

Course Syllabus MATH 2326-001
Calculus III: Spring 2018

Instructor: Esteban Diaz

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Office Hours: W-F: 1p.m.-3 p.m.

Faculty Profile: <https://mentis.uta.edu/explore/profile/esteban%20-diaz>

Section Information: MATH 2425-100

Time and Place of Class Meetings:

Lecture: PKH 319, MWF 9:00AM - 9:50AM

Description of Course Content: This course is about functions whose input and/or output consist of more than one variable, and how the ideas of calc 1 and 2 are applied in this more general setting. Prerequisite: C or better in MATH 2425 or Honors Calc 2.

Student Learning Outcomes: Upon completion of Math 2326, the student should be able to:

1. Find / recognize several representations of lines, curves, planes, and surfaces in 2- and 3-dimensional space
2. Compute and interpret arclength, curvature, and unit tangent, normal, and binormal vectors for curves in 3-space.
3. Find parametrizations of curves from descriptions, and parametrize piecewise-smooth curves by arclength.
4. Find and sketch level curves / level surfaces for functions of several variables; sketch / visualize the graphs of functions of two variables.
5. Compute limits of functions of several variables, or prove that they don't exist.
6. Compute partial and directional derivatives and gradient vectors for functions of several variables, and relate these to tangent planes of surfaces.
7. Solve optimization problems using second-derivative methods and/or Lagrange multipliers.
8. Demonstrate techniques of multiple integration and compute iterated integrals over rectangular regions, non-rectangular regions, and in other coordinate systems.
9. Apply a change of variables in a multivariable context.
10. Compute line and surface integrals using the definition, or by applying the fundamental theorem of line integrals, Green's theorem, Stokes' Theorem, and the Divergence theorem.
11. Apply all integration techniques learned to solve problems involving area, volume, surface area, physics, and probability.
12. Justify and explain steps in problem solving. In particular, students should be able to construct correct and detailed mathematical arguments to justify their claimed solutions to problems.

Required Textbooks and Other Course Materials:

1. **Calculus, Early Transcendentals, 2nd edition, by Briggs, Cochran, Gillett** (Pearson) **AND**
2. **Access to MyLabsPlus** (www.uta.mylabsplus.com), the online homework system for this course is required. If you purchased your book new, you received an access code. Otherwise, you will need to purchase this. A handout is posted on Blackboard with instructions. All you need to do is login, enter or buy an access code, and then you are up and running.

Expectations for Out of Class Study: Beyond the time required to attend each class meeting and lab session, students enrolled in this course should expect to spend **an additional 12 hours per week of their own time** on focused course-related activities, including reading the Calculus text, completing assignments, and preparing for exams and quizzes.

Grading Scale: **A:** 90-100 **B:** 80-89 **C:** 70-79 **D:** 60-69 **F:** 0-59

Grade Components and Major Assignments and Examinations:

Midterm 1: 20% (Friday Feb 23, 2018)
Midterm 2: 25% (Friday April 6, 2018)
Final Exam: 30% (Saturday, May 5, 2018)
Online Homework: 20%
Quizzes: 5%

Online Homework: Homework will be assigned on a daily basis. A student must have access to uta.mylabsplus.com for this course since part of your grade will be based on the completion of homework assignments online. **Late Homework will not be accepted, not ever, for any reason.**

Quizzes: Quizzes will be administered every Monday and will cover anything from the previous week.

Attendance: 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 have decided that attendance at all class lectures is required, but attendance will not be taken nor directly factored into your grade. Any student who misses a lecture for any reason is responsible for missed material and missed announcements. 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 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.

Grading: Students are expected to keep track of their performance throughout the semester and seek guidance from available sources (including the instructor) if their performance drops below satisfactory levels. See "Student Support Services" below.

Midterms and Final Exam: As this course is not so tightly coordinated as those below it, I'll be writing the midterm exams. There will be no multiple-choice; you will just have to demonstrate what you know. The final is departmental, so there may be multiple-choice questions on it.

Advice for my midterms: always tell me what you know, and always do the part of the question that you can. I'm a big proponent of partial credit. My exams tend to have fewer, but more involved questions. Questions will be similar in flavor to those you have seen on the homework, but they will not be exactly like them. In other words, you will have to think.

Any student who scores below 50 on the final exam cannot receive a grade higher than D in the course. Any student who scores a 0 on the final exam will receive an F in the course.

Make-up Policy:

If you have a conflict with either midterm or final, you must contact your instructor no later than 5pm on the Census Date (Wed, 31-Jan-2018), by using a form provided to you at your request by your instructor & submitting it together with necessary documentation as indicated on the form. If a conflict arises after the census date, contact your instructor immediately. Delays in submitting a make-up request may mean that the instructor cannot approve your request.

Calculator: You must only use nonprogrammable calculators with basic computational features, such as arithmetic and transcendental functions. You may NOT use any calculator with the following capabilities: graphing, equation solving, differentiation, integration, QWERTY keyboard, and any device that has internet capabilities (This means **NO CELL PHONES, SMART WATCHES, TABLETS, ETC**). Approved calculators are:

Texas Instruments 30X series: TI-30Xa, TI-30X-IIS, TI-30XS
TI30 PLUS or TI30 PRO versions NOT PERMITTED

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>.

