Math 1426-100(Calculus I)
Fall 2016

Class Meeting	Section	Time	Place
Lecture	100	M/W/F 8:00 am-8:50 am	PKH 319
Lab	101	Mo/We 9:00 am-9:50 am	PKH 311
	102	Mo/We10:00 am-10:50 am	PKH 311

Instructor: Basanti S. Poudyal **Email:** poudyal@uta.edu

Office Number: PKH 403 **Phones: (**817)272-0069(Office)
(817)-272-3261 (Math Office)

Faculty Profile: https://www.uta.edu/profiles/basanti-sharma-poudyal

Office Hours: Mo/We11:00 am-11:50 am
Fri 9:00 am -10:00 am or by appointment

Lab Instructor: Tyler Anway **Email:** tyler.anway@mavs.uta.edu

Office: PKH 424 **Office Hours:** Tu/Thu 2:30 pm-3:30 pm
or by appointment

Description of Course Content: Concepts of limit, continuity, differentiation and integration; applications of these concepts.

Student Learning Outcomes: Upon completion of Math 1426, the students will be able to perform various tasks including (but not limited to) those outlined below with algebraic, trigonometric and transcendental functions.

1. Students will be able to compute the limit of various functions without the aid of a calculator.
2. Students will be able to compute the derivatives and differentials of various functions without the aid of a calculator, and interpret certain limits as derivatives. In particular, they will be able to compute derivatives and differentials using differentiation techniques such as chain rule, implicit differentiation and logarithmic differentiation.
3. Students will be able to find the equation of the tangent line to the graph of a function at a point by using the derivative of the function. They will be able to estimate the value of a function at a point using a tangent line near that point.
4. Students will be able to sketch the graphs of functions by finding and using first-order and second-order critical points, extrema, and inflection points.
5. Students will be able to solve word problems involving the rate of change of a quantity or of related quantities. Students will be able to solve optimization problems in the context of real-life situations by using differentiation and critical points of functions. The problem topics include (but are not limited to) population dynamics, finance, physics, biology, chemistry and sociology.
6. Students will compute the area below the graph of a function by using a limit of a Riemann sum and/or by using a definite integral.
7. Students will be able to compute certain antiderivatives using various antidifferentiation techniques such as integration by substitution. They will be able to apply the Fundamental Theorem of Calculus to compute derivatives, antiderivatives, definite integrals, and area.

8. Students will be able to justify and explain their steps in problem solving. In particular, students will be able to construct correct and detailed mathematical arguments to justify their claimed solutions to problems.

Textbook and Other Course Materials*:*
CALCULUS, EARLY TRANSCENDENTALS, (SECOND EDITION), BY BRIGGS, COCHRAN, AND GILLETT OR CALCULUS, EARLY TRANSCENDENTALS (VOLUME ONE, CUSTOM EDITION FOR UT-ARLINGTON), BY BRIGGS, COCHRAN, AND GILLETT*

*The "Volume One" textbook is a cheaper option for those who only take one semester of Calculus.

** If you purchase your book new, you receive an access code for MyLabsPlus. Otherwise, you will need to purchase this. There is a 14-day trial period before action is needed regarding purchasing access.

Register** for MyLabsPlus at: www.uta.mylabsplus.com

Course Prerequisite: A grade of C or above in Math 1421 (Preparation for Calculus) or a sufficient score on the Math Aptitude Test or sufficient SAT/ACT math scores.

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

Grade Components:

Online Homework & Quizzes		10%
Labs	10%	
Midterm 1 (Fri. Sept. 23rd 6:00-8:00 pm)		20%
Midterm 2 (Fri. Oct. 28th; 6:00-8:00 pm)		25%
Final (Sat. Dec 10th; 12:30-3:00pm)		35%

Lab Attendance and Worksheets: Attendance is required. A student will receive no credit for a lab session they do not attend.

Midterms and Finals: These exams are departmental, i.e., all sections of Math 1426 will take the same exam and the grades will have the same weight in each section. All of these exams are comprehensive. Each exam will be a mix of multiple choice problems and show-you-work problems. **You must bring a Scantron (form SC882E) for the exam.**

***NOTE: A score of less than 50% on the final exam means a student cannot get a course grade better than a D.**
You may access recent previous midterms and some of the finals online. Go to https://mavspace.uta.edu/xythoswfs/webview/_xy-697804_1.
Solutions to the multiple choice questions are available at https://mavspace.uta.edu/xythoswfs/webui/_xy-1083634_1-t_jbpAg0IM.

