

Math 3A: General Course Outline

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Catalog Description

3A. Calculus for Life Sciences Students. (4) Lecture, three hours; discussion, one hour. Preparation: three and one-half years of high school mathematics (including trigonometry). Requisite: successful completion of Mathematics Diagnostic Test (score of 36 or better) or course 1 at UCLA with a grade of C- or better. Not open for credit to students with credit in another calculus sequence. Techniques and applications of differential calculus. P/NP or letter grading.

Textbook

C. Neuhauser, *Calculus for Biology and Medicine*, 3rd Ed., Prentice Hall.

Reviews & Exams

The following schedule, with textbook sections and topics, is based on 24 lectures. The remaining classroom meetings are for leeway, reviews, and two midterm exams. These are scheduled by the individual instructor.

Schedule of Lectures

Lecture	Sections	Topics
1	2.2.1, 2.2.2	Sequences and Limits
2	3.1	Limits
3	3.2	Continuity
4	3.3	Limits at Infinity
5	3.4	The Sandwich Theorem and Some Trigonometric Limits
6	3.5	Properties of Continuous Functions
7-8	4.1	Definition of the Derivative
9	4.2, 4.3	Basic Rules of Differentiation
10	4.4.1, 4.4.2	Chain Rule and Implicit Differentiation
11	4.4.3	Related Rates
12	4.4.4, 4.5	Higher Derivatives, Derivatives of Trigonometric Functions
13	4.6	Derivatives of Exponential Functions
14	4.7	Derivatives of Inverse and Logarithmic Functions
15	4.8	Approximation and Local Linearity
16-17	5.1	Extrema and the Mean Value Theorem
18	5.2	Monotonicity and Concavity
19	5.3.1, 5.3.2	Extrema, Inflection Points
20	5.3.3	Graphing and Asymptotes
21	5.4	Optimization
22	5.4, 5.5	Optimization cont'd, L'Hospital's Rule

23	5.5	L'Hospital's Rule cont'd
24	5.8	Antiderivatives

Comments

For quarters with more than 28 lectures, possible lectures to add are 5.6 Difference Equations (two lectures) or 5.7 Newton's Method (one lecture).

Outline update: A. Brose, 7/03

For more information, please contact Student Services, ugrad@math.ucla.edu.