HONR-SC 1426, HONORS CALCULUS I

Instructor:	***Dr. J. Epperson***		
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Phones:	817-272-5047 (office); 817-272-3261 (Mathematics Department)	**Office Hours:**	M 2-3; W 11-12; or by appointment
Website:	http://wweb.uta.edu/faculty/epperson		
Graduate Teaching Assistant:	***Mr. W. Ventura***		
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Phones:	817-272-5256 (Mr. Ventura's office) 817-272-3261 (Mathematics Department)	**Office Hours:**	Mr. Ventura: Mondays 2:30-4; Wednesdays 5:30-7 or by appt.
Class Meetings:	*Lecture*: Tuesdays & Thursdays 12:30-1:50 in PKH 110 *Labs:* Tuesdays and Thursdays 2:00-2:50 PM in PKH 309		
Textbook:	*CALCULUS, EARLY TRANSCENDENTALS, CUSTOM EDITION FOR UT-ARLINGTON, BY SOO T. TAN* ***OR*** *CALCULUS, EARLY TRANSCENDENTALS VOLUME ONE, CUSTOM EDITION FOR UT-ARLINGTON, BY SOO T. TAN** Register** for WebAssign at: http://webassign.net/ NOTE that the Class Key depends upon the lecture section for which you are registered: Class Key for HONR-SC 1426-001: **uta 9827 5993** *The "Volume One" textbook is a cheaper option for those who only take one semester of Calculus. ** If you purchased your book new, you receive an access code for WebAssign. Otherwise, you will need to purchase this. There is a 14-day trial period before action is needed regarding purchasing access.		
Course Prerequisite:	A grade of C or above in Math 1323 (Precalculus II) or a sufficient score on the Math Aptitude Test or sufficient SAT/ACT math scores.		
Enrollment Restriction:	Restricted to Honors Students.		
Course Goals:	**The aim of this course is to develop a conceptually sound understanding of limits, rate, and accumulation and investigate these ideas on a deeper level.**		
Overview:	The course focuses upon the study of functions, graphs, limits, continuity, and differential and integral calculus. Roughly, we will study Chapters 1 through 4 in your textbook.		

If at any time you have questions, please do not hesitate to ask.

Class Format:	The instructor and the GTA will incorporate cooperative learning activities in lecture and lab sections as well as other active learning strategies during the semester. *You are expected to participate fully in these activities*. You will need to have 8-10 hours available weekly to study outside of class in order to succeed in this course.
UT-Arlington Department of Mathematics **Learning Outcomes for HONR-SC 1426**	Upon completion of HONR-SC 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.
Electronic Communication:	UT Arlington has adopted MavMail as <u>its official means to communicate with students</u> about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. <u>All students are assigned a MavMail account and are responsible for checking the inbox regularly.</u> 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.

Details About the Course

Grades:

Midterm Exam 1	**Friday, September 20, 2013 6:00-8:00 PM**	**15%**
Midterm Exam 2	Friday, October 25, 2013 6:00-8:00 PM	20%
Lab grade	Weekly quizzes Homework	5% 5%

<u>If at any time you have questions, please do not hesitate to ask.</u>

	Lab worksheets	10%
Project Problem Set	Tuesday, December 3, 2013	15%
Final examination	Saturday, December 7, 2013 12:30-3:00 PM Comprehensive coverage	30%

Grades will be assigned according to the following scheme (approximately):

90–100	**A**
80– 89	**B**
70– 79	**C**
60– 69	**D**
59 or below	**F**

Midterms and Finals:
These exams are departmental. This means that all sections of calculus take the same midterm and final exams. All of these exams are comprehensive. The format of each exam will be a mix of multiple-choice problems and free-response problems.

