



MATH 2326-002 Calculus III

(Mon)/Tues/(Wed)/Thur/Fri — 5:30pm–6:50pm — PKH 204



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Website

Office Hours

Wed: 1:30pm – 3:30pm

Office: PKH 406

Course Description: Introductory course on vector functions in two or three dimensions, functions of two or more variables, their partial derivatives and extrema, the chain rules, directional derivatives, multiple integration, line integral, surface integrals, Green’s theorem, Stokes’ theorem, and the divergence theorem.

Prerequisite: C or better in MATH 2425 or HONR-SC 2425, or student group.

Course Objectives

At the completion of MATH 2326 student will be able to

- (i) Use the concepts of continuity, differentiation, and integration of vector-valued functions to determine unit tangent and unit normal vectors in the process of modeling objects in three dimensions; parametrize piecewise-smooth curves using arc length; compute the curvature of a spacecurve.
- (ii) Compute and sketch level curves and level surfaces for functions of several variables and sketch the graphs of functions of two variables; analyze limits, determine continuity, and compute partial derivatives of multivariate functions; use tangent planes, directional derivatives, gradients, the second partials test, and Lagrange multipliers to approximate and solve optimization problems.
- (iii) Demonstrate techniques of multiple integration and compute iterated integrals over rectangular regions, non-rectangular regions and in other coordinate systems; apply multiple integrals in problem situations involving area, volume, surface area, center of mass, moments of inertia, etc.
- (iv) Compute line integrals and surface integrals by applying the Fundamental Theorem for Line Integrals, Green’s Theorem, Stokes’ Theorem, and the Divergence Theorem; apply these integrals to solve applications such as mass and work problems is also expected.

through

Speaking multivariable calculus
Hearing multivariable calculus
Observing multivariable calculus
Writing multivariable calculus
Explaining multivariable calculus
Reading multivariable calculus.

Text: 2326 MATH DDA-CALCULUS 3 (0812) (Custom).

Author: Pearson **ISBN-13:** 9780135798720 (may copy-paste into UTA Bookstore search)

This course is part of the UTA Mathematics Department Affordability Campaign, making state-of-the-art online mathematics resources available to our students at the lowest possible price when compared to purchasing elsewhere. To receive the discounted price, purchase course materials through the UTA Bookstore. Search by course or use this site: [affordability program](#)

E-text and Direct Access (Required): Your course materials include the e-version of the course text as well as MyLab course access which is designed to enrich student success by providing instant feedback on your assignments plus on-demand access to personalized study plans, a multimedia library, practice tests, and more. The e-texts may be downloaded on multiple devices with long-term access for each student. Every student has trial access to MyLab course materials as soon as the course is available in Canvas, so you can start working on your course even before you purchase the course materials! That said, students will need a verified purchase within the first two weeks of classes, otherwise, the access to your digital materials will freeze and your account will stay deactivated until the purchase is confirmed. [During the purchasing process, please ensure you enter your name as shown on your UTA records along with your MAVS email address for proper processing.](#)

Optional Text Calculus Volume 3, Gilbert Strang et al. Available for free online! The book comes in web view or PDF format, and you can use whichever format you want. Web view is recommended—the responsive design works seamlessly on any device. Calculus Volume 3 from OpenStax, ISBN 1938168070.

Grade Distribution

Homework	30%
Midterms/Exams (3)	40% (9%/14%/17%)
Final Exam	30%

Letter Grade Distribution

A	weighted average ≥ 90
B	80 - 89
C	70 - 79
D	60 - 69
F	$59 \geq$ weighted average

Other grades such as W or X will be assigned in accordance with the guidelines in the catalog. Students are expected to keep track of their performance throughout the semester and seek guidance from available sources (including the instructor and peers); see “Student Success Programs”

and “Student Resources” below.

Beyond the time required to attend each class meeting, students enrolled in this course should expect to spend at least an additional 9 hours per week of their own time in course-related activities, including reading required materials, completing assignments, preparing for exams, etc.

Coursework & Attendance

Homework

Homework will be assigned periodically. Instructions are found through use of Canvas.

Exams

Students are required to bring a Scantron, form SC882-E, for possible multiple choice exams.

Students have until 05 February 2020 to email the instructor about any possible conflicts with the given exam schedule:

Exam I	February 12	75 minutes
Exam II	March 23	75 minutes
Exam III	April 20	75 minutes

There are no make-up Exams.