Make-up Policy: If you have a conflict with either midterm or final, you must contact your instructor no later than Census Date (Monday, September 12th), 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 September 14th, contact your instructor immediately. **Delays in submitting a make-up request may mean that your request cannot be approved by the course coordinator (Mark Krasij, PKH 450).**

No make-ups on HW and Labs, except in extreme circumstances (hospitalization, e.g.)

Calculators: The only calculators allowed for the midterms and final are TI-30XA and TI-30XIIS.

Attendance: Attendance is highly recommended. You are responsible for any and all announcements made in class. You are responsible for any material missed during class.

Expectations for Out-of-Class Study: Between lectures, you are expected to review your notes, go through the appropriate section(s) in the book, understand all relevant examples in the book, and attempt all homework problems assigned for the section. Beyond the time required to attend each class meeting, students enrolled in this course should expect to spend at least an additional **12** hours per week of their own time in course-related activities, including reading required materials, completing assignments, preparing for exams, etc.

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, November 2nd at 4 PM will receive a W

Americans 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.

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. For information regarding Title IX, visit* www.uta.edu/titleIX.

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.

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 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.
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 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.

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 to the right upon exiting the right-hand exit and to the left upon exiting the left-hand exit. Walk towards the 'corners' of the building and use those staircases, not the staircase by the elevator. 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.

Students are encouraged to subscribe to the MavAlert system that will send information in case of an emergency to their cell phones or email accounts. Anyone can subscribe at https://mavalert.uta.edu/ or https://mavalert.uta.edu/register.php

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.

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.

Saturday	12pm - 5pm
Sunday	Closed

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.

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.

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.

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.

Important Dates:
Thursday, August 25th - First day of class
Monday, September 7th - Labor Day Holiday
Monday, September 12th - Census Date (Deadline for makeup requests for all exams)
Friday, September 23rd - Midterm 1, 6:00 – 8:00 pm
Friday, October 28th - Midterm 2, 6:00 – 8:00 pm
Wednesday, November 2nd - Last day to drop a class (by 4 pm)
November 24th and 25th - Thanksgiving Holiday
Tuesday, December 7th - Last day of class
Saturday, December 10th - Final Exam, 12:30 – 3:00 pm

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

Course Schedule:

(Goal is to be done with the given sections in the textbook by the dates listed)

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.

August 2016

Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26 **Syllabus** **Section 2.1(Idea of Limits)**	27	28
29 **Section 2.2 (Definitions of Limits)**	30	31 **Section 2.2 (Definitions of Limit) and Section 2.3 (Techniques for Computing Limits)**				30

September 2016

Mon	Tue	Wed	Thu	Fri	Sat	Sun
			1	2 **Section 2.3 (Techniues for Computing Limits and Section 2.4 (Infinite Limits)**	3	4
5 **Section 2.4 (Infinite Limits)**	6	7 **Section 2.5 (Limits at Infinity)**	8	9 **Section 2.5 (Limits at Infinity)**	10	11
12 **Section 2.6 (Continuity)**	13	14 **Section2.6 (Continuity)**	15	16 **Section 3.1 (Introduction to Derivatives)**	17	18
19 **Section 3.2 (Working with Derivatives)**	20	21 **Section 3.3 (Rules of Differentiation)**	22	23 **Review for Midterm 1** **Exam -1 (6-8 pm)**	24	25
	27	28 **Section 3.5 (Derivatives of Trig Functions)**	29	30 **Section 3.6 (Derivatives as a Rate of Change)**		

October 2016

Mon	Tue	Wed	Thu	Fri	Sat	Sun
					1	2
3 **Section 3.6 (Derivatives as a Rate of Change)**	4	5 **Section 3.7 (Chain Rule)**	6	7 **Section 3.8 (Implicit Differentiation)**	8	9
10 **Section 3.9 (Derivatives of Log and Exp Functions)**	11	12 **Section 3.10 (Derivatives of Inverse Trig Functions)**	13	14 **Section 3.11 (Related Rates)**	15	16
17 **Section 4.1(Maxima and Minima)**	18	19 **Section 4.1(Maxima and Minima)**	20	21 **Section 4.2(What Derivatives Tells Us)**	22	23
24 **Section 4.2 (What Derivatives Tells Us)**	25	26 **Section 4.3 (Graphing Funcitons)**	27	**28 Review for Exam-2 Exam -2 (6-8 pm)**	29	30
31 **Section 4.4(Optimization Problems)**						

