

MATH 255A *CALCULUS I* COURSE SYLLABUS

Course Description: Knowledge of algebra, elementary functions and trigonometry is assumed. Topics in calculus of functions of one variable, including techniques of differentiation, applications to graphing, optimization (min/max) problems, and an introduction to integration. Not open for credit for students who have successfully completed MATH 150A. Available for General Education, Basic Skills Mathematics.

Prerequisites: Passing Score on or exemption from the Entry Level Mathematics Examination (ELM) or credit in Math 093, and either a passing score on Mathematics Placement Test (MPT) or completion of MATH 105, or both MATH 102 and 104, or articulated courses from another college equivalent to MATH 105, or both MATH 102 and 104, with grades of C or better. This course satisfies the Mathematics requirement of the General Education Basic Skills section.

Measurable Course Objectives: Main concepts of calculus are derivatives (rates of change of a function) and integrals (which, in particular, provide a way to recover a function from the knowledge of its derivative). Knowledge and the ability to work with these concepts is essential for further studies of mathematical subjects, as well as for applications of mathematical techniques in other sciences. This course will focus on understanding calculus concepts, analytical reasoning and developing crucial skills in order to calculate, analyze, interpret and communicate the results clearly. Specific course learning objectives are listed below.

1. **Learn the general concept of function and its applications to real-world situations.**
2. **Learn to work with exponential, logarithmic and trigonometric functions and their applications in applied problems.**
3. **Learn the concepts of the derivative and its underlying concepts such as limits and continuity.**
4. **Learn to calculate derivative for various type of functions using definition and rules.**
5. **Apply the concept of derivative to completely analyze graph of a function.**
6. **Learn about various applications of the derivative in applied problems.**
7. **Learn about anti-derivative and the Fundamental Theorem of Calculus and its applications.**
8. **Learn to use concept of integration to evaluate geometric area and solve other applied problems.**