The instructor will decide how to proceed if an excused absence must coincide with an Exam date. See “Attendance”.

Calculator use for testing (any Midterm/Final Exam) must be approved prior to the testing day. You will be asked to present your UTA MavID at all Exams. Please bring your UTA MavID to all Exams!

Exams are weighted using the percentages found in the (sub)section “Grade Distribution”. The numerical grades for the Exams will receive a weight according to (individual) student performance with the highest scoring Exam receiving the highest weight and the lowest scoring Exam receiving the lowest weight.

Final

The Final Exam (Final) is not optional. The University provides the schedule for final exams, which students should check early and often for possible conflicts. You will be asked to present your UTA MavID. Please bring your UTA MavID to the Final!

The Final Exam is comprehensive.

Attendance

At The University of Texas at Arlington, taking attendance is not required but attendance is a critical indicator of 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 record attendance.** However, 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 must 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 Canvas. This date is reported to the Department of Education for federal financial aid recipients

Presence in class is more than encouraged. Absence from class, should it occur, does not relieve students from responsibilities or consequences. Moreover, absences of different types may result in varying outcomes, including zero-grades on assignments, alternative assignments, or scaled grades on future/similar assignments. The instructor will determine which absences are excused or not while regarding University policy and determine consequences relating to grading and assignment status.

Students are responsible for obtaining/understanding all missed content, notes, etc.

UT Arlington Policies

Drop Policy

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. Drops can continue through a point two-thirds of the way through the term or session. 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.

Disability 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**) or calling 817-272-3364. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at the OSD website.

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 Equal Op-

portunity Services.

Title IX Policy

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 the Title IX website or contact Ms. Michelle Willbanks, Title IX Coordinator at 817-272-4585 or titleix@uta.edu.*

Academic Integrity

Students enrolled all UT Arlington courses 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 Student Conduct. Faculty are encouraged to discuss plagiarism and share the following library tutorials Copyright & Fair Use: Plagiarism and Acknowledging Sources.

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 OIT: Student MavMail.

To email the instructor, send messages to dwight.williams@uta.edu. Include a subject line beginning with “MATH 2326-002” and containing a relevant statement/question/comment or keywords. The instructor attempts to reply to emails before the conclusion of two subsequent class meetings—replies may be in-person or included in a message to a subset of the class if appropriate and sensible.

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 News Center: Campus Carry.

Final Review Week

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.

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 Student Feedback Survey.

Active Shooter

The safety and security of our campus is the responsibility of everyone in our community. Each of us has an obligation to be prepared to appropriately respond to threats to our campus, such as an active aggressor. Please review the information provided by UTA Police regarding the options and strategies we can all use to stay safe during difficult situations. For more information, visit Crime Prevention: Active Shooter.

Counseling and Psychological Services (CAPS)

CAPS is 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. Visit Counseling and Psychological Services or call 817-272-3671.

Student Success Programs

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 by appointment, drop-in tutoring, etutoring, supplemental instruction, mentoring (time management, study skills, etc.), success coaching, TRIO Student Support Services, and student success workshops. For additional information, please email resources@uta.edu or view the Maverick Resources website.

Student Resources

Math Clinic

The Math Department operates the Math Clinic, a tutoring service staffed by upper level undergraduate students. You will need to show your Mav ID to use the Math Clinic. There are tables where you may study on your own or quietly with other students. Each table has a flag that you can raise to indicate that you need help from a tutor. The Math Clinic is on the 3rd floor of Pickard Hall. Go to the Math Clinic webpage to get more information or to access assignment sheets for the courses for which tutoring is offered. Private Tutoring: The Math Department maintains a list of people who have expressed an interest in tutoring. These persons are not necessarily recommended by the Math Dept. and they set their own fees. You may obtain a copy of the tutor list in the Math Office.

I.D.E.A.S. Center

The I.D.E.A.S. Center (2nd Floor of Central Library) offers FREE tutoring and mentoring to all students with a focus on transfer students, sophomores, veterans, and others undergoing a transition to UT Arlington. Students can drop in or check the schedule of available peer tutors at www.uta.edu/IDEAS, or call 817-272-6593.

The *Embedded Tutor* for MATH 2326-002 is Alisha Parajuli. Her hours are as follows:

M	T	W	R	F
3:00pm–5:00pm	6:00pm–9:00pm	3:00pm–5:00pm	6:00pm–9:00pm	2:00pm–7:00pm

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.

