

CLASS TIMES AND LOCATIONS

• Lecture for Math 251 Section 504: MW 4:10-5:25pm BLOC169

INSTRUCTOR INFORMATION

Name	Amy Austin	
Email	austin <u>@math.tamu.edu</u>	
Office	Blocker 247C	
Office Hours	TR 1-2 BLOC 246 and W 2:30-3:30 or by appointment	
Web Page	https://www.math.tamu.edu/~austin/	

COURSE DESCRIPTION AND PREREQUISITES

Engineering Mathematics III (3 credit hours). Vector algebra, calculus of functions of several variables, partial derivatives, directional derivatives, gradient, multiple integration, line and surface integrals, Green's and Stokes' theorems. *Prerequisite:* MATH 148, MATH 152, or MATH 172

REQUIRED MATERIALS

Textbooks:

- *Calculus: Early Transcendentals (Custom Edition)* by Stewart; Cengage Learning
- Note: 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. The textbook is available in different formats, and there are a variety of purchasing options available (course specific access or Cengage Unlimited). Purchase can be made through the local bookstores or directly in WebAssign. Starting on the first day of classes, you will be granted access for a trial period while you determine the appropriate purchasing option for you.

WebAssign Access: WebAssign will be used for homework in this class. In order to use WebAssign, you must purchase access. For access purchasing information and options, please visit <u>http://www.math.tamu.edu/courses/eHomework/</u>.

Calculator Policy: Calculators are not allowed on quizzes or exams, however, they may be needed for the online homework.

Texas A&M Student ID: Bring your student ID to every exam.



LEARNING OUTCOMES

We will cover Chapter 12 to Chapter 16 of the book. We will generalize notations already seen in two dimensional calculus to three dimensional space as vectors and we will cover different concepts used in physics, engineering, and electronics. At the end of this course, students should be able to manipulate these concepts correctly in order to apply techniques seen in this course to engineering applications. In particular, students should be able to:

- Perform Calculus operations on vector-valued functions, including derivatives, integrals, curvature, displacement, velocity, acceleration, and torsion.
- Perform calculus operations on functions of several variables, including partial derivatives, directional derivatives, and multiple integrals.
- Find extrema and tangent planes.
- Solve problems using the Fundamental Theorem of Line Integrals, Green's Theorem, The Divergence Theorem, and Stokes' Theorem.
- Apply the computational and conceptual principles of calculus to the solutions of real-world problems.

GRADING POLICIES

The course grading will be based on the tables below. Due to FERPA privacy issues, I cannot discuss grades over email. If you have a question about your grade, please come see me in person.

Grade	Breakdown
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Activity			
Homework	Weekly	10%	
Quizzes	~Weekly	10%	
Exam I	Week 4	20%	
Exam II	Week 7	20%	
Exam III	Week 11	20%	
Final Exam	See below	20%	
TOTAL		100%	

Grading Scale

$90 \le Average \le 100$	Α
80 ≤ Average < 90	В
70 ≤ Average < 80	С
60 ≤ Average < 70	D
Average < 60	F

Grade Appeal Policy: If you believe an error has been made in grading of an assignment, you have one week from the return of the assignment to let me know. After that one week period, no change to the grade will be made. The only exception to this is if the points on an exam were totaled incorrectly. If a grade has been recorded incorrectly, you may talk to me anytime during the semester about fixing the grade. I will need to see the actual assignment before the grade will be changed.



HOMEWORK

Graded Homework: Homework assignments will be done online in WebAssign. For important information such as how to purchase access, how to log in and take assignments, the Student Help Request Form, and other WebAssign issues, please see <u>https://www.math.tamu.edu/courses/eHomework/</u>. You must log in to WebAssign through the TAMU WebAssign login page at <u>www.webassign.net/tamu/login.html</u>.

Suggested Homework: I STRONGLY suggest that you do the problems found at

<u>https://www.math.tamu.edu/courses/math251/251_suggested_homework.pdf</u> for more practice in addition to the online homework. These will not be collected for a grade.

QUIZZES

As time permits, quizzes will be administered throughout the term. These quizzes may or may not be announced ahead of time, and may be open or closed note. Therefore it is very important you keep your notes up to date and organized. Some quizzes may be take-home.

EXAMS

There will be **three midterm exams** during the semester. Bring your Texas A&M student ID and a pencil to all exams. The tentative exam schedule is as follows:

Exam I: Week 4 Exam II: Week 7 Exam III: Week 11 Final Exam: Friday, May 1, 3:30-5:30

(Refer to https://registrar.tamu.edu/Courses,-Registration,-Scheduling/Final-Examination-Schedules for the University final exam schedule)

ATTENDANCE AND MAKE-UP POLICIES

- The University views class attendance as an individual student responsibility. It is essential that students attend class and complete all assignments to succeed in the course. University student rules concerning excused and unexcused absences, as well as makeups, can be found at https://student-rules.tamu.edu/rule07/.
- Excused Absences: Make-up exams and quizzes or late homework will NOT be allowed unless a University approved reason is given to me in writing. Notification before the absence is required when possible. Otherwise (e.g. accident, or emergency), you must notify me within 2 working days of the missed exam, quiz, or assignment to arrange a makeup. In all cases where an exam/quiz/assignment is missed due to an injury or illness, whether it be more or less than 3 days, I require a doctor's note. Further, an absence due to a non-acute medical service or appointment (such as a regular checkup) is not an excused absence.



- If a quiz is missed for a University excused absence, make arrangements with me the day the quiz is missed (or in advance) to schedule a make up.
- **Makeup exams** will only be allowed provided the absence is excused. You will be allowed to make up a missed exam during one of the scheduled makeup times provided by the Math Department. You are required to attend the *earliest* scheduled makeup following your absence unless you have a University-approved excuse for missing that makeup time as well. The list of makeup times will be available at http://www.math.tamu.edu/courses/makeupex-ams.html.

