

Fall 2023 Analytical Geometry – Calculus I

INSTRUCTOR: Dr. Stefan Forcey

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OFFICE HOURS: MTuW 3:25-4:30 pm. Lots more by appointment!

Text and Coverage: E-book: Calculus Early Transcendentals, J. Stewart, edition 8E, Chps. 1-5.

Website for schedule, homework problems and announcements:

https://sforcey.github.io/sf34/class_home/calc/calc1/calc1fall23.htm

GRADING POLICY:

1000 points possible. For each of these three categories the fraction of points you receive is the same fraction that you earn out of the total possible. If you get 4/5 of the problems correct on test 1, you earn $(4/5)*300 = 240$ points.

100 pts: Homework, quizzes (10%)

600 pts: 2 Tests at 300 pts each. (60%)

300 pts: Final Exam (30%)

900 pts. guarantees an A

800 pts. guarantees a B

700 pts. guarantees a C

600 pts. guarantees a D

(+,- at my discretion)

Course Outline with dates:

- Aug. 28: Day one.
- Sep. 10: Last day to drop.
- Sep. 4: No class on Labor day.
- Chapter sections 1.5-3.3.
- TEST 1. Friday Oct. 6
- Chapter sections 3.4-3.11
- Oct. 15: Last day to w/draw.

- Chapter sections 4.1-4.9.
- TEST 2. Friday Nov. 10.
- Chapter sections 5.1-5.5.
- Nov. 23-24: Thanksgiving.
- Dec. 8: Last day.
- Comprehensive Final Exam. Tuesday Dec 12.
7:45-9:45 am Room: TBA

Evaluation Procedure:

- When graded, quizzes and homework will be given a grade out of ten or twenty points, where full credit will be assigned when the graded problems (if any) have correct answers with all correct work shown. Points may be subtracted for each graded problem with an incorrect answer, incorrect work, or not all work shown. The quiz/homework average will be calculated by dropping a total of 15 raw quiz points which means that I'll calculate your percentage by first adding up to 15 points back on to your raw score, limited by the maximum number of hw/quiz points possible. This will have the effect of making a 100% quiz average possible despite some missed homeworks/quizzes.

- There will be 2 in-class closed book tests and the final exam during the semester over the material from lectures, homework and the book. No test may be taken early or late.

- **No notes, formula sheets or books may be used on the Final or any test.**

Homework may not be copied, but collaboration and research are allowed. All other work is individual. Any incidence of academic dishonesty carries a minimum penalty of a non-removable zero for that work. No active cellular phones, pagers, media players, computers or other electronic communication devices are permitted during the tests. Usage of or an attempt to use any of these devices during exams carries a minimum penalty of a non-removable zero for that exam.

Tentative Schedule.

Week	Section
1	1.5 Exponential Functions
1.6 Inverse Functions and Logarithms	
2.1 The Tangent and Velocity Problem	
2	2.2 The Limit of a Function
2.3 Calculating Limits using the Limit Laws	
2.4 The Precise Definition of a Limit	
3	2.5 Continuity
2.6 Limits at Infinity: Horizontal Asymptotes	
2.7 Derivatives and Rates of Change	
4	2.8 The Derivative as a Function
3.1 Derivatives of Polynomials and Exponential Functions	
5	3.2 The Product and Quotient Rules
3.3 Derivatives of Trigonometric Functions	
TEST #1	
3.4 The Chain Rule	
6	3.5 Implicit Differentiation
3.6 Derivatives of Logarithmic Functions	
7	3.8 Exponential Growth and Decay
3.9 Related Rates	
3.10 Linear Approximations and Differentials	
8	3.11 Hyperbolic Functions
9	4.1 Maximum and Minimum Values
4.2 The Mean Value Theorem	
4.3 How Derivatives Affect the Shape of a Graph	
10	4.4 Indeterminate Forms and l'Hospital's Rule
4.5 Summary of Curve Sketching	
11	4.7 Optimization Problems
TEST #2	
4.8 Newton's Method	
12	4.9 Antiderivatives
13	5.1 Areas and Distances
5.2 The Definite Integral	
14	5.3 The Fundamental Theorem of Calculus
5.4 Indefinite Integrals and the Net Change Theorem	
15	5.5 The Substitution Rule
16	FINAL EXAMINATION

Learning Outcomes for 3450:221 Analytic Geometry and Calculus I

Students are expected to be able to

- Communicate mathematical results through the proper use of mathematical notation and words
- Learn the definition of the limit of a function how to calculate limits using the limit laws and the definition of continuity
- Learn the definition of the derivative of a function and how to differentiate polynomial, exponential, trigonometric, and logarithmic functions, as well as products, quotients and compositions of these functions.
- Learn applications of the derivative
- Learn the definitions of the definite and indefinite integral the Fundamental Theorem of Calculus and the substitution rule