Librarian to Contact Each academic unit has access to Librarians by Academic Subject that can assist students with research projects, tutorials on plagiarism and citation references as well as support with databases and course reserves.

Library Resources

Library Home Page	http://library.uta.edu
Academic Plaza Consultation Services	http://library.uta.edu/academic-plaza
Subject Guides	http://libguides.uta.edu
Subject Librarians	http://library.uta.edu/subject-librarians
Database List	http://libguides.uta.edu/az.php
Course Reserves	http://pulse.uta.edu/vwebv/enterCourseReserve.do
Library Tutorials	http://library.uta.edu/how-to
Connecting to the library from Off-Campus	http://libguides.uta.edu/offcampus
Ask a librarian	http://ask.uta.edu
FabLab	http://fablab.uta.edu
Study Room Reservations	http://openroom.uta.edu
Scholarly Communications	http://library.uta.edu/scholcomm

Safety

Emergency Exit Procedures

Should we experience an emergency event that requires evacuation of the building, students should exit the room and move toward the nearest exit, which is located, from the perspective of individuals seated at the tables, to the right (cardinal direction East) of the classroom. When exiting the building during an emergency, do not take an elevator but use the stairwells instead. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities. Note: The evacuation plan for a nearby classroom is included via hyperlink: click “PKH 204” at the top of the page. There are alternative exits if the nearest exit is inaccessible, and there should be signs posted on the inside of the classroom’s doors.

Emergency Phone Numbers

In case of an on-campus emergency, call UT Arlington Police: **817-272-3003** (non-campus phone), **2-3003** (campus phone). You may also dial 911. For a *non-emergency*: 817-272-3381.

Syllabus Amendments

The instructor (Dwight A. Williams II) reserves the right to make changes to the Syllabus, including the Calendar and dates of Exams, when unforeseen circumstances occur or to the discerned benefit of the class membership (students and instructor). These changes will be announced as early as possible so that students can adjust their personal schedules.

Tentative Course Outline

The last page of the Syllabus contains a tentative schedule (Calendar) for lectures and content tracking. The daily coverage may change as it depends on the progress of the class. Recommendation: Seek understanding along with completion—*SHOWER*, thus, explain how and why you are working each problem.

Sun	Class Day Mon	Tue	Class Day Wed	Thu	Fri	Sat	
		21 CLASSES BEGIN	22 INTRODUCTION	23	24	25	January WEEK 1
26	27 13.1 - 13.3	28	29 13.4 - 13.6	30	31	1	February WEEK 2
2	3 13.6, 14.1 - 14.2	4	5 <u>CENSUS DATE</u> 14.3 - 14.5	6	7	8	WEEK 3
9	10 15.1 - 15.3 REVIEW	11	12 MIDTERM I (13.1 - 14.5)	13	14	15	WEEK 4
16	17 REVIEW 15.1 - 15.3	18	19 15.4 - 15.5	20	21	22	WEEK 5
23	24 15.5 - 15.6	25	26 15.5 - 15.6	27	28	29	WEEK 6
1	2 15.7 - 15.8	3	4 15.7 - 15.8	5	6	7	March WEEK 7
8	9	10	11	12	13	14	
Spring Break--BREAK!							
15	16 16.1 - 16.3	17	18 16.1 - 16.3 REVIEW	19	20	21	WEEK 8
22	23 MIDTERM II (15.1 - 16.3)	24	25 REVIEW 16.4 - 16.6	26	27	28	WEEK 9
29	30 16.4 - 16.6	31	1 16.4 - 16.6	2	3 <u>Drop Date</u>	4	April WEEK 10
5	6 16.7, 17.1 - 17.2	7	8 16.7, 17.1 - 17.2	9	10	11	WEEK 11
12	13 17.3 - 17.4	14	15 17.3 - 17.4 REVIEW	16	17	18	WEEK 12
19	20 MIDTERM III (16.4 - 16.6, 17.1 - 17.4)	21	22 REVIEW 17.5 - 17.8	23	24	25	WEEK 13
26	27 17.5 - 17.8	28	29 17.5 - 17.8	30	1	2	May WEEK 14
3	4 REVIW	5	6 REVIEW	7	8 CLASSES END	9 FINAL EXAM (COMPREHENSIVE)	WEEK 15
10	11	12	13	14	15	16	Finals Week