions Appendix J.1: Vectors
Week 2: Jan 19 - 23	**Martin Luther King, Jr. Day (no classes):Monday, Jan 19** Appendix J.2: The Dot Product Appendix J.3: Vector Functions and Parametric Curves

Week 3: Jan 26 - 30	2.2: The Limit of a Function 2.3: Calculating Limits Using Limit Laws 2.5: Continuity
Week 4: Feb 2 - 6	2.6: Limits at Infinity and Horizontal Asymptotes 2.7: Derivatives and Rates of Change 2.8: The Derivative as a Function
Week 5: Feb 9 - 13	3.1: Derivatives of Polynomials and Exponential Function 3.2: The Product and Quotient Rules 3.3: Derivatives of Trigonometric Functions **Exam I (Appendix J.1 through Section 2.8)** **Friday, Feb 13**
Week 6: Feb 16 - 20	3.4: The Chain Rule 3.5: Implicit Differentiation 3.6: Derivatives of Logarithmic Functions
Week 7: Feb 23 - 27	Appendix K.1: Derivatives of Vector Functions Appendix K.2: Slopes and Tangents to Parametric Curves 3.7: Rates of Change in the Natural and Social Sciences
Week 8: Mar 2 - 6	3.8: Exponential Growth and Decay 3.9: Related Rates
Mar 9 - 13	**Spring Break**

Week 9: Mar 16 - 20	3.10: Linear Approximations and Differentials 4.1: Maximum and Minimum Values **Exam II (Appendix K & Sections 3.1-3.9)** **Friday, Mar 20**
Week 10: Mar 23 - 27	4.2: The Mean Value Theorem 4.3: How Derivatives Affect the Shape of a Graph 4.4: Indeterminate Forms and L'Hospital's Rule
Week 11: Mar 30 - Apr 3	4.4: Indeterminate Forms and L'Hospital's Rule cont. 4.7: Optimization Problems **Reading Day (no classes): Friday, April 3**
Week 12: Apr 6 - 10	4.9: Antiderivatives 5.1: Areas and Distances 5.2: The Definite Integral
Week 13: Apr 13 - 17	5.2: The Definite Integral cont. 5.3: The Fundamental Theorem of Calculus **Q-drop Deadline: 5pm on April 14** **Exam III (Sections 3.10 - 5.2): Friday, April 17**
Week 14: Apr 20 - 24	5.4: Indefinite Integrals and the Net Change Theorem 5.5: The Substitution Rule

Week 15: Apr 27 - May 1	5.5: The Substitution Rule cont. Reading Day (no classes): Wednesday, April 29 **Final Exam (cumulative): Thursday, April 30 @ 12:30 pm - 2:30 pm**

Additional Course Information

Calculator Policy

Calculators are not allowed on quizzes or exams but may be needed on homework.

Class Announcements, E-Mail Policy, and Communications

Class announcements will be made in Canvas. You are responsible for reading these and keeping track of the information given.

Moreover, I prefer that you send me messages via Canvas, rather than use email. Click on the "Inbox" icon on the left-hand side of the Canvas homepage to find this feature.

If you must send me an e-mail, please include your name and section number, as well as any additional information that I might need to help respond to your e-mail.

Electronic Devices Policy

Electronic devices can only be used for educational purposes that relate to activities done in class. Use of laptops, phones, etc., for other purposes is not only distracting to yourself, but to those around you.

See me if you have other circumstances where a device is needed daily for non class related items (i.e., medical, first responder, etc.).

Academic Integrity

You will read more about the Academic Integrity Statement and Policy in the University Policies section. If you have any questions about whether something would be considered academic dishonesty, ask me before you do it.

However, here is some general guidance:

- In this course, I encourage you to discuss homework assignments and their solutions with your classmates.
- Study groups are a great way to learn. However, copying solutions from another student is considered academic dishonesty. To maintain academic integrity, it is important that you understand and could rework anything that you submit for a grade.
- Communication about any aspect of any quiz or exam completed prior to ALL students completing the quiz or exam can be viewed as academic dishonesty.
- You may not use external sources (i.e., websites, apps, etc.) to complete any in-class quizzes or exams in this course.

Copyright

AI Statement

Artificial Intelligence (AI) text generators, natural language processing tools (i.e. chatbots) and computer code generators should not be used for any work for this class without explicit permission of the instructor. If you (or a teammate for Python labs) have such tools to complete your work, you (and your whole lab team if used on a lab assignment) will have violated the Aggie Honor Code and will be reported to the Honor Council.

Technology Support

Technology Services - Help Desk

E-mail: Helpdesk@tamug.edu
Phone: 409-740-4714

Location: Bldg 3007 (CLB), Rm 113
Hours: Monday - Friday 7:30am to 6:00pm

Canvas LMS Technical Support

Hours: 24/7/365
Phone: (877) 354-4821
Email: support@instructure.com

Support is available by clicking the Help button at the far left in the Canvas global navigation menu. Canvas Resources are also linked on the home page of every Canvas course.

Learning Resources

On-campus learning resources to support students in achieving excellence are available through The Center for Academic Learning Support (tamug.edu/cals).

CALS Learning Consultants TAMUG offers FREE Course Support for students enrolled in this course. These free tutoring and study sessions are hosted in a relaxed, come-and-go as needed, 1-on-1 or small-group formats by a trained student Learning Consultant in the Jack K. Williams Library or online via TAMU Zoom.
The Learning Consultant will offer sessions throughout the week for students to attend as needed to ask specific questions about difficult course concepts and/or assigned homework problems.
Sessions begin the week after classes start and end on the Reading Day each term.
Schedules and information will be posted in Navigate. where students can also reserve specific time slots, but walk-ins are always welcome! Students should have their course materials, notes, and calculators available to use and share during the session. Questions may be directed to the Center for Academic Learning Support at CALS@tamug.edu.
TAMU Math Learning Center The TAMU Math Learning Center(mlc.tamu.edu) is offering Week-in-Review Sessions and Help Sessions that can be attended remotely.
A Virtual Math Learning Center with asynchronous digital resources is available 24/7 for everyone.

