MATH 1426 – 100: Calculus I
2016 Summer First Five Week Session

Instructor: Dr. Hristo Kojouharov

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Office Hours: MoTu 12:30PM – 1:00PM; or by appointment

Section Information: MATH 1426-100

Time and Place of Class Meetings: Lecture: MoTuWeTh 10:30AM - 12:30PM in PKH 319
Lab 1426-101: MoWeTh 1:00PM - 2:00PM in PKH 305

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 Theorems 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*

Register**** for MyLabsPlus at: **www.uta.mylabsplus.com** **Questions about MyLabsPlus? 1-855-875-1797**

*The "Volume One" textbook is a cheaper option for those who only take one semester of Calculus.
** If you purchase your book new, you will 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.

Grading Policy: Grades are based on daily lab activities (20%), two midterm exams (40%), and a final exam (40%).

Grading Scale: A = 90+; B = 80-89; C = 70-79; D = 60-69; F = 59-

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.

Midterms and Finals: Each exam will be a mix of multiple choice problems and show-your-work problems.

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

You may access recent previous midterms and some of the finals online at:
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

Calculators: The calculators allowed for exams and lab activities are TI-30XA and TI-30XIIS.

Attendance: At The University of Texas at Arlington, taking attendance is not required. Rather, 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 expect you to attend class regularly. I will not take attendance during lectures, but attendance will be taken at all lab sessions and factored into your Lab grade. A student will receive no credit for a lab session they do not attend.

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/).

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).** 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.
Counseling and Psychological Services, (CAPS) www.uta.edu/caps/ or calling 817-272-3671.

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.

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.

Title IX: *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.

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.

The Math Department operates the **Math Clinic at UT Arlington**, a tutoring service staffed by upper level undergraduate students. The Math Clinic is on the 3rd floor of Pickard Hall and can be reached at 817-272-5674. 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.

In addition, the Math Department operates the **Math Emporium**, an academic and tutoring resource available to UT Arlington students currently enrolled in undergraduate math classes that utilize the Math Emporium. The Math Emporium is located in Pickard Hall, room 308. For more information on the Math Emporium, you can visit: http://www.uta.edu/math/emporium/.

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. 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.

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 take an immediate right or left, walk down the hallway toward the corner of the building and descend the stairs. 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.

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

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.

Important Dates:

Monday, June 6th	First day of class
Thursday, June 9th	Census Date
Thursday, June 16th	**Midterm 1, 10:30am – 12:30pm**
Monday, June 27th	Last day to drop a class (by 4 pm)
Thursday, June 30th	**Midterm 2, 10:30am – 12:30pm**
Thursday, July 7th	Last day of class
Monday, July 11th	**Final Exam, 10:30am – 12:30pm**

Schedule of Lecture Topics: Topics covered during the semester in MATH 1426 include:

6/06	2.1 Idea of Limits & 2.2 Definitions of Limits
6/07	2.3 Techniques for Computing Limits & 2.4 Infinite Limits
6/08	2.5 Limits at Infinity & 2.6 Continuity
6/09	3.1 Introduction to Derivatives & 3.2 Working with Derivatives
6/13	3.3 Rules of Differentiation & 3.4 Product and Quotient Rules
6/14	3.5 Derivatives of Trigonometric Functions & 3.6 Derivatives as Rates of Change
6/15	3.7 Chain Rule & 3.8 Implicit Differentiation
[6/16	Midterm Exam 1]
6/20	3.9 Derivatives of Logarithmic and Exponential Functions & 3.10 Derivatives of Inverse Trigonometric Functions
6/21	3.11 Related Rates & 4.1 Maxima and Minima
6/22	4.2 What Derivatives Tell Us & 4.3 Graphing Functions
6/23	4.4 Optimization Problems
6/27	4.5 Linear Approximation and Differentials & 4.6 Mean Value Theorem
6/28	4.7 L'Hopital's Rule & 4.9 Antiderivatives
6/29	5.1 Approximating Areas under Curves & 5.2 Definite Integrals
[6/30	Midterm Exam 2]
7/05	5.3 Fundamental Theorem of Calculus & 5.4 Working with Integrals
7/06	5.5 Substitution Rule & 6.1 Velocity and Net Change
7/07	6.2 Regions between Curves & 7.7 Numerical Integration
[7/11	Final Exam]

"*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.*" – *Hristo V. Kojouharov.*

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