Math 2326 – Calculus III – Section 003

Course Instructor

Jeremy Glass
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The instructor will respond to email inquiries within 24-48 hours.
Mentis Faculty Profile: https://mentis.uta.edu/explore/profile/jeremy-glass
Office: PKH 435
Office Phone: 817-272-5683
Office Hours: Mon 1:30 – 2:30PM (PKH 308)
Tue 9:30 – 11:30AM (PKH 435), and again 5-6PM (PKH 435, by appointment only)
Wed 1:30 – 2:30PM (PKH 308)
Thurs 10:30AM – 12:30PM (PKH 435), and again 5-6PM (PKH 435, by appointment only)

Scheduled Meeting Times and Locations

Lecture: Mon/Wed 4-5:20PM, COBA 243

Textbook and Materials

Book and Electronic Access: Calculus: Early Transcendentals, Second Edition, by William Briggs, Lyle Cochran, and Bernard Gillett, with mymathlab plus included.

Calculator Policy

Students may choose to use a scientific, non-graphing calculator on all assignments including tests and the final exam. Only the following models are approved

Texas Instruments 30X series: TI-30Xa, TI-30XIIS, TI-30XIIB, TI-30XS(Multiview)
NO PRO MODELS WILL BE ACCEPTED

Course Catalog Description

Vectors, dot product, cross product, planes, quadric surfaces, partial differentiation, multiple integrals (with applications), line integrals, Green's Theorem, surface integrals, Stokes' Theorem, divergence theorem.

Prerequisite

C or better in MATH 2425 or HONR-SC 2425

Student Learning outcomes

Upon completion on Math 2326, the student should be able to

1. Students will be able to use and understand the concepts of continuity, differentiation and integration of vector-valued functions to determine unit tangent and unit normal vectors in three dimensions. Students will also be able to parameterize piecewise-smooth curves and compute curvature of a space curve.
2. Students will be able to compute and sketch level curves and level surfaces for multivariable functions and sketch the graphs of functions of two variables. Analyzing limits, determining continuity and computation of partial derivatives is also expected. Understanding and use of the Chain Rule for

multivariable functions will be required. Students will also be expected to use tangent planes, directional derivatives, gradients, the second partials test and Lagrange multipliers to solve optimization problems.

3. Students must also be able to demonstrate techniques of multiple- integration and compute iterated integrals over rectangular and non-rectangular regions, as well as in other coordinate systems, including cylindrical and spherical. Application of multiple integrals in problems involving area, volume, surface area, center of mass, moments of inertia, etc. will also be expected.
4. Students will also be expected to understand and compute line and surface integrals by application of The Fundamental Theorem for line integrals, Green's Theorem, Stokes' Theorem and the Divergence Theorem

Attendance Policy

At The University of Texas at Arlington, taking attendance is not required but attendance is a critical indicator in student success. Each faculty member is free to develop his or her own methods of evaluating students' academic performance, which includes establishing course-specific policies on attendance. As the instructor of this section, I will take attendance during lectures. Excellent attendance records will help your grade in that borderline course-grade decisions will be influenced by these records. Arrive on time to class (when given, quizzes take place during the first 10 minutes of class).

While UT Arlington does not require instructors to take attendance in their courses, the U.S. Department of Education requires that the University have a mechanism in place to mark when Federal Student Aid recipients "begin attendance in a course." UT Arlington instructors will report when students begin attendance in a course as part of the final grading process. Specifically, when assigning a student a grade of F, faculty report the last date a student attended their class based on evidence such as a test, participation in a class project or presentation, or an engagement online via Blackboard. This date is reported to the Department of Education for federal financial aid recipients.

Expectations for Out-of-Class Study

Beyond the time required to attend each class meeting, students enrolled in this course should expect to spend an additional 12 hours per week of their own time focused on course-related activities, including reading the textbook, completing assignments, and preparing for exams and quizzes.

Grade Calculation

Assignments and Course Requirements	Percent of Grade
Homework/Quizzes	20%
Midterm 1	25%
Midterm 2	25%
Departmental Final Exam	30%

Grading Scale

Grades will be computed based on the following distribution. Grades are rounded up accordingly.

