Note:

Course content may be changed, term to term, without notice. The information below is provided as a guide for course selection and is not binding in any form, and should <u>not</u> be used to purchase course materials.

COURSE SYLLABUS

MATH 131
CALCULUS AND ANALYTIC GEOMETRY I

COURSE DESCRIPTION

Functions and graphs, exponential, logarithmic, inverse trigonometric, limits, the derivative, techniques of differentiation, continuity, applications of differentiation, L'Hopital's Rule, the integral.

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.

I. **PREREQUISITE**

   For information regarding prerequisites for this course, please refer to the Academic Course Catalog.

II. **REQUIRED RESOURCE PURCHASE**

   Click on the following link to view the required resource(s) for the term in which you are registered: http://bookstore.mbsdirect.net/liberty.htm

III. **ADDITIONAL MATERIALS FOR LEARNING**

   A. Computer with basic audio/video output equipment

   B. Internet access (broadband recommended)

   C. Blackboard recommended browsers

   D. Microsoft Word

   E. Access to a scanner

IV. **MEASURABLE LEARNING OUTCOMES**

   Upon successful completion of this course, the student will be able to:

   A. Find limits of elementary functions.

   B. Demonstrate knowledge of continuity of functions by solving problems in written form using proper mathematical notation and terminology.

   C. Carry out the differentiation of elementary functions.

   D. Sketch and discuss the graphs of elementary functions.

E.   Demonstrate knowledge of the application of differentiation by solving problems in written form using proper mathematical notation and terminology.

F.   Carry out integration of elementary functions.

G.   Demonstrate knowledge of the application of integration by solving problems in written form using proper mathematical notation and terminology.

V.   COURSE REQUIREMENTS AND ASSIGNMENTS

A.   Textbook readings and presentations

B.   Course Requirements Checklist

After reading the Course Syllabus and Student Expectations, the student will complete the related checklist found in Module/Week 1.

C.   Homework (16)

Homework will be assigned through WebAssign, and the student will have multiple attempts at each problem. Even though homework problems are given online, the student is encouraged to work out solutions on paper using correct mathematical notation before entering data into WebAssign.

D.   Quizzes (4)

Each quiz will be timed, handwritten, and open-book/open-notes and will cover the Reading & Study material for the assigned modules/weeks. The time limit for each quiz is 80 minutes (1 hour and 20 minutes). On all written work, the student is expected to write correct mathematics to avoid point deductions.

E.   Tests (3)

Each test will be timed, handwritten, and open-book/open-notes and will cover the Reading & Study material for the assigned modules/weeks. The time limit for each test is 120 minutes (2 hours). On all written work, the student is expected to write correct mathematics to avoid point deductions.

F.   Final Exam

The Final Exam will be timed, handwritten, and open-book/open-notes and will cover all of the material from the course. The time limit for the exam is 180 minutes (3 hours). On all written work, the student is expected to write correct mathematics to avoid point deductions.

VI. **COURSE GRADING AND POLICIES**

A. Points

Course Requirements Checklist	10
Homework 0 (prerequisite material)	50
Homework 1–15 (8 pts ea)	120
Quizzes (4 at 20 pts ea)	80
Tests (3 at 150 pts ea)	450
Final Exam	300
Total	**1010**

B. Scale

A = 900–1010   B = 800–899   C = 700–799   D = 600–699   F = 0–599

C. Disability Assistance

Students with a documented disability may contact Liberty University Online's Office of Disability Academic Support (ODAS) at LUOODAS@liberty.edu to make arrangements for academic accommodations. Further information can be found at www.liberty.edu/disabilitysupport.

COURSE SCHEDULE

MATH 131

Textbook: Stewart, *Calculus: Early Transcendentals* (2016).

MODULE/ WEEK	READING & STUDY	ASSIGNMENTS	POINTS
1	Stewart: Sections 2.1–2.3 6 presentations 5 solved problems	Course Requirements Checklist Class Introductions Homework 0 Homework 1 Homework 2 Quiz 1	10 0 50 8 8 20
2	Stewart: Sections 2.4–2.8 6 presentations 6 solved problems	Homework 3 Homework 4 Test 1	8 8 150
3	Stewart: Sections 3.1–3.5 7 presentations 7 solved problems	Homework 5 Homework 6 Quiz 2	8 8 20
4	Stewart: Sections 3.6–3.11 6 presentations 6 solved problems	Homework 7 Homework 8 Test 2	8 8 150
5	Stewart: Sections 4.1–4.5 9 presentations 9 solved problems	Homework 9 Homework 10 Quiz 3	8 8 20
6	Stewart: Sections 4.7–5.3 7 presentations 7 solved problems	Homework 11 Homework 12 Test 3	8 8 150
7	Stewart: Sections 5.3–6.1 7 presentations 7 solved problems	Homework 13 Homework 14 Quiz 4	8 8 20
8	Stewart: Sections 6.2–6.3, 6.5 4 presentations 4 solved problems	Homework 15 Final Exam	8 300
		TOTAL	**1010**

DB = Discussion Board

NOTE: Each course module/week (except Module/Week 1) begins on Tuesday morning at 12:00 a.m. (ET) and ends on Monday night at 11:59 p.m. (ET). The final module/week ends at 11:59 p.m. (ET) on **Friday**.