November 2015

Mon	Tue	Wed	Thu	Fri	Sat	Sun
	1	2 **Section 4.4 (Optimization Problems)**	**3**	**4 Section 4.5 (Linear Approximation and Differentials)**	5	6
7 **Section 4.6 (Mean Value Theorem)**	8	9 **Section 4.7 (L'Hopital's Rule)**	10	11 **Section 4.9 (AntiDerivatives)**	12	13
14 **Section 5.1 (Approximating Areas under Curves)**	15	16 **Section 5.1 (Approximating Areas under Curves)**	17	18 **Section 5.2 (Definite Integrals)**	19	20
21 **Section 5.3 (The Fundamental Theorem of Calculus)**	22	23 **Section 5.4 (Working With Integrals)**	24	25 **Section 5.5 (Substitution Rule)**	26	27
28 **Section 5.5 (Substitution Rule)**	29	30 **Section 6.1 (Velocity and Net Change)**				

December 2016

Mon	Tue	Wed	Thu	Fri	Sat	Sun
			1	2 **Section 6.2 (Regions Between Curves)**	3	4
5 **Section 6.2 (Regions Between Curves)**	6	7 **Section 7.7 (Velocity and Net Change)**	8	9 **Final Exam Review**	10 **Final Exam 12:30-3:00 pm**	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

Assignment Sheet

Topic	Homework
Section 2.1 The Idea of Limits	3-5, 9, 10, 12, 13, 15, 19, 21, 22, 31
Section 2.2 Definitions of Limits	7-11, 13, 21-24, 27, 29, 31, 44-46
Section 2.3 Techniques for Computing Limits	11, 15, 17-21, 22-25, 28, 29, 34, 35, 37, 40, 41, 43, 46, 47, 49, 50, 55-57, 69, 77, 79
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Section 3.1 Introducing Derivatives	9-13, 16, 21, 22, 25, 30, 31, 37, 41, 42, 49, 51, 53, 61, 63
Section 3.2 Working with Derivatives	5, 7, 9-11, 13, 15, 23, 25, 33, 35, 37
Section 3.3 Rules of Differentiation	7, 9-11, 13-16, 21, 22, 28-30, 35, 37, 39-41, 54-60
Section 3.4 The Product and Quotient Rules	9, 13, 17, 19, 22, 23, 26, 29, 30, 33, 40, 43, 44, 54-57, 60, 63, 68, 70, 73, 74-76, 79
Section 3.5 Derivatives of Trigonometric Functions	7, 9, 11, 12, 17, 19, 22, 28, 29, 32, 34, 37, 41, 44, 59, 62, 66-69
Section 3.6 Derivatives as Rates of Change	9, 11, 12, 15-18, 21, 25, 31, 32, 35, 37, 43
Section 3.7 The Chain Rule	7, 12-14, 19, 21, 23, 28, 31, 33, 35, 37, 41, 43, 49, 53, 62, 64, 65, 71, 77-80, 90
Section 3.8 Implicit Differentiation	7-9, 15, 17, 18, 25, 26, 28, 33, 36, 39, 46, 47, 55, 65
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Section 5.1 Appoximating Areas under Curves	6, 9, 11, 17, 23, 27, 32, 33, 35, 39, 40, 41, 44, 45, 65, 67
Section 5.2 Definite Integrals	11, 21, 23, 25, 27, 29, 31, 33-37, 39, 41, 43, 44, 49, 50, 55, 57, 73, 75
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Section 5.5 Substitution Rule	13-20, 23-26, 32, 33, 35, 36, 43, 44, 49, 50, 57, 58, 65, 67, 78, 81, 86, 87
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Section 7.7 Numerical Integration	7, 15-18, 21, 27, 31, 35, 36
OPTIONAL	
Section 2.7 Precise Definition of Limits	9-11, 18-21, 39