A: 90 — 100%	B: 80 — 89%	C: 70 — 79%	D: 60 — 69%	F: Below 60%

***Any student who scores below 50 on the final exam cannot receive a grade higher than D in the course.**
****Any student who does not take the Final Exam cannot receive a grade higher than F in the course.**

Makeup Policy

NO late homework or quizzes will be accepted.

T**here are no make-up exams,** except in rare, well documented circumstances (e.g. hospitalization, car accident, death of immediate family member, etc.) or in the case of a university valid excuse. **Work related excuses will not be considered.** You have the option of replacing your lowest midterm exam grade with your grade on the final exam if your grade on the final exam is higher and you attempted BOTH midterm exams. A missing/zero score on a midterm WILL NOT be replaced with your final exam grade.

Tentative Course Schedule

We will cover the following sections from the text:

Weeks	Sections
1-2	Sections 11.1, 11.2, 11.3, 11.4, 11.5, 11.6, 11.7, 11.8 (Vector and Vector-Valued Functions)
3-4	Sections 11.9, 12.1, 12.2, 12.3, 12.4 (Curvature, Functions of Several Variables, Limits and Partial Derivatives)
5-6	Sections 12.5, 12.6, 12.7, 12.8 (Chain Rule, Gradient, Tangent Plane, Extrema of Functions)
7-8	Sections 12.9, 13.1, 13.2 13.3, 13.4 (Lagrange Multipliers, Multiple Integrals)
9-10	Sections 13.5, 13.6, 13.7 (Triple Integrals in Cylindrical and Spherical Coordinates, Change of Variables)
11-12	Sections 14.1, 14.2, 14.3, 14.4 (Vector Fields, Line Integrals, Green's Theorem)
13-14	Sections 14.5, 14.6, 14.7, 14.8 (Divergence and Curl, Surface Integrals, Stokes' Theorem, Divergence Theorem)

As instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course. – J. Glass

Important Dates

Date	Event
8/24	First Day of Classes
9/4	Labor Day Holiday
9/11	Census Date
TBA	Midterm I 11.1-11.9, 12.1-12.5 (tentative)
TBA	Midterm II 12.6-12.9, 13.1-13.5 (tentative)
11/1	Last Day to Drop
11/23 - 11/24	Thanksgiving Holiday ****In observance of the Thanksgiving Holiday we will not hold class Wednesday, 11/22. Please note the university is open that day, and you may be responsible for your other classes.*
12/6	Last Day of Classes
12/9 3:30PM – 6PM	Cumulative Departmental Final Exam 13.6-13.7, 14.1-14.8, plus all above sections

Announcements: Found in *Blackboard*.

- Students are responsible for all information found in these announcements.
- Students should check for new announcements at least twice a week.

Help for Students

- Lab Tutors – open lab times are available at the Math Emporium (PKH 308). Visit http://www.uta.edu/math/emporium/ for more information.
- Math Clinic – located in Pickard Hall 325, offers free daily help. http://www.uta.edu/math/clinic/
- IDEAS Tutoring and Resource Center – 2nd of the Central Library http://www.uta.edu/ideas/
- University Tutoring Service http://www.uta.edu/universitycollege/current/academic-support/learning-center/tutoring/index.php Ransom Hall Suite 205.
- Maverick Resource Hotline (817-272-6107). https://www.uta.edu/universitycollege/resources/resource-hotline.php
- Counseling and Psychological Services (CAPS) https://www.uta.edu/caps/
- Additional Online Course Help: https://www.khanacademy.org/

Drop Policy

If you withdraw from the course for any reason, you must follow University procedures. It is your responsibility to execute these procedures correctly and within the deadlines. **Instructors are unable to drop students**, but we strongly recommend that visit with your instructor before you decide to drop the course. Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance.** Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (http://wweb.uta.edu/aao/fao).

Any student who drops this course on or before Wednesday, November 1st at 4 PM will receive a W.

Drop for Non-Payment of Tuition

If you are dropped from this class for non-payment of tuition, you may secure an Enrollment Loan through the Bursar's Office.

