Calculus 3: MATH 2326-001

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Phone	817-272-0008 (Office) 817-272-3261 (Math Office)	**Office Hours**	Tues, Thurs 5p – 6p, 8p – 9p
		Class Times	Tues, Thurs 6p – 8p in PKH 103

Textbook

Calculus, Early Transcendentals, Custom Edition for UT-Arlington, by Soo T.

Register for WebAssign at: http://webassign.net **(WebAssign is REQUIRED for this course)**. Note that the class key for this section is **uta 3118 5493**.

Prerequisites

A grade of C or better in MATH 2425 (Calculus 2) is required.

Description of Course Content

This course is the study of calculus in multiple dimensions. We begin with a brief study of vector-valued functions. Then, we study partial differentiation and multiple integration of functions of several variables. The course will end with a study of vector analysis which is a useful mathematical tool for scientific and engineering applications. We will focus on Chapters 11-14 in your textbook and include two sections from Chapter 10.

Student Learning Outcomes

Upon completion of MATH 2326, the student should be able to

1. 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.
2. Parameterize piecewise-smooth curves and compute curvature of a space curve.
3. Compute and sketch level curves and level surfaces for multivariable functions and sketch graphs of functions of two variable. Analyzing limit s, determining continuity and computation of partial derivatives is also expected. Understanding and use of the chain rule for multivariable functions will be require.
4. Use tangent planes, directional derivatives, gradients, the second partials test and Lagrange multipliers to solve optimization problems.
5. 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. Applications of multiple integrals in problems involving area, volume, surface area, center of mass, moments of inertia, etc. will also be expected.
6. Understand and compute line and surface integrals by application of The Fundamental Theorem of Line Integrals, Green's Theorem, Stokes' Theorem, and the Divergence Theorem. It is also hoped that the students will be able to understand the physical interpretations of these theorems and the potential applications in various fields of study.

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

Grade Components

Online Homework (WebAssign) 10%
Test 1 (June 25th) 20%
Test 2 (July 16th) 20%
Test 3 (August 6th) 20%
Final Exam (August 18th) 30%

Tests and Final

Tests are administered during regular class time. The final exam will follow the university exam schedule. The final exam is comprehensive. The format of each exam will be a mix of multiple-choice problems and free-response problems. **Tests will be given in SH 101. ANY STUDENT MAKING LESS THAN A 50 ON THE FINAL EXAMS CAN ONLY EARN A MAXIMUM GRADE OF A "D" IN THIS COURSE.**

Make-Up Exam Policy

Should you miss one of the Midterm Tests, you must contact me no later than 12p the next day to schedule a make-up exam. Makeup exams must be completed no later than 12p the day of the next class meeting. Your Final Exam grade may replace one of your Test grades if it is higher than the lowest grade made of the tests.

Calculator & Notecard Policy

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, TABLETS, ETC).

The recommended calculator is the TI-30XS or the TI-30XIIS. The TI-30XS has a number of nice typesetting and evaluation features that you may find useful. **If you would like to use another calculator, you must get it approved by me BEFORE the test date. Failure to do so may result in not being able to use a calculator on you exam.**

One 3" x 5" notecard, front and back will be allowed on each Test. A 4" x 6" notecard may be used for the Final Examination.

Homework

A student must have access to WebAssign for this course as part of your grade will be based on the completion of homework assignments online. Homework will be due online the day of each Test. The material due reflects the material being tested over.

Attached is an additional homework sheet. These problems will not be collected but are different than those on WebAssign. You are also expected to be able to complete these problems by the time you complete this course.

Problems similar to those on WebAssign and the homework sheet will appear on the tests.

Attendance

This is a very fast paced course and missing a single class will be detrimental to your success. So, as incentive to attend, for every UNEXCUSED absence, .5% of your final grade in the course will be forfeit. Absences due to illness, family emergency, etc will be excused with proper notification (ie, let me know by the next day what happened) and documentation (doctors note, etc.).

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 www.uta.edu/resources.

