STUDENT INFORMATION PLAN
MATH 2415
CALCULUS III

INSTRUCTOR:       DAY(S):

OFFICE:       TIME:

OFFICE HOURS:       ROOM NUMBER:

PHONE #:       INSTRUCTOR E-MAIL:

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

Course Description  This course is a continuation of MATH 2414. Topics include vector-valued functions, functions of several variables, partial differentiation, multiple integrals, vector fields, line integrals, Green’s Theorem, Stokes’s Theorem, and the Divergence Theorem. Graphing calculators (TI-83/84 or comparable) are recommended.

Objectives  This course is designed to give students ample background in vectors, functions, multiple integrals, vector analysis, and real world problems. The student will be prepared for upper-level mathematics courses or for courses requiring calculus in other fields. The student must demonstrate an understanding of the topics covered in the course through testing.

Course Outline
A. Vectors and the Geometry of Space
   1. Vectors in the Plane
   2. Space Coordinates and Vectors in Space
   3. The Dot Product of Two Vectors
   4. The Cross Product of Two Vectors in Space
   5. Lines and Planes in Space
   6. Surfaces in Space
   7. Cylindrical and Spherical Coordinates
B. Vector-Valued Functions
   1. Vector-Valued Functions
   2. Differentiation and Integration of Vector-Valued Functions
   3. Velocity and Acceleration
   4. Tangent Vectors and Normal Vectors
   5. Arc Length and Curvature
C. Functions of Several Variables
   1. Introduction to Functions of Several Variables
   2. Limits and Continuity
   3. Partial Derivatives
   4. Differentials
   5. Chain Rules for Functions of Several Variables
   6. Directional Derivatives and Gradients
   7. Tangent Planes and Normal Lines
   8. Extrema of Functions of Two Variables
   9. Applications of Extrema of Functions of Two Variables
   10. Lagrange Multipliers
D. Multiple Integration
   1. Iterated Integrals and Area in the Plane
   2. Double Integrals and Volume
   3. Change of Variables: Polar Coordinates
   4. Center of Mass and Moments of Inertia
   5. Surface Area
   6. Triple Integrals and Applications
   7. Triple Integrals in Cylindrical and Spherical Coordinates
   8. Change of Variables: Jacobians
E. Vector Analysis
   1. Vector Fields
   2. Line Integrals
   3. Conservative Vector Fields and Independence of Path
   4. Green’s Theorem
   5. Parametric Surfaces
   6. Surface Integrals
   7. Divergence Theorem
   8. Stokes’s Theorem

Grading
A. Methods of Evaluation
   1. Homework
   2. Quizzes
   3. Exams
   4. Comprehensive Final Exam
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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<tr>
<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 8 hours. 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/Library.** The Learning Lab is available to students enrolled in MATH 2415. 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 2415 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 which 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.