University Policies

This section outlines university-level policies as established by the TAMU Faculty Advisory Council.

University Attendance Policy

The university views class attendance and participation as an individual student responsibility. Students are expected to attend class and to complete all assignments.

Please refer to Student Rule 7 in its entirety for information about excused absences, including definitions, and related documentation and timelines.

Makeup Work Policy

Students will be excused from attending class on the day of a graded activity or when attendance contributes to a student's grade, for the reasons stated in Student Rule 7, or other reason deemed appropriate by the instructor.

Please refer to Student Rule 7 in its entirety for information about makeup work, including definitions, and related documentation and timelines.

Absences related to Title IX of the Education Amendments of 1972 may necessitate a period of more than 30 days for make-up work, and the timeframe for make-up work should be agreed upon by the student and instructor" (Student Rule 7, Section 7.4.1).

"The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unexcused absence" (Student Rule 7, Section 7.4.2).

Students who request an excused absence are expected to uphold the Aggie Honor Code and Student Conduct Code. (See Student Rule 24.)

Makeup will be given to excused absences with evidence. Makeup of lectures, quizzes and homework will be done at home. Makeup of the exams and quizzes need to be done in the testing center or in the office within a week.

Civil Rights, Free Speech, and Title IX Policies

Texas A&M University is committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws prohibit discrimination and harassment based on an individual's race, color, sex (including pregnancy and related conditions), religion, national origin, age, disability, genetic information, veteran status, or any other legally protected characteristic. This includes forms of sex-based violence, such as sexual assault, sexual harassment, sexual exploitation, dating/domestic violence, and stalking.

Students can report discrimination/harassment, access supportive resources, or learn more about their options for resolving complaints on the University's Civil Rights & Title IX webpage. Students should be aware that all university employees (except medical or mental health providers) are mandatory reporters, which means that if they observe, experience or become aware of an incident that they reasonably believe to be discrimination/harassment alleged to have been committed by or against a person who was a student or employee at the time of the incident, the employee must report the incident to the university. Texas A&M University is committed to fostering a learning environment that is safe and productive for all. University policies and federal

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Americans with Disabilities Act (ADA) Policy

Texas A&M University is committed to providing equitable access to learning opportunities for all students. If you experience barriers to your education due to a disability or think you may have a disability, please contact the Disability Resources office on your campus (resources listed below). Disabilities may include, but are not limited to, attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their disability-related needs with Disability Resources and their instructors as soon as possible.

To request academic accommodations, contact the designated ADA office based on your location:

- Texas A&M University, College of Nursing, College of Dentistry, Irma Lerma Rangel College of Pharmacy College Station, College of Medicine, School of Public Health, Institute of Biosciences and Technology, EnMed Program, Bush School in Washington DC, Mays Business School – CityCentre, TAMU Engineering Academies, Texas A&M University Higher Education Center at McAllen and Texas A&M University at Galveston should contact Disability Resources at (979) 845-1637 or disability@tamu.edu.

If you are experiencing difficulties with your approved accommodations, contact the office responsible for approving your accommodations or the Texas A&M ADA Coordinator Julie Kuder at ADA.Coordinator@tamu.edu or (979) 458-8407.

Pregnancy Accommodations

Texas A&M provides reasonable accommodations to students due to pregnancy and/or related conditions, such as childbirth, recovery and lactation. Students should contact the University's Pregnancy Coordinator as soon as they become aware of the need for accommodation. Depending on the circumstances, accommodations could include extended time to complete

assignments or exams, changes in course sequence, or modifications to the physical classroom environment. Texas A&M will also allow a voluntary leave of absence, ensure the availability of lactation space, and maintain grievance procedures to provide for the prompt and equitable resolution of complaints of sex discrimination. For information regarding pregnancy accommodations, email TIX.Pregnancy@tamu.edu.

Statement on the Family Educational Rights and Privacy Act (FERPA)

FERPA is a federal law designed to protect the privacy of educational records by limiting access to these records, to establish the right of students to inspect and review their educational records, and to provide guidelines for the correction of inaccurate and misleading data through informal and formal hearings.

Currently enrolled students wishing to withhold any or all directory information items may do so by going to howdy.tamu.edu and clicking on the "Directory Hold Information" link in the Student Records channel on the MyRecord tab. The complete FERPA Notice to Students and the student records policy is available on the Office of the Registrar webpage.

Items that can never be identified as public information are a student's social security number, citizenship, gender, grades, GPR, or class schedule. All efforts will be made in this class to protect your privacy and to ensure confidential treatment of information associated with or generated by your participation in the class.

Directory items include name, UIN, local address, permanent address, email address, local telephone number, permanent telephone number, dates of attendance, program of study (college, major, campus), classification, previous institutions attended, degrees, honors and awards received, participation in officially recognized activities and sports, medical residence location, and medical residence specialization.

Free Speech and Civil Discourse

Texas A&M recognizes that the pursuit of truth through open and robust discourse is critical to academic inquiry. However, as a community of scholars, the university has an aspirational expectation that such discourse will be conducted in accordance with Aggie Core Values. In this "marketplace of ideas," we encourage civil dialogue creating an environment that allows individuals to express their ideas and to have their ideas challenged in respectful and responsible ways. Students can learn more about Freedom of Expression and Free Speech on our website about the First Amendment.