The final exam has a grade weight of 30%; however, **any student who scores below 50 on the final exam cannot receive a grade higher than a D in the course.**

Make-up Policy: If you have a conflict with either midterm or final, you must contact your instructor no later than Census Date (September 9), 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 9, contact your instructor immediately. **Delays in submitting a make-up request may mean that your request cannot be approved by the course coordinator.**

All previous midterm exams and some previous final exams can be accessed online at
https://mavspace.uta.edu/xythoswfs/webview/_xy-697804_1.
The solutions to the multiple choice questions are available at
https://mavspace.uta.edu/xythoswfs/webui/_xy-1083634_1-t_jbpAg0IM

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, October 30 at 5 PM will receive a W.

Weekly Quizzes:
Suggested homework will be assigned each day. Online homework assignments have already been made and are already available on WebAssign. Your homework grade will be based upon your online homework average. You will be given in-class (during lab meetings) and online (via WebAssign) quizzes

which assume your having completed and mastered the suggested homework. You are allowed to use your own original handwritten notes (no copies or printouts from the internet) on the in-class quizzes. Your 10 best quiz grades will be used to calculate your quiz average. Although attendance is required, on the occasion that you miss a class please see Dr. Epperson's website http://wweb.uta.edu/faculty/epperson/courses.html for assignments.

Attendance:
Attendance for this course and its associated labs is required. Excellent attendance records as well as positive group evaluations will help your grade in that borderline course-grade decisions will be influenced by these records. Arrive on time to class (quizzes take place during the first 10 minutes of class and lab homework is due at the beginning of class).

Lab Information:
Again, *attendance is required*. If you are absent from lab on a problem solving activity day, you will not be part of a lab group for that week and you will be required to submit the missed lab work individually with a 20% reduction of your grade for the missed lab.

In the lab, you will:
- ❑ have the opportunity to ask for guidance on homework questions;
- ❑ take weekly quizzes (except for weeks in which a midterm is scheduled) based upon mastery of the suggested homework assignments; and
- ❑ participate in problem-solving activities from Lab Worksheets (on Thursdays) and submit (on the following Tuesday) group or individual solutions to selected problem-solving activities from the Lab Worksheets—this is 50% of your lab grade (10% of your total course grade).

Instructions for solutions submitted:
- ❑ Work should be done in pencil and erasures should be clean and complete.
- ❑ Problems should be written in order and include the page number and the problem number, i.e. p26 # 5, if appropriate.
- ❑ Write on one side of the paper only.
- ❑ If you tear the page from a spiral notebook, trim the curly edges.
- ❑ Papers must be stapled together (upper left hand corner) and folded in half lengthwise.
- ❑ On the outside write your name, date and assigned problems.
- ❑ If these guidelines are not followed, your paper will not be graded and you will receive 0 points on that work.

Project Problem Set:
Students will complete exercises from Section 1.3 in the textbook. This section covers a precise definition of limit which is not covered in a regular M1426 course. The exercises in the textbook on pages 132-133 include: Concept Questions #1-4; Exercises #1-8, 11, 15, 16, 18, 23-25, 27-28, 31-34. I will also assign 15 additional tasks which go beyond the typical mathematical tasks required of students at this level. The final project (exercises from Section 1.3 and the 15 additional tasks) will be due on December 3, 2013 at 3 p.m. It is expected that neatly handwritten or typed solutions and explanations will be provided for each task or exercise submitted. Approximately once every three weeks (possibly more if needed) on Tuesdays, students in HONR-SC 1426 will meet in an alternate room during regularly scheduled lab time to work on the tasks and receive additional instruction.

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

Help Outside of Class Time:
My office hours are given above. These are times when I will be available in my office to discuss the material/homework/tests. No appointment is necessary for those times. If, however, those times are inconvenient for you, then make an appointment with me for another time (e.g., e-mail me stating the times you prefer). *Please use the subject heading "**HONR-SC 1426 Student Question**" when sending Dr. Epperson e-mail and identify yourself (full name) in the communication.*

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.