ACADEMIC INTEGRITY

"An Aggie does not lie, cheat, or steal, or tolerate those who do."

Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the TAMU community from the requirements or the processes of the Honor System. For additional information please visit http://aggiehonor.tamu.edu/.

AMERICANS WITH DISABILITIES ACT (ADA)

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 Disability Resources in the Student Services Building or at (979) 845-1637 or visit http://disability.tamu.edu. 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. If you require accommodations, please see me as soon as possible so that we can make sure you have the necessary paperwork in order.

TITLE IX AND STATEMENT ON LIMITS TO CONFIDENTIALITY

Texas A&M University and the College of Science are committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws provide guidance for achieving such an environment. Although class materials are generally considered confidential pursuant to student record policies and laws, University employees — including instructors — cannot maintain confidentiality when it conflicts with their responsibility to report certain issues that jeopardize the health and safety of our community. As the instructor, I must report (per Texas A&M System Regulation 08.01.01) the following information to other University offices if you share it with me, even if you do not want the disclosed information to be shared:



• Allegations of sexual assault, sexual discrimination, or sexual harassment when they involve TAMU students, faculty, or staff, or third parties visiting campus.

These reports may trigger contact from a campus official who will want to talk with you about the incident that you have shared. In many cases, it will be your decision whether or not you wish to speak with that individual. If you would like to talk about these events in a more confidential setting, you are encouraged to make an appointment with the Counseling and Psychological Services (<u>https://caps.tamu.edu/</u>).Students and faculty can report non-emergency behavior that causes them to be concerned at <u>http://tellsomebody.tamu.edu</u>.

ADDITIONAL CLASS INFORMATION

- **Q-drop:** The last day to Q-Drop a class is **April 14th**.
- **Old Papers:** All papers not picked up after the semester ends will be disposed of. If you want your papers, be sure to pick them up before the semester is over.
- **Class Announcements, E-Mail Policy and Communications:** Class announcements will be posted to my class web page and sent to your university e-mail account. If you send me an e-mail, please include your name and course information (e.g., class and section) as well as any additional information that I might need to help respond to your e-mail.

ADDITIONAL HELP

Week-in-Review (WIR)

There will be Week-in-Review sessions conducted weekly, starting the third week of classes. Each review is open to all Math 251 students to review the topics of the previous week and to provide additional examples. The Week-in-Review schedule can be found at http://www.math.tamu.edu/courses/weekinreview.html.

Help Sessions

Help sessions are an opportunity for you to ask questions and get help with your homework. These sessions are led by students, where you may come and go, as your schedule allows. Once determined, the schedule will be announced in class, posted on our course webpage, and additionally posted at http://www.math.tamu.edu/courses/helpsessions.html.

ELECTRONIC DEVICES

Unless being used for class-related reasons (e.g., taking notes), please refrain from using electronic devices during class, as doing so distracts not only you, but also those around you.

TENTATIVE COURSE TOPICS AND CALENDAR OF ACTIVITIES



Week 1: 1/13 – 1/17	Three-Dimensional Coordinate Systems; Vectors; The Dot Product; The Cross Product	12.1, 12.2, 12.3, 12.4
Week 2: 1/20 – 1/24	Equations of Lines and Planes; Cylinders and Quadric Surfaces (briefly); Vector Functions and Space Curves	12.5, 12.6, 13.1
Week 3: 1/27 – 1/31	Derivatives and Integrals of Vector Functions; Arc Length and Curvature; Motion in Space: Velocity and Acceleration	13.2, 13.3, 13.4
Week 4: 2/3 – 2/7	Functions of Several Variables; Limits and Continuity (optional); Partial Deriva- tives; EXAM I (12.1 through 13.4)	14.1, 14.2, 14.3
Week 5: 2/10 – 2/14	Tangent Planes and Linear Approximations; The Chain Rule; Directional Deriva- tives and the Gradient Vector	14.4, 14.5, 14.6
Week 6: 2/17 – 2/21	Maximum and Minimum Values; Lagrange Multipliers	14.7, 14.8
Week 7: 2/24 – 2/28	Lagrange Multipliers cont; Double Integrals over Rectangles; EXAM II (14.1 through 14.8)	14.8, 15.1
Week 8: 3/2 – 3/6	Double Integrals over General Regions; Double Integrals in Polar Coordinates; Applications of Double Integrals (optional); Surface Area	15.2, 15.3, 15.4, 15.5
3/9 - 3/13	Spring Break	
Week 9: 3/16 – 3/20	Triple Integrals; Triple Integrals in Cylindrical Coordinates; Triple Integrals in Spherical Coordinates;	15.6, 15.7, 15.8
Week 10: 3/23 – 3/27	Change of Variables in Multiple Integrals; Vector Fields	15.9, 16.1
Week 11: 3/30 – 4/3	Vector Fields cont; EXAM III (15.1 through 15.9)	16.1
Week 12: 4/6 – 4/10	Line Integrals; The Fundamental Theorem for Line Integrals; Green's Theorem	16.2, 16.3, 16.4
Week 13: 4/13 – 4/17	Curl and Divergence; Parametric Surfaces and Their Areas; Surface Integrals	16.5, 16.6, 16.7
Week 14: 4/20 – 4/24	Stokes' Theorem; The Divergence Theorem	16.8, 16.9
Week 15: 4/27 – 5/1	Redefined Tuesday (no lecture); FINAL EXAMS (16.1 through 16.9)	
Week 16: 5/4 – 5/8	FINAL EXAMS (16.1 through 16.9)	