Blackboard: We will be making heavy use of Blackboard in this class. Copies of our syllabus will be located here under the syllabus section. In addition, under the course content section students will find review sheets for tests. Quiz and test grades may also be posted here. **Students should periodically log onto Blackboard in order to check on their grades.** To access the course, go to <https://elearn.uta.edu/> or click on the Blackboard link located on the UTA student home page and log in with your NetID and password. Click on the name of the course in the upper left module after logging in. **Students need to e-mail me if they have any questions about their grades. All graded papers returned to students should be kept in a safe place until the end of the semester in case they are ever needed to resolve a grade dispute.**

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 (<http://www.uta.edu/aao/fao/>). **The last day for students to drop is 4:00pm, 30-March-2018! (Submit requests to advisor prior to 4:00 pm.)**

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.

Grade Replacement and Exclusion: These policies are described in detail in the University catalog, which can be found online at <http://catalog.uta.edu/academicregulations/grades/>

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 <https://www.uta.edu/conduct/>.

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.

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).** Please do so no later than the census date, Mon 31-Jan-2018. 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. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability.
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.
If you require an accommodation based on disability, I would like to meet with you in the privacy of my office, during the first two weeks of the semester, to make sure you are appropriately accommodated.

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 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 www.uta.edu/titleIX or contact Ms. Jean Hood, Vice President and Title IX Coordinator at (817) 272-7091 or jmhood@uta.edu.*

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 Disruption: The University reserves the right to impose disciplinary action for an infraction of University policies. For example, engagement in conduct, alone or with others, intended to obstruct, disrupt, or interfere with, or which in fact obstructs, disrupts, or interferes with, any function or activity sponsored, authorized by, or participated in by the University.

Student Feedback Survey: At the end of each term, students enrolled in classes categorized as “lecture,” “seminar,” or “laboratory” shall be 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 enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington’s effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit <http://www.uta.edu/sfs>.

Final Review Week: 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 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>.

Math Clinic: The Math Department operates the Math Clinic, a tutoring service staffed by upper level undergraduate students. The Math Clinic is on the 3rd floor of Pickard Hall; the phone number is 817-272-5674; and the hours of operation for fall and spring are

Monday – Thursday	8:00a – 9:00p
Friday	8:00a – Noon
Saturday	1:00p – 6:00p
Sunday	1:00p – 9:00p

Go to the Math Clinic webpage <http://www.uta.edu/math/clinic/> to get more information or to access assignment sheets for the courses for which tutoring is offered.

Science Education and Career Center (SECC): All previous midterm exams and some previous final exams are available to students in the Science Education and Career Center (SECC), 106 Life Science Building. The fall and spring hours of operation are

Monday-Thursday	8:00a – 8:00p
Friday	8:00a – 5:00p
Saturday	12:00p – 5:00p

You need a Mav ID Card to check out these exams. A copy machine is available for you to make copies. There are also video tapes of lectures on calculus topics that can be viewed in the SECC. For more information, go to <https://www.uta.edu/cos/SECC/login.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.

Tutor List: The Math Department maintains a list of people who have expressed an interest in tutoring. These persons are not necessarily recommended by the Math Department and they set their own fees. You may obtain a copy of the tutor list in the Math Office, 478 PKH.

IDEAS Center: 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.

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>

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. Non-emergency number 817-272-3381

Mathematics Learning Resource Centers

Email: mathLRC@uta.edu

Computer Lab Website: <http://www.uta.edu/math/LRC/>

Clinic Website: <http://www.uta.edu/math/clinic/>

Facebook: <https://www.facebook.com/UTA-Learning-Resource-Center-460329394127443/>

Help for Students

- Face to Face Tutoring through the UTA Math Learning Resource Center. Free daily tutoring is offered in the Math Computer Lab – Pickard Hall (PKH) room 308 <http://www.uta.edu/math/LRC/> and the Math Clinic – Pickard Hall (PKH) room 325 <http://www.uta.edu/math/clinic/>
- IDEAS Center offers on-campus and online tutoring for transfer students, veterans, sophomores, and students re-entering school after a break <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/>

Important Dates (2018)

Jan 16 (Tue)	First day of Classes
Jan 31 (Wed)	Census Date & Deadline for ALL Make-up Exam Requests
Feb 23 (Fri)	Midterm 1
Mar 12-17 (Mon-Sat)	Spring Break
April 6 (Fri)	Midterm 2
Mar 30 (Fri)	Last Day to Drop Classes (4 PM)
May 4 (Fri)	Last Day of Classes
May 5 (Sat)	Final Exam: 12:30p-3p

Course Schedule and Assignment Sheet (Tentative)

TEXT: Calculus, Early Transcendentals, 2nd edition, by Briggs, Cochran, Gillett (Pearson)
Tentative Course Schedule (See below)