START STRONG Freshman Tutoring Program
University Tutorial and Supplemental Instruction (UTSI)/University College
All first time freshmen can receive six FREE hours of tutoring for this course and other selected subjects for this semester. **Students must sign up and complete their first hour of tutoring by September 20th.** To sign up, visit UTSI in 205 Ransom Hall/University College. Upon completion of your first tutoring appointment, you will receive five hours of additional free tutoring. Flexible tutoring hours are available from 7:00am – 9:00pm, seven days a week at secure locations on campus. All tutors receive extensive training. Find out more at www.uta.edu/Startstrong

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	8am to 9pm
Friday	8am to 1pm
Saturday	1pm to 6pm
Sunday	1pm to 9pm

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.

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	8am - 8pm
Friday	8am - 5pm
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.

My web page will list the homework as the term progresses as well as other miscellaneous information pertinent to this course. My web-page address is above.

Cell Phone, Laptops, Beeper, & Chiming Watch Etiquette:

- Cellular phones should be either switched off or set to "silent" mode during all classes. Cellular-phone use will not be permitted in class. If you must take an important call, please leave the classroom.
- Cellular phones are prohibited during exams.
- Beepers should be either switched off or set to "silent" mode during all classes and during tests.
- You should assure that watches with alarms and chirps will not sound during class.
- Since lecture and lab focus on interpersonal communication, students must request permission to use a laptop during class or lab time.

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. 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.

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.

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.

Grade Replacement and Grade Exclusion Policies: These policies are described in detail in the University catalog and can also be founded online at http://wweb.uta.edu/catalog/content/general/academic_regulations.aspx#10(scroll about half way down the page).

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.

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:

September 2	Labor Day
September 9	Census Date, **Deadline for makeup requests for <u>all</u> exams**
Friday, September 20	Midterm 1, 6 – 8 pm
Friday, October 25	Midterm 2, 6 - 8 pm
Wednesday, October 30	Last day to drop a class
November 28-29	Thanksgiving Holidays
Wednesday, December 4	Last day of classes
Saturday, December 7	Final Exam, 12:30 - 3 pm

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.

Course Schedule[1]

Date	Topic or Activity
22-Aug	1st Day Handouts; Overview of Course; Precalculus Review
27-Aug	An Intuitive Introduction to Limits
29-Aug	Techniques for Finding Limits
3-Sep	Continuous Functions
5-Sep	Continuous Functions, Tangent Lines and Rates of Change
9-Sep	**CENSUS DATE (Deadline for makeup requests for all exams)**
10-Sep	The Derivative
12-Sep	Rules of Differentiation
17-Sep	The Role of the Derivative in the Real World
19-Sep	Review (Sections 2.1-2.3)
20-Sep	**Midterm 1, 6-8 p.m.**
24-Sep	Derivatives of Trigonometric Functions
26-Sep	The Chain Rule
1-Oct	Implicit Differentiation, Derivatives of Logarithmic Functions
3-Oct	Related Rates
8-Oct	Differentials and Linear Approximations
10-Oct	Extreme of Functions
15-Oct	The Mean Value Theorem
17-Oct	Increasing and Decreasing Functions and the First Derivative Test
22-Oct	Limits Involving Infinity
24-Oct	Review (Sections 2.4-3.3)
25-Oct	**Midterm 2, 6-8 p.m.**
29-Oct	Concavity and Inflection Points, Curve Sketching
30-Oct	**Last day to Drop the course**
31-Oct	Concavity and Inflection Points, Curve Sketching
5-Nov	Optimization Problems
7-Nov	Indeterminate Forms and L'Hôpital's rule, Indefinite Integrals
12-Nov	Indefinite Integrals, Integration by Substitution
14-Nov	Area
19-Nov	The Definite Integral
21-Nov	The Fundamental Theorem of Calculus
26-Nov	Numerical Integration, Area Between Curves
3-Dec	Area Between Curves, Review for Final Exam, **HONORS PROBLEMS DUE**
7-Dec	**FINAL EXAM 12:30-3:00 p.m.**

[1] *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. –Dr. James A. M. Epperson*