

LIBERTY UNIVERSITY
MATH 131 Calculus and Analytic Geometry I (4 Credit Hours)
Online Semester 2018

Dr. Timothy Sprano
tesprano@liberty.edu

434--592-4869:
DH: 4284S

For those interested in seeing some of my photographs, (I am an amateur photographer), some can be found at: www.flickr.com/tspr_parks . To see a larger version of a particular photo, click on the thumbnail pic, and after the photo loads, click on it again. In the upper right corner you will see a link that says "View all sizes". That page allows viewers to view larger (or smaller) versions of the photo.

I. Course Description

Functions and graphs, exponential, logarithmic, inverse trigonometric, limits, the derivative, techniques of differentiation, continuity, applications of differentiation, the integral.

II. Rationale

This course, along with MATH 132, provides a standard introduction to the study of calculus. It presents the theory and applications of elementary calculus necessary for further study of mathematics.

III. Prerequisite statement

MATH 128 with a minimum grade of C. It is the student's responsibility to make up any prerequisite deficiencies, as stated in the Liberty University Catalog, which would prevent the successful completion of this course.

IV. Materials List

Calculus with Early Transcendentals by James Stewart. ISBN: 978-1-285-74155-0

V. Learning Outcomes

The student will be able to:

1. Find limits of elementary functions.
2. Demonstrate knowledge of continuity of functions by solving problems in written form using proper mathematical notation and terminology.
3. Carry out the differentiation of elementary functions.
4. Sketch and discuss the graphs of elementary functions.
5. Demonstrate knowledge of the application of differentiation by solving problems in written form using proper mathematical notation and terminology.
6. Carry out integration of elementary functions.
7. Demonstrate knowledge of the application of integration by solving problems in written form using proper mathematical notation and terminology.

VI. Assignments/Requirements

1. **Cognitive growth:**
 - a. Demonstrate mathematical proficiency by applying the concepts of differentiation in solving problems and the concepts of integration in solving problems with and without appropriate technology. See all the learning outcomes in section V above.
 - b. Demonstrate mathematical proficiency by analyzing and criticizing proofs. See all the nine learning outcomes in section V above.

- c. Demonstrate mathematical proficiency by constructing proofs of specified theorems. See all the learning outcomes in section V above.

2. Product:

- a. Three (3) hand written exams plus a hand written comprehensive final exam.
- b. Online homework assignments.
- c. Five (5) Quizzes: one online prerequisite quiz the first day of class and one hand written quiz the week before each of the hand written exams.

Note: For all of the items, a – c, see all the learning outcomes in section V above.

3. Process:

Students will demonstrate their individual progress by solving problems in homework assignments, quizzes and tests. See the learning outcomes in section V above.

VII. Grading Policies

1. **Grading system:** Your grade will be the average of three (3) tests (150 points each), a required comprehensive final exam (300 points), online homework (120 points total), an online prerequisite quiz on the first day of class (50 points) and hand written quizzes the week before each exam (20 points each). This constitutes the 1000 possible points for the course.
2. **Homework:**
 - a. Homework will be assigned through WebAssign™. Homework will be due on Wednesdays and Sundays each week of the term. Even though homework problems are given online, students are encouraged to work out solutions on paper using correct mathematical notation before entering data into WebAssign™. Remember, almost all the graded work for the course will be in written form. For each homework assignment, you have been supplied a set of problems worked out for you. Please look over these solutions!! Not only are these problems similar to the assigned problems (and similar to test problems) but also, they are written using correct mathematical notation. On all written work, **YOU WILL BE EXPECTED TO WRITE CORRECT MATHEMATICS** and points will be deducted if you do not. It is helpful to practice writing correct Mathematics when it is not critiqued so that it becomes second nature when required.
 - b. Doing homework correctly takes time. Please plan for it. Doing homework correctly is how students can actually gain understanding of the material. Doing homework incorrectly will gain students quick, easy homework points but not give preparation for tests.
3. **Final Exam:** The final exam is comprehensive, covering material from the entire semester. As such, if the percentage grade on the final is greater than the percentage grade of the lowest test, the score on that test will be replaced by 1/2 of the grade from the final exam. (to scale out of 150) This may be done for one test only.
4. **Final Grade:** Grades are based on **academic performance** and no extra credit is available. Your final course grade will be determined by using a 100 point scale.

A 900 – 1000 points B 800 – 899 points C 700 – 799 points D 600 – 699 points F below 600

SEMESTER CALENDER: See below:

	Monday	Tuesday	Wednesday	Thursday	Friday	Weekend
Wk 1	Algebra Review Gateway quiz	Sect 2.1	Sect. 2.2 Homework 1	Sect. 2.2	Sect 2.3	Homework 2 Quiz 2
Wk 2	Sect. 2.4/2.5	Sect 2.5	Sect. 2.6 Homework 3	Sect. 2.7	Sect 2.8	Homework 4 Test 1
Wk 3	Sect. 3.1	Sect 3.2	Sect. 3.3 Homework 5	Sect. 3.4	Sect 3.5	Homework 6 Quiz 3
Wk 4	Sect. 3.6	Sect 3.6	Sect. 3.9 Homework 7	Sect. 3.10	Sect 3.11	Homework 8 Test 2
Wk 5	Sect. 4.1	Sect 4.2	Sect. 4.3 Homework 9	Sect. 4.4	Sect 4.4/4.5	Homework 10 Quiz 4
Wk 6	Sect. 4.7	Sect 4.7	Sect.4.9 Homework 11	Sect. 5.1/5.2.	Sect 5.3	Homework 12 Test 3
Wk 7	Sect. 5.3	Sect 5.4	Sect. 5.5 Homework 13	Sect. 5.5	Sect 6.1	Homework 14 Quiz 5
Wk 8	Sect. 6.2	Sect 6.3	Sect. 6.5 Homework 15	Review	Review	Final Exam