Disabilities Accommodations

UT Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including *The Americans with Disabilities Act (ADA), The Americans with Disabilities Amendments Act (ADAAA),* and *Section 504 of the Rehabilitation Act.* All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of disability. Students are responsible for providing the instructor with official notification in the form of **a letter certified** by the Office for Students with Disabilities (OSD). Only those students who have officially documented a need for an accommodation will have their request honored. Students experiencing a range of conditions (Physical, Learning, Chronic Health, Mental Health, and Sensory) that may cause diminished

academic performance or other barriers to learning may seek services and/or accommodations by contacting: **The Office for Students with Disabilities, (OSD)** www.uta.edu/disability or calling 817-272-3364. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability.

If you require an accommodation based on disability, I would like to meet with you in the privacy of my office, during the first week of the semester, to make sure you are appropriately accommodated.

Counseling and Psychological Services (CAPS) www.uta.edu/caps/ or calling 817-272-3671 is also available to all students to help increase their understanding of personal issues, address mental and behavioral health problems and make positive changes in their lives.

Grade Grievances

Any appeal of a grade in this course must follow the procedures and deadlines for grade-related grievances as published in the current University Catalog. For undergraduate courses including this one, see http://catalog.uta.edu/academicregulations/grades/#undergraduatetext. For student complaints, see http://www.uta.edu/deanofstudents/student-complaints/index.php.

Grade Exclusion and Grade Replacement Policies

These policies are described in detail in the University catalog and can also be found online. Further questions should be directed to your academic advisor and not the instructor of this course.

Non-Discrimination Policy

The University of Texas at Arlington does not discriminate on the basis of race, color, national origin, religion, age, gender, sexual orientation, disabilities, genetic information, and/or veteran status in its educational programs or activities it operates. For more information, visit uta.edu/eos.

Title IX

The University of Texas at Arlington ("University") is committed to maintaining a learning and working environment that is free from discrimination based on sex in accordance with Title IX of the Higher Education Amendments of 1972 (Title IX), which prohibits discrimination on the basis of sex in educational programs or activities; Title VII of the Civil Rights Act of 1964 (Title VII), which prohibits sex discrimination in employment; and the Campus Sexual Violence Elimination Act (SaVE Act). Sexual misconduct is a form of sex discrimination and will not be tolerated. For information regarding Title IX, visit www.uta.edu/titleIX or contact Ms. Jean Hood, Vice President and Title IX Coordinator at (817) 272-7091 or jmhood@uta.edu.

Academic Integrity

It is the philosophy of The University of Texas at Arlington that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. This course includes a zero tolerance policy for academic dishonesty and students are expected to adhere to the UT Arlington Honor Code:

> *I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence. I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.*

UT Arlington faculty members may employ the Honor Code in their courses by having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System Regents' Rule 50101, §2.2, suspected violations of university's standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student's suspension or expulsion from the University. Additional information is available at https://www.uta.edu/conduct/.
Students found guilty of cheating may receive a grade of "F" for the course.

> *"Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the 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." (Regents' Rules and Regulations, Series 50101, Section 2.2)*

Student Support Services

UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at http://www.uta.edu/universitycollege/resources/index.php.

University Tutorial & Supplemental Instruction (Ransom Hall 205): UTSI offers a variety of academic support services for undergraduate students, including: 60 minute one-on-one tutoring sessions, Start Strong Freshman tutoring program, and Supplemental Instruction. Office hours are Monday-Friday 8:00am-5:00pm. For more information visit www.uta.edu/utsi or call 817-272-2617.

The Library's 2nd floor Academic Plaza offers students a central hub of support services, including IDEAS Center, University Advising Services, Transfer UTA and various college/school advising hours. Services are available during the library's hours of operation. http://library.uta.edu/academic-plaza.

The IDEAS Center (2nd Floor of Central Library) offers free tutoring to all students with a focus on transfer students, sophomores, veterans and others undergoing a transition to UT Arlington. To schedule an appointment with a peer tutor or mentor email IDEAS@uta.edu or call (817) 272-6593.

Electronic Communication

UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at http://www.uta.edu/oit/cs/email/mavmail.php.

Campus Carry

Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes

as prohibited. Under the new law, openly carrying handguns is not allowed on college campuses. For more information, visit http://www.uta.edu/news/info/campus-carry/

Student Feedback Survey

At the end of each term, students enrolled in face-to-face and online classes categorized as "lecture," "seminar," or "laboratory" are directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student's feedback via the SFS database is aggregated with that of other students enrolled in the course. Students' anonymity will be protected to the extent that the law allows. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law and aggregate results are posted online. Data from SFS is also used for faculty and program evaluations. For more information, visit http://www.uta.edu/sfs.

