Course Objectives for Brief Calculus MAT210

1. Use graphical and numerical methods to find limits and identify cases where limits fail to exist.
2. Find limits using algebraic methods including rules.
3. Determine whether a function is continuous graphically or algebraically.
4. Explain and find average rate of change as a difference quotient and the slope of a secant line.
5. Describe a derivative as an instantaneous rate of change that is the limit of average rate of change and find it graphically, numerically and algebraically.
6. Apply Sum, Difference, Constant Multiple, Product, Quotient and Chain Rules to find derivatives of algebraic, logarithmic and exponential functions.
7. Use implicit differentiation to find derivatives.
8. Use derivatives to marginal analysis.
9. Find critical points and points of inflection and use them to locate maxima and minima.
10. Use differential calculus to solve optimization problems and related rates problems.
11. Determine price elasticity of demand and use it to maximize revenue.
12. Find antiderivatives of sums and differences of constant multiples of power functions, exponential and logarithmic functions.
13. Write the Riemann Sum definition of the definite integral and calculate the Riemann Sum for the definite integral.
14. Apply Fundamental Theorem of Calculus to evaluate the definite integrals.
15. Use substitution and integration by parts to evaluate integrals.
16. Use a definite integral to find area between two curves and to solve application problems to business and economics.
17. Find averages and moving averages using definite integrals.
18. Evaluate improper integrals using the definitions.