This course satisfies the University of Texas at Arlington core curriculum requirement in mathematics.

This course will address three core objectives:

- **Critical Thinking Skills** - to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.
- **Communication Skills** - to include effective development, interpretation and expression of ideas through written, oral and visual communication.
- **Empirical and Quantitative Skills** - to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.

<table>
<thead>
<tr>
<th>Instructor:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Office:</td>
<td></td>
</tr>
<tr>
<td>e-mail:</td>
<td></td>
</tr>
<tr>
<td>Phones:</td>
<td>Office Hours:</td>
</tr>
<tr>
<td>Website:</td>
<td></td>
</tr>
</tbody>
</table>

| Graduate Teaching Assistant: | |
| Office:                      | e-mail: |
| Phones:                      | Office Hours: |

Class Meetings:
<table>
<thead>
<tr>
<th>Textbook:</th>
<th>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*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Register** for WebAssign at: <a href="http://webassign.net/">http://webassign.net/</a></td>
</tr>
</tbody>
</table>

*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.

**Course Goals:**
The aim of this course is to develop a conceptually sound understanding of limits, rate, and accumulation.

**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.

**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 M1426**

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 have technical communication skills of critical importance in their future careers. In particular, students will be able to
   i. construct correct and detailed mathematical arguments to justify their claimed solutions to problems;
   ii. articulate, using oral and written work, their steps in problem solving while using correct mathematical notation and format; and
   iii. have the ability to collaborate mathematically as a member of a team to reach team-agreed solutions to problems.
2. Students will be able to compute the limit of various functions without the aid of a calculator, and communicate their computations in written and oral form.
3. Students will be able to apply differentiation techniques such as chain rule, implicit differentiation and logarithmic differentiation to compute the derivatives and differentials of algebraic and transcendental functions. They will be able to use differentials to approximate functions and quantities; they will be able to explain when such approximations are valid.
4. Students will be able to find an equation for the tangent line to the graph of a function at a point by using the derivative of the function. Students will be able to apply differentiation techniques to find linear approximations of functions which are presented either algebraically or graphically. They will be able to use these approximations to analyze applied problems and justify their solutions, including the use of appropriate units.
5. 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.
6. Students will be able to apply differentiation techniques to solve word problems relevant to their potential career paths. Students will be able to analyze problems to determine appropriate solution methods. They will be able to communicate their solutions in written and oral form using correct mathematical notation.
7. Students will be able to determine the area of regions bounded by curves by using a limit of a Riemann sum, geometric reasoning, and/or by using a definite integral. Students will be able to state and use basic properties of the Riemann integral and will be able to recognize and explain when to apply each property.
8. Students will be able to compute certain antiderivatives using various antidifferentiation techniques such as integration by substitution using correct mathematical notation. They will be able to apply the Fundamental Theorems of Calculus to compute derivatives, antiderivatives, definite integrals and area.

*If at any time you have questions, please do not hesitate to ask.*
From the UT-Arlington undergraduate catalog: E-mail is a prime means for communication. Therefore, the University has the right to send communications to students via e-mail and the right to expect that those communications will be received and read in a timely fashion. The Office of Information Technology (OIT) will assign all students an official University e-mail address. It is to this official address that the University will send e-mail communications. Students are expected to check their official e-mail account on a frequent and consistent basis to stay current with University communications. The University recommends checking e-mail daily in recognition that certain communications may be time-critical.

Details About the Course

Grades:

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midterm Exam 1</td>
<td>20%</td>
</tr>
<tr>
<td>Midterm Exam 2</td>
<td>25%</td>
</tr>
<tr>
<td>Lab grade</td>
<td></td>
</tr>
<tr>
<td>Weekly quizzes (5%)</td>
<td>20%</td>
</tr>
<tr>
<td>Homework (5%)</td>
<td></td>
</tr>
<tr>
<td>Lab worksheets/signature assignment (10%)</td>
<td></td>
</tr>
<tr>
<td>Comprehensive final</td>
<td>35%</td>
</tr>
</tbody>
</table>
Grades will be assigned according to the following scheme (approximately):

<table>
<thead>
<tr>
<th>Score Range</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>90–100</td>
<td>A</td>
</tr>
<tr>
<td>80–89</td>
<td>B</td>
</tr>
<tr>
<td>70–79</td>
<td>C</td>
</tr>
<tr>
<td>60–69</td>
<td>D</td>
</tr>
<tr>
<td>59 or below</td>
<td>F</td>
</tr>
</tbody>
</table>

**Midterms and Finals:**
These exams are departmental. This means that all sections of Math 1426 take the same midterm and final exams and that the grades on these exams have the same weight in each of the sections of calculus regardless of instructor. 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 35%; 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 the course coordinator no later than Census Date (September 10), by using a form attached to the coordinator's office door (PKH 448) & submitting it together with necessary documentation as indicated on the form. If a conflict arises after September 10, contact the coordinator immediately. Delays in submitting a make-up request may mean that your request cannot be approved.

All previous midterm exams and some previous final exams can be accessed online at [https://mavspace.uta.edu/xythoswfs/webview/_xy-697804_1](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](https://mavspace.uta.edu/xythoswfs/webui/_xy-1083634_1-t_jbpAg0IM).

**Drop Policy:** The last day this semester to drop a course is October 31st. Any student who drops the course on or before October 31st at 5 PM will receive a W. Students must consult an advisor in their major in order to drop a course.

**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

*If at any time you have questions, please do not hesitate to ask.*
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 *************** 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 and submit group solutions (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.

Signature Assignment:
In order to assess the three core objectives for this course (Critical Thinking Skills, Communication Skills, and Empirical and Quantitative Reasoning Skills,) students will submit one of their weekly lab write-ups specifically to be assessed for these skills. This submission will their signature assessment for the semester. A student must submit their signature assessment in order to pass the class.

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