1. Discipline Name: Multivariable and Vector Calculus – Math 275, 4 credits.
2. Course Description: The third semester of calculus studies vector algebra and geometry, functions of several variables, partial and directional derivatives, gradient, chain rule, optimization, multiple and iterated integrals. Parametric curves and surfaces, vector fields, divergence and curl, line and surface integrals, Green’s, Stokes’ and divergence theorems. Some topics of differential equations, if time permits.
3. Prerequisite: Math 175 with a grade of “C” or better or permission of the instructor.
5. Course Objectives: The student will demonstrate a working knowledge of the material covered in Chapters 12-16 of the textbook. The topics are listed in the course description above.
6. Outcomes Assessment: As part of departmental analysis of outcomes in this course and its place in the Mathematics program, student completion of the prerequisite, success in the current course, success in subsequent courses and student satisfaction will be reviewed by the instructor. A report containing this information will be submitted by department faculty to determine what, if any, changes can be made to improve the course in terms of content, focus, and instruction.
7. Attendance: You are expected to attend all lecture sessions.
8. Homework: There will be a detailed homework discussion during each class session, as needed. Homework will be collected anytime from Monday through Friday of each week.
9. Grading: Your grade will be based on:
   - Homework 10%
   - Class Participation 5%
   - Tests 50%
   - Final Examination 35%
   A 90% - 100%
   B 80% - 89%
   C 70% - 79%
   D 60% - 69%
   F 0% - 59%
10. Topical Outline:
   * Three – Dimensional Coordinate System
   * Vectors
   * The Dot Product
   * The Cross product
* Equations of Lines and Planes
* Cylinders and Quadric Surfaces
* Cylindrical and Spherical Coordinates
* Vector Functions and Space Curves
* Derivatives and Integrals of Vector Functions
* Arc Length and Curvature
* Motion in Space: Velocity and Acceleration
* Functions of Several Variables
* Limits and Continuity
* Partial Derivatives
* Tangent Planes and Linear Approximations
* The Chain Rule
* Directional Derivatives and the Gradient Vector
* Maximum and Minimum Values
* Lagrange Multipliers
* Double Integrals over Rectangles
* Iterated Integrals
* Double Integrals over General Regions
* Double Integrals in Polar Coordinates
* Applications of Double Integrals
* Surface Area
* Triple Integrals
* Triple Integrals in Cylindrical and Spherical Coordinates
* Change of Variables in Multiple Integrals
* Vector Fields
* Line Integrals
* The Fundamental Theorem for Line Integrals
* Green’s Theorem
* Curl and Divergence
* Parametric Surfaces and Their Areas
* Surface Integrals
* Stokes’ Theorem
* The Divergence Theorem

11. Class Schedule:
   Week of:  January          15 Ch. 12
             22 Ch. 12
             29 Ch. 12. Review for test #1 (ch. 12).
   February             5 Test #1 (ch. 12), start ch. 13
             12 Ch. 13
             19 Review for test #2(ch. 13).
                 Test #2 (ch. 13)-t.h.
             26 Ch. 14
   March             5 Ch. 14
             12 Ch. 14. Review for test #3 (ch. 14)
19-23 SPRING BREAK  
26 Test #3, start ch. 15  

| April  | 2 Ch. 15  

|        | 9 Ch. 15  

|        | 16 Ch. 16  

|        | 23 Ch. 16  

| May    | 30 Ch. 16. Final Examination Review  

|        | 7-10 The Final Examinations Week  

12. Note. If you obtain less than 80% at any test, with the exception of the final exam., you may retest once for each such test. The retest will be a modified version of the original test. The tests will contain one or more extra credit exercises. The retests will contain no extra credit exercise.

The class schedule is a tentative one!!!

Graphing calculator is required. TI-89 recommended. Tutorial tapes are available to students at TES.

Website with info and tips: http://education.ti.com/collegemathnews

13. Disabilities: Any student with a documented disability may be eligible for related accommodations. To determine eligibility and secure services, students should contact the coordinator of Disability Services at their first opportunity after registration for class. Student Disability Services is located on the second floor of the Taylor Building on the Twin Falls Campus. 208.732.6260 (voice), or 208. 734. 9929 (TTY), or e-mail aflannery@csi.edu.

14. On-line course evaluation statement: Students are strongly encouraged to complete evaluations at the end of the course. Evaluations are very important to assist the teaching staff to continually improve the course. Evaluations are available online at: http://evaluation.csi.edu. Evaluations open up two weeks prior to the end of the course. The last day to complete an evaluation is the last day of the course. During the time the evaluations are open, students can complete the course evaluations at their convenience from any computer with Internet access. When students log in they should see the evaluations for the courses in which they are enrolled. Evaluations are anonymous. Filling out the evaluation should only take a few minutes. Your honest feedback is greatly appreciated!

15. GOOD LUCK!