# Georgia Perimeter College
## Common Course Outline

<table>
<thead>
<tr>
<th>Course Abbreviation &amp; Number:</th>
<th>MATH 1433</th>
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</thead>
<tbody>
<tr>
<td>Course Title:</td>
<td>Applied Calculus</td>
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<tr>
<td>Credit Hours:</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisites:</td>
<td>MATH 1111 “C” or better</td>
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<tr>
<td>Co-requisites:</td>
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### Course Description:

This course provides a non-rigid introduction to the basic ideas and techniques of differential and integral calculus, especially as they relate to applications in business, economics, life sciences, and social sciences.

### Expected Educational Results:

As a result of completing this course, the student will be able to:

1. Locate and describe discontinuities in functions.
2. Evaluate limits for polynomial and rational functions.
3. Compute and interpret the derivative of a polynomial, rational, exponential, or logarithmic function.
4. Write the equations of lines tangent to the graphs of polynomial, rational, exponential, and logarithmic functions at given points.
5. Compute derivatives using the product, quotient, and chain rules on polynomial, rational, exponential, and logarithmic functions.
6. Solve problems in marginal analysis in business and economics using the derivative.
7. Interpret and communicate the results of a marginal analysis.
8. Graph functions and solve optimization problems using the first and second derivatives and interpret the results.
9. Compute antiderivatives and indefinite integrals using term-by-term integration or substitution techniques.
10. Evaluate certain definite integrals.
11. Compute areas between curves using definite integrals.
12. Solve applications problems for which definite and indefinite integrals are mathematical models.
13. Solve applications problems involving the continuous compound interest formula.
### Course Content:

1. The derivative, derivative formulas, and marginal analysis
2. Graphing and optimization
3. Special derivatives: exponential and logarithmic functions
4. Integration and applications in business and economics

### Assessment of Outcome Objectives

#### Course Grade:

The course grade will be determined by the individual instructor using a variety of evaluation methods. A portion of the course grade will be determined through the use of frequent assessment using such means as tests, quizzes, projects, or homework as developed by the instructor. Some of these methods will require the student to demonstrate ability in problem solving and critical thinking as evidenced by explaining and interpreting solutions. A comprehensive final examination is required which must count at least one-fifth and no more than one-third of the course grade.

#### Course Assessment:

This course will be regularly assessed in accordance with GPC policies. The course will be assessed at least once every 3 years.

The assessment instrument will consist of multiple-choice questions chosen by the MATH 1433 course committee that will be included as part of the final exam.

The criteria for success on an assessment item will be for 70% of students taking the assessment to correctly answer the item.

#### Use of Assessment Findings:

The Math 1433 committee, or a special assessment committee appointed by the Chair of the Executive Committee, will analyze the results of the assessment and determine implications for curriculum changes. The committee will prepare a report for the Academic Group summarizing its findings.

### Last Revised:

February 2014