STUDENT INFORMATION PLAN
MATH 2413
CALCULUS I

INSTRUCTOR:        DAY(S):
OFFICE:        TIME:
OFFICE HOURS:        ROOM NUMBER:
OFFICE PHONE NUMBER:        INSTRUCTOR E-MAIL ADDRESS:

TEXT:  Calculus, 8th edition, Larson, Hostetler, Edwards

Course Description. Topics included in this course are vectors and vector operations, limits, continuity, differentiation and integration of algebraic and transcendental functions, with applications such as optimization, curve sketching, and finding area under a curve. Graphing calculators (TI-83/84 or comparable) are recommended. Students enrolling in this course should have previously taken two years of high school algebra, a course in plane trigonometry, and a course in analytic geometry, or passed MATH 1314, MATH 1316, and MATH 1348.

Objectives. This course is designed to develop an understanding of calculus as it is used in physics, chemistry, engineering, economics, and other subjects. At the same time, mathematics majors and others needing further knowledge of calculus will be able to take MATH 2414 after the completion of this course. The student must demonstrate an understanding of the topics covered in the course through testing.

Course Outline
A. Vectors
   1. Vectors in the Plane
   2. Space Coordinates and Vectors in Space
   3. The Dot Product of Two Vectors
B. Vector-Valued Functions
   1. Vector-Valued Functions
C. Limits and Their Properties
   1. A Preview of Calculus
   2. Finding Limits Graphically and Numerically
   3. Evaluating Limits Analytically
   4. Continuity and One-Sided Limits
   5. Infinite Limits
D. Differentiation
   1. The Derivative and the Tangent Line Problem
   2. Basic Differentiation Rules and Rates of Change
   3. The Product and Quotient Rules and Higher-Order Derivatives
   4. The Chain Rule
   5. Implicit Differentiation
   6. Related Rates
E. Applications of Differentiation
   1. Extrema on an Interval
   2. Rolle’s Theorem and the Mean Value Theorem
   3. Increasing and Decreasing Functions and the First Derivative Test
   4. Concavity and the Second Derivative Test
   5. Limits at Infinity
   6. A Summary of Curve Sketching
   7. Optimization Problems
   8. Newton’s Method (optional)
   9. Differentials
F. Integration
   1. Antiderivatives and Indefinite Integration
   2. Area
   3. Riemann Sums and Definite Integrals
   4. The Fundamental Theorem of Calculus
   5. Integration by Substitution
   6. Numerical Integration (optional)
G. Logarithmic, Exponential, and Other Transcendental Functions
   1. The Natural Logarithmic Function and Differentiation
   2. The Natural Logarithmic Function and Integration
   3. Inverse Functions
   4. Exponential Functions: Differentiation and Integration
   5. Bases Other than $e$ and Applications
H. Differential Equations
   1. Differential Equations: Growth and Decay (optional)
   2. Differential Equations: Separation of Variables (optional)

Grading
A. Methods of Evaluation
   1. Homework
   2. Quizzes
   3. Exams
B. Grading System

<table>
<thead>
<tr>
<th>Course Average</th>
<th>Grade</th>
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<tbody>
<tr>
<td>90 - 100</td>
<td>A</td>
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<tr>
<td>80 - 89</td>
<td>B</td>
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<td>70 - 79</td>
<td>C</td>
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<tr>
<td>60 - 69</td>
<td>D</td>
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<tr>
<td>below 60</td>
<td>W, I, or F</td>
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**Attendance.** Regular attendance in class is expected. If an absence is unavoidable, the student is responsible for completing all work missed during the absence. Any work missed and not subsequently completed will affect the grade of the student regardless of the reason for the absence. Your instructor may initiate administrative withdrawal procedures for a student who exceeds course absence standards. Withdrawal from class may affect enrollment in other courses, insurance eligibility, financial aid, and/or veteran’s benefits. It should be noted that ceasing to attend class does not terminate enrollment. Therefore, a student who ceases to attend class without officially withdrawing from that class may receive a failing grade.

**Learning Lab/Learning.** The Learning Lab is available to students enrolled in MATH 2413. The Learning Lab and the library have a copy of the *Complete Solutions Guide*, Volumes I, II and III (complete solutions to all exercises from the text). Videotapes (instructional tapes in a lecture format, feature worked-out examples and exercises taken from each section of the text), may be checked out for 4 days (renewing the checkout is an option as long as there is no request on the waiting list). Tutoring is also offered to students enrolled in MATH 2413 during posted hours.

**Website (college.hmco.com)** Additional text-specific study and interactive features for students can be found at the Houghton Mifflin website.

**Classroom Behavior.** It is expected that students will behave in a mature and courteous manner. Disruptive behavior during class will not be tolerated. Students are expected to be attentive, take notes, ask pertinent questions, arrive on time, and not leave until the class is dismissed. Conflicts that arise between the scheduled class time and the student’s personal schedule must be resolved by the student.

**Academic Honesty is Assumed.** A student found guilty of scholastic dishonesty is subject to disciplinary action. Violations such as plagiarism, cheating on tests, and collusion are described in the ACC Student Handbook. Consequences are at the discretion of the instructor and range from receiving a 0 on the assignment/test to failing the course to expulsion from the College.

**Cellphones** are not to be used and are not to ring during class. Cellphones are not to be out during tests. IF there are special circumstances, arrangements must be made with the instructor.

**Camcorders** and any other video recording devices are prohibited in the classroom. Audio recording may be allowed ONLY WITH THE PERMISSION OF THE INSTRUCTOR.

**ADA Compliance.** This college will adhere to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations as required to afford equal educational opportunity. It is the policy of Alvin Community College to provide reasonable accommodations for qualified individuals who are students with disabilities. It is the student’s responsibility to contact the Counseling Center in a timely manner to arrange for appropriate accommodations.