MAT 251 Objectives

By the end of this course, students will be able to:

1. Determine limits of functions using numerical, graphical or algebraic methods
2. Solve applied problems involving average rate of change and interpret units
3. Calculate derivatives of power, trigonometric, exponential and logarithmic functions
4. Apply derivative rules related to constant coefficients, sums, differences, products, quotients and compositions of functions
5. Write equations for lines tangent to a given function at a specified point
6. Interpret derivative meanings and units in applied settings
7. Formulate exponential growth and decay models
8. Use Newton's Law of Cooling to solve problems
9. Determine the location of relative and absolute extrema and the location of inflections
10. Determine intervals of increase, decrease, upward concavity and downward concavity
11. Formulate equations to model and solve applied optimization problems
12. Differentiate implicitly
13. Evaluate definite or indefinite integrals using basic anti-derivative rules, substitution, or integration by parts
14. Solve initial value anti-derivative problems in general or applied settings
15. Estimate and interpret area under a curve using rectangular approximations
16. Calculate area between curves, and interpret its meaning in applications
17. Determine the average value of a function on a given interval