Final Review Week

For semester-long courses**,** a period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

Emergency Exit Procedures

Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities.

Emergency Phone Numbers

In case of an on-campus emergency, call the UT Arlington Police Department at **817-272-3003** (non-campus phone), **2-3003** (campus phone). You may also dial 911. We further recommend that you enter the UTA Police Department's emergency phone number into your own mobile phone. For non-emergencies, contact the UTA PD at 817-272-3381

Tentative Homework Assignments

All problems from the text. Similar interactive exercises can be found on MyLabsPlus for many of these. Quizzes may come directly from this list.

Section	Problems
11.1 Vectors in the Plane	11, 23, 49, 57, 65, 71, 75, 76, 78, 83
11.2 Vectors in Three Dimensions	7, 25, 32, 33, 41, 47, 53, 65, 72, 74
11.3 Dot Products	5, 13, 33, 42, 45, 49, 59, 73, 79, 87
11.4 Cross Products	5, 13, 19, 23, 27, 31, 41, 51, 65, 73
11.5 Lines and Curves in Space	5, 9, 23, 28, 33, 41, 45, 51, 60, 66
11.6 Calculus of Vector-Valued Functions	11, 24, 37, 43, 50, 55, 63, 71, 81, 84
11.7 Motion in Space	7, 21, 25, 33, 37, 43, 47, 56, 65, 67
11.8 Length of Curves	1, 9, 13, 15, 23, 31, 35, 43, 48, 56
11.9 Curvature and Normal Vectors	11, 15, 27, 37, 42, 48, 54, 57, 69, 72
12.1 Planes and Surfaces	11, 15, 25, 35, 41, 47, 52, 59, 63, 91
12.2 Graphs and Level Curves	22, 24, 30, 32, 34, 35, 50, 40, 66
12.3 Limits and Continuity	13, 18, 27, 32, 37, 39, 45, 51, 56, 59
12.4 Partial Derivatives	13, 26, 33, 37, 41, 47, 49, 56, 80, 88
12.5 The Chain Rule	4, 9, 16, 21, 23, 33, 36, 40, 64, 68
12.6 Directional Derivatives and the Gradient	9, 15, 21, 25, 27, 31, 33, 44, 53, 55
12.7 Tangent Planes and Linear Approximations	11, 14, 19, 24, 25, 31, 40, 47, 51
12.8 Maximum and Minimum Problems	12, 17, 22, 27, 40, 47, 50, 53, 65
12.9 Lagrange Multipliers	3, 7, 11, 15, 21, 26, 30, 31, 35
13.1 Double Integrals over Rectangular Regions	1, 5, 8, 17, 22, 23, 28, 31, 47
13.2 Double Integrals over General Regions	10, 13, 17, 21, 49, 54, 63, 66, 69, 75
13.3 Double Integrals in Polar Coordinates	7, 13, 21, 24, 27, 40, 43, 53, 65
13.4 Triple Integrals	7, 13, 15, 20, 28, 31, 32, 39, 41
13.5 Triple Integrals in Cyl. and Sph. Coordinates	15, 18, 23, 30, 33, 39, 42, 47, 49, 66
13.6 Integrals for Mass Calculations	9, 13, 19, 21, 25, 33, 36, 43
13.7 Change of Variables in Multiple Integrals	5, 19, 27, 29, 31, 33, 37, 41
14.1 Vector Fields	9, 10, 17, 19, 25, 50
14.2 Line Integrals	11, 13, 27, 31, 33, 37, 39, 44, 45
14.3 Conservative Vector Fields	9, 17, 27, 31, 33, 35, 41, 45
14.4 Green's Theorem	11, 13, 14, 17, 21, 23 29, 32, 35
14.5 Divergence and Curl	9, 17, 23, 27, 31, 41
14.6 Surface Integrals	12, 17, 27, 29, 31, 35, 38, 43, 53
14.7 Stokes' Theorem.	5, 7, 11, 14, 17, 20, 41
14.8 The Divergence Theorem	9, 11, 13, 17, 20, 23, 25