	Beginning Day	Hour	Finish Day	Finish Hour	Chapters
11.1					
Vectors in the plane	Wednesday, January 17, 2018	9:00 AM	Wednesday, January 17, 2018	9:30 AM	11.1
11.2					
Vectors in 3 dimension	Wednesday, January 17, 2018	9:30 AM	Friday, January 19, 2018	9:15 AM	11.2
11.3					
Dot Products	Friday, January 19, 2018	9:15 AM	Monday, January 22, 2018	9:00 AM	11.3
11.4					
Cross Product	Monday, January 22, 2018	9:00 AM	Monday, January 22, 2018	9:30 AM	11.4
11.5					
Lines and Curves in Space	Monday, January 22, 2018	9:30 AM	Friday, January 26, 2018	9:05 AM	11.5
11.6					
Calculus of Vector Valued Functions	Friday, January 26, 2018	9:05 AM	Monday, January 29, 2018	9:25 AM	11.6
11.7					
Motion in Space	Monday, January 29, 2018	9:25 AM	Wednesday, January 31, 2018	9:10 AM	11.7
11.8					
Length of Curves	Wednesday, January 31, 2018	9:10 AM	Friday, February 02, 2018	9:30 AM	11.8
11.9					
Curvature and Normal Vectors	Friday, February 02, 2018	9:30 AM	Wednesday, February 07, 2018	9:05 AM	11.9
12.1					
Planes and Surfaces	Wednesday, February 07, 2018	9:05 AM	Friday, February 09, 2018	9:25 AM	12.1
12.2					
Graphs and Level Curves	Friday, February 09, 2018	9:25 AM	Wednesday, February 14, 2018	9:00 AM	12.2
12.3					

Limits and Continuity	Wednesday, February 14, 2018	9:00 AM	Friday, February 16, 2018	9:20 AM	12.3
12.4					
Partial Derivatives	Friday, February 16, 2018	9:20 AM	Monday, February 19, 2018	9:40 AM	12.4
12.5					
The Chain Rule	Monday, February 19, 2018	9:40 AM	Friday, February 23, 2018	9:15 AM	12.5
12.6					
Directional Derivatives and the Gradients	Friday, February 23, 2018	9:15 AM	Monday, February 26, 2018	9:35 AM	12.6
12.7					
Tangent Planes and Linear Approximation	Monday, February 26, 2018	9:35 AM	Friday, March 02, 2018	9:10 AM	12.7
12.8					
Maximum and Minimum Problems	Friday, March 02, 2018	9:10 AM	Monday, March 05, 2018	9:30 AM	12.8
12.9					
Lagrange Multipliers	Monday, March 05, 2018	9:30 AM	Friday, March 09, 2018	9:05 AM	12.9
13.1					
Double Integrals over Rectangular Regions	Friday, March 09, 2018	9:05 AM	Monday, March 19, 2018	9:25 AM	13.1
13.2					
Double Integrals over General Regions	Monday, March 19, 2018	9:25 AM	Friday, March 23, 2018	9:00 AM	13.2
13.3					
Double Integrals in Polar Coordinates	Friday, March 23, 2018	9:00 AM	Monday, March 26, 2018	9:20 AM	13.3
13.4					
Triple Integrals	Monday, March 26, 2018	9:20 AM	Wednesday, March 28, 2018	9:40 AM	13.4
13.5					
Triple Integrals in Cylindrical and Spherical Coordinates	Wednesday, March 28, 2018	9:40 AM	Monday, April 02, 2018	9:15 AM	13.5
13.6					
Integral for Mass Calculations	Monday, April 02, 2018	9:15 AM	Wednesday, April 04, 2018	9:35 AM	13.6
13.7					

Change of Variables in Multiples Integrals	Wednesday, April 04, 2018	9:35 AM	Monday, April 09, 2018	9:10 AM	13.7
14.1					
Vector Fields	Monday, April 09, 2018	9:10 AM	Wednesday, April 11, 2018	9:30 AM	14.1
14.2					
Line Integrals	Wednesday, April 11, 2018	9:30 AM	Monday, April 16, 2018	9:05 AM	14.2
14.3					
Conservative Vector Fields	Monday, April 16, 2018	9:05 AM	Wednesday, April 18, 2018	9:25 AM	14.3
14.4					
Green's Theorem	Wednesday, April 18, 2018	9:25 AM	Monday, April 23, 2018	9:00 AM	14.4
14.5					
Divergence and Curl	Monday, April 23, 2018	9:00 AM	Wednesday, April 25, 2018	9:20 AM	14.5
14.6					
Surface Integrals	Wednesday, April 25, 2018	9:20 AM	Friday, April 27, 2018	9:40 AM	14.6
14.7					
Stokes' Theorem	Friday, April 27, 2018	9:40 AM	Wednesday, May 02, 2018	9:15 AM	14.7
14.8					
Divergence Theorem	Wednesday, May 02, 2018	9:15 AM	Friday, May 04, 2018	9:35 AM	14.8

As the 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. –Esteban Diaz, Ph.D.