

**Sierra College  
Math 31  
Calculus II  
Summer Session  
2018**

**Instructor:**

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**Course Identification:**

Math 31, Calculus II  
Course Code #61591  
V209, MTWTh 9:00-11:05  
4 units

**Office Hours:**

TB A  
Office hours will be held in the Math  
Lab, V329.

**Math Lab:**

The Math Lab is located in V329  
This is free, walk in tutoring.  
M-Th: TBA

**Materials:**

**Text:** Calculus: Early Transcendentals,  
by Stewart, 8<sup>th</sup> ed. ; Cengage

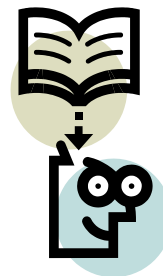
**Prerequisites:**

Completion of Math. 30 with a grade of  
"C" or better

**Calculator:** A scientific calculator is required. In addition, a graphing calculator is recommended. Either a graphing calculator or a computer algebra system will be used periodically in the classroom for demonstration purposes. The graphing utility device is an excellent tool for acquiring the understanding of many of the concepts of this course due to its ability to rapidly investigate both the numerical and graphical aspects of these concepts. However, the use of a graphing calculator will not be allowed on exams and quizzes. In addition, there will not be any opportunity to use cell phones or any other communication device on the quizzes and exams. A scientific calculator is allowed on exams and quizzes.

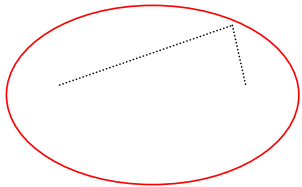
**Withdraw Date:**

Without a W: June 18  
With a W: July 17



### Workload:

The material is treated with a scope and intensity that requires the student to study independently outside of class. This course requires a minimum of two hours of work outside the classroom for every one hour in class.



### Homework:

Homework will be assigned daily, but will not be collected. Instead, a quiz will be given each Tuesday and Thursday (except those days on which we have an exam) covering the material from the previous homework.

### Exams:

There will be three 100 point exams and a 150 point comprehensive final exam. The exam dates are given below:

Exam I: June 21  
Exam II: July 5  
Exam III: July 19  
Final Exam: August 2

### Drop/Refunds:

A student must drop him/herself in order to be eligible for a refund. Instructor drops do not generate refunds.

### Paper:

All material to be graded must be on paper with no rough notebook edges.

### Student Outcomes:

### Attendance:

Attendance is not incorporated in the final course grade. Nevertheless, a solid attendance record is necessary to succeed in a course that is both rigorous and fast paced.

### Grading:

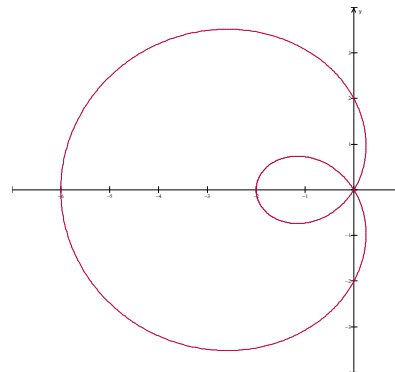
Quizzes: 100 pts  
Exams: 300 pts  
Final Exam: 150 pts

### Quizzes:

There will be more than 10 quizzes, worth 10 points each. The top 10 scores will be used in the computation of your final course grade.

### Group Work:

Working with other students outside of class is strongly encouraged. The Math Lab is an ideal location for working with your peers.



### Honesty Policy:

Cheating is of course forbidden. College policy on cheating, as outlined in the student conduct code, will be strictly enforced.

### Topical Outline:

Through homework assignments, quizzes, exams, projects and classroom discussions, the student will:

1. calculate anti-derivatives of algebraic, trigonometric, inverse and transcendental functions using appropriate integration techniques;
2. apply the techniques of integration to reduce an integral to one listed in integral tables and then use the tables to find anti-derivatives;
3. use integration, differentiation, and inverse functions to solve applied problems;
4. solve integration and differentiation problems using parametric equations and/or polar coordinates;
5. demonstrate knowledge and theory of infinite series by applying appropriate theorems to determine convergence and divergence;
6. use infinite series to solve appropriate problems in mathematics and the sciences.

### Other Services:

The college tutor lab, in which one-on-one tutoring arrangements can be made, is located in the LRC 402. The testing center is located in LRC 441. Student ID is required for services here.

### Others:

- I. Integrals
  - A. Review of the Definite Integral and the Fundamental Theorem of Calculus
  - B. Net Change Theorem
  - C. Substitutions in the Definite Integral
  - D. Numerical Integration
- II. Techniques of Integration
  - A. Basic Substitutions
  - B. Integration by Parts
  - C. Trigonometric Integrals
  - D. Trigonometric Substitutions
  - E. Integration of Rational Fcts by Partial Fractions
  - F. Rationalizing Substitutions
  - G. Strategy for Integrations
  - H. Using Tables of Integrals and Computer Algebra Systems
  - I. Numerical Integration
  - J. Improper Integrals
- III. Applications of Integration
  - A. Area between curves
  - B. Volumes
  - C. Differential Equations
  - D. Arc Length
  - E. Area of a Surface of Revolution
  - F. Moments and Centers of Mass
  - G. Work
  - H. Average Value of a Function
  - I. Hydrostatic Pressure and Force
- IV. Parametric Equations and Polar Coordinates
  - A. Curves Defined by Parametric Equations
  - B. Tangents and Area
  - C. Arc Length and Surface Area
  - D. Polar Coordinates
  - E. Areas and Lengths in Polar Coordinates
  - F. Conic Sections
  - G. Conic Sections in Polar Coordinates
- V. Infinite Sequences and Series
  - A. Sequences
  - B. Series
  - C. Integral Test and Estimation of Sums
  - D. Comparison Tests
  - E. Alternating Series
  - F. Absolute Convergence & the Ratio & Root Tests
  - G. Strategy for Testing Series
  - H. Power Series
  - I. Representation of Functions as Power Series
  - J. Taylor and Maclaurin Series
  - K. Binomial Series
  - L. Application of Taylor Polynomials

- I will not accept work without a full name, otherwise the work will not be graded.
- All work must be turned in on paper that measures 8½ x 12 with clean edges.
- All work must be turned in on time if it is to be graded.
- Only a scientific calculator can be used on graded work, unless otherwise specified.
- the symbol '=' must be used when appropriate, and used appropriately.
- There is no need to ask about your grade, Math D skill sets are sufficient.
- Presentations must be clear and organized if grading is to occur.
- All paper torn from a spiral notebook must have clean edges in order to be graded.

### **Harassment and Discrimination:**

Sierra College is committed to providing a safe learning environment, free of harassment and discrimination as described in District policies found on our website. It is my goal that you feel you can share information related to your life experiences in classroom discussions, in your written work, and in our one-on-one meetings and I will seek to keep information you share private to the greatest extent possible; however, I am required to report information about incidents of gender based discrimination, violence and harassment to the College's Title IX Coordinator.