1. Discipline Name: Calculus 1 - Math 170, 5 credits.
2. Course Description: The first semester of calculus studies algebraic and transcendental functions, analytic geometry of the plane, rate of change, limits, continuity, differentiation of algebraic, trigonometric, logarithmic, and exponential functions, derivatives of hyperbolic functions, related rates, linear approximations and differentials, applications of differentiation, L’Hospital’s Rule, definite and indefinite integrals, areas between curves, volumes, volumes by cylindrical shells, work, and the average value of a function.
3. Prerequisite: Math 147 or its equivalent with a grade of “C” or better or permission of the instructor.
5. Course Objectives: The student will demonstrate working knowledge of the material covered in Chapters 1-6 of the textbook. The topics are listed in the course description above.
6. Outcomes Assessment: As part of the 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 to Friday of each week.
9. Grading: Your grade will be based on:
   
<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
<th>Grade</th>
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</thead>
<tbody>
<tr>
<td>Homework</td>
<td>10%</td>
<td>A 90% - 100%</td>
</tr>
<tr>
<td>Class Participation</td>
<td>5%</td>
<td>B 80% - 89%</td>
</tr>
<tr>
<td>Tests</td>
<td>50%</td>
<td>C 70% - 79%</td>
</tr>
<tr>
<td>Semester Exam</td>
<td>35%</td>
<td>D 60% - 69%</td>
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<td>F 0% - 59%</td>
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10. Course Content:
   - Four Ways to Represent a Function
   - Mathematical Models
   - New Functions from Old Functions
- Graphing Calculators and Computers
- Exponential Functions
- Invers Functions and Logarithms
- The Tangent and Velocity Problems
- The Limit of a Function
- Calculating Limits Using the Limit Laws
- The Precise Definition of a Limit
- Continuity
- Limits at Infinity: Horizontal Asymptotes
- Tangents, Velocities, and Other Rates of Change
- Derivatives
- The Derivative as a Function
- Derivatives of Polynomials and Exponential Functions
- The Product and Quotient Rules
- Rates of Change in the Natural and Social Sciences
- Derivatives of Trigonometric Functions
- The Chain Rule
- Implicit Differentiation
- Higher Derivatives
- Derivatives of Logarithmic Functions
- Hyperbolic Functions
- Related Rates
- Linear Approximations and Differentials
- Maximum and Minimum Values
- The Mean Value Theorem
- How Derivatives Affect the Shape of a Graph
- Indeterminate forms and the L’Hospital Rule
- Summary of Curve Sketching
- Graphing with Calculus and Calculators
- Optimization problems
- Applications to Business and Economics
- Newton’s Method
- Antiderivatives
- Areas and Distances
- The Definite Integral
- The Fundamental Theorem of Calculus
- Indefinite Integrals and the Net Change Theorem
- The Substitution Rule
- The Logarithm Defined as an Integral
- Areas Between Curves
- Volumes
- Volumes by Cylindrical Shells
- Work
11. Class Schedule:

**Week of: January**
- 15 Ch. 2
- 22 Ch. 2
- 29 Review for test #1 (2.1-2.6), ch. 2 cont.

**February**
- 5 Test #1, start ch. 3
- 12 Ch. 3
- 19 Review for test #2 (2.7-3.5). Finish ch. 3
- 26 Test #2 (2.7-3.5). Finish ch. 3

**March**
- 5 Ch. 4
- 12 Ch. 4

19-23 SPRING BREAK

**April**
- 26 Review for test #3 (3.6-4.7). Test #3-t.h. Finish ch. 4
- 2 Ch. 5
- 9 Ch. 5
- 16 Review for test #4 (ch. 5). Start ch. 6
- 23 Test #4. Ch. 6 cont.

**May**
- 30 Final Examination Review
- 7-10 Final examination Week

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10. Note. If you obtain less than 80% at any test, except 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. There will be a detailed review before each test.

The class schedule is a tentative one!

11. Graphing calculator required. Website with info and tips:
http://education.ti.com//collegemathnews

12. 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 a 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.
13. Tutorial tapes are available at TES. Peer tutoring to be announced.
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!