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 and the phone number is 817-272-5674. Go to the Math Clinic webpage http://www.uta.edu/math/clinic/ to get more information.

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.

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://wweb.uta.edu/aao/fao/). Any student who drops this course on or before Wednesday, July 23rd at 4 PM will receive a W.

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.

Email Policy

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.T

American with Disabilities Act

The University of Texas at 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)*. 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 that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. 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 or by calling the Office for Students with Disabilities at (817) 272-3364.

Student responsibility primarily rests with informing faculty **at the beginning of the semester and in providing authorized documentation through designated administrative channels.** 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.

Academic Integrity

Students enrolled in this course 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 as they see fit in their courses, including (but not limited to) 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.

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.

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, which is located at the corner of the building. 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 handicapped individuals.

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.

Title IX

The University of Texas at Arlington is committed to upholding U.S. Federal Law "Title IX" such that no member of the UT Arlington community shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity. For more information, visit www.uta.edu/titleIX.

Important Dates

First Day of Class ..... June 9th
Census Date ..... June 25th
Test 1 ..... June 25th
Test 2 ..... July 16th
Drop Date ..... July 23rd
Test 3 ..... August 6th
Last Day of Class ..... August 13th
Final Exam ..... August 18th

Tentative Course Schedule

Date	Section	Title	Additional Homework
6/9	11.1	Vector-Valued Functions & Space Curves	6, 21, 25, 45
	11.2	Differentiation & Integration of Vector-Valued Functions	3, 6, 11, 17, 25, 30
6/11	11.3	Arc Length & Curvature	7, 11, 19, 25, 30, 44
	10.6	Surfaces in Space	2, 9, 13 – 20, 47, 49
6/16	12.1	Functions of Two or More Variables	7, 16, 33 – 38, 43, 51, 53, 54, 57 – 62
	12.2	Limits & Continuity	2, 5, 11, 14, 15, 21, 32
6/18	12.3	Partial Derivatives	23, 42, 76
	12.5	The Chain Rule	5, 22, 43
		---End Test 1 Material---	
6/23	12.6	Directional Derivatives & Gradient Vectors	3, 7, 16, 22, 37
	12.7	Tangent Planes & Normal Lines	3, 12, 40
6/25	**Test 1 (11.1 – 12.5, Omit 12.4)**		
6/30	12.4	Differentials	5, 8, 23, 25, 37
	12.8	Extrema of Functions of Two Variables	15, 33, 35, 41
7/2	12.9	Lagrange Multipliers	1, 15, 17, 19
	13.1	Double Integrals	
7/7	13.2	Iterated Integrals	2, 5, 16, 27, 31, 35, 38, 59
	13.3	Double Integrals in Polar Coordinates	9, 12, 19, 40
7/9	13.4	Applications of Double Integrals	9, 25
	13.5	Surface Area	24
		---End Test 2 Material---	
7/14	13.6	Triple Integrals	12, 13, 30, 51
7/16	**Test 2 (12.6 – 13.5 & 12.4)**		
7/21	10.7	Cylindrical & Spherical Coordinates	43, 53, 61
	13.7	Triple Integrals in Cylindrical & Spherical Coordinates	3, 11, 16, 23
7/23	13.8	Change of Variables in Multiple Integrals	4, 7, 15, 23
7/28	14.1	Vector Fields	1, 2, 3, 19, 21
	14.2	Divergence & Curl	19, 20
7/30	14.3	Line Integrals	3, 18, 21, 29, 30
	14.4	Independence of Path & Conservative Vector Fields	7, 21, 23, 27, 33, 37, 42
		---End Test 3 Material---	
8/4	14.5	Greens' Theorem	2, 3, 15
	14.7	Surface Integrals	7, 10, 15, 28
8/6	**Test 3 (13.6 – 14.4)**		
8/11	14.8	The Divergence Theorem	3
	14.9	Stokes' Theorem	3, 5, 11, 17
		---End of Course Material---	
8/13	Review for Final Exam		
8/18	**Final Exam (11.1 – 14.9)**		

"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." – Richard Chandler.