Sierra College
Math 31
Calculus II
Spring Semester
2019

Instructor:

Dan Balaguy
V315A
(916) 660-7960
Web Page: http://math.
sierracollege.edu/Staff/dbalaguy/
dbalaguy@sierracollege.edu

Course Identification:

Math 31, Calculus II
Course Code #44708
V303, TTh 8:00-10:05
4 units

Office Hours:

MW: 9:30 am - 10:30 am,
TTh: 10:15 am - 11:15 am,
I will be available on Saturdays
in the Math Center from
8 am to 1 pm.

Math Lab:

The Math Lab is located in V329
This is free, walk in tutoring.
Hours:
M: 8 am – 5 pm,
T: 8 am – 7:20 pm,
W: 8 am – 7 pm,
Th: 8 am – 7:20 pm,
F: 8 am – 4 pm,
S: 8 am – 1 pm

Materials:

Text: Calculus, Early Transcendentals , 8th edition by Stewart ; Cengage Learning, or a free online text at: http://openstax.org/subjects/math

Calculator: 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

Prerequisites:

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

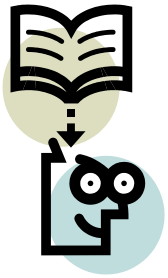
Withdraw Date:

February 10, without a W
April 12, with a W

Holidays:

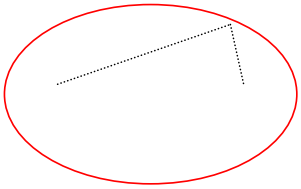
April 16 & 18, Spring Break

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 devices on the quizzes and exams.



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 Thursday (except those days on which we have an exam) covering the material from the previous homework.

Exams:

There will be four 100 point exams and a 150 point comprehensive final exam. One of the first four exams, or the quiz total, will be dropped. The exam dates are given below:

Exam I: February 21
Exam II: March 14
Exam III: April 4
Exam IV: May 2
Final Exam: Week of May 22

Drop/Refunds:

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:

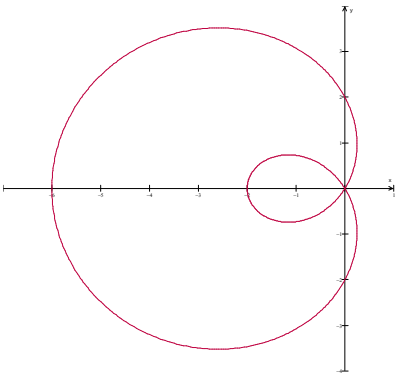
Quizzes:	100 pts
Exams:	400 pts
Final Exam:	150 pts

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. For this reason, there will be no make-up quizzes.

Group Work:

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



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

Honesty Policy:

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

Student Outcomes:

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

1. **integrate algebraic and transcendental functions;**
2. **construct and interpret graphs of parametric and polar equations applying appropriate calculus techniques;**
3. **translate, model, and solve applies problems utilizing differentiation, integration, and infinite series;**
4. **demonstrate knowledge and theory of infinite series by applying appropriate theorems to determine convergence and divergence;**
5. **logically present clear, complete, accurate, and sufficiently detailed solutions to communicate reasoning and demonstrate the method of solving problems;**

Topical Outline:

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

If You Want Your Work to Be Accepted and Graded, Then the Following Must Be Followed:

- **Remove any fringe from paper torn out of spiral notebook.**
- **Do not use graph paper unless it is used solely for graphing.**
- **All work must be clear and organized.**
- **A full name must be included.**
- **Any take home work must be turned in at the very beginning of class on the next class meeting. No late materials will be accepted.**
- **All paper turned in must be on paper that is approximately 8½ X 11.**

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.