RIDER UNIVERSITY
COLLEGE OF BUSINESS ADMINISTRATION
DEPARTMENT OF MANAGEMENT SCIENCES
PMBA 8050 INTRODUCTION TO CALCULUS

LIST OF TOPICS:

I. Review:
- Slope, equations of lines
- Total, average and marginal relations (geometric)
- Quadratic equations – solutions by formula, factoring and interpretation of solution
- Cubic equations – solutions and interpretations
- Exponential equations--interpretation

II. Limits
- Intuitive concepts, right and left limits, limits
- Properties of limits for polynomial functions
- Algebraic evaluation of limits (substitution, factoring)
- Examples from business—advertising and sales, cost/benefit

III. The Derivative
- Average and instantaneous rates of change
- Definition of derivative, derivative as slope
- Using definition to find derivative of polynomial function
- Derivative formulas –
    Power rule – positive, negative, zero and fractional exponents
    Sum and difference rules
- Examples from business – marginals, elasticity
- Equation of tangent line to curve
- Second derivative

IV. Max/min in one independent variable
- First derivative test
- Business applications – concavity, points of inflection, point of diminishing returns
- Second derivative test

V. Functions of two or more independent variables
- Evaluation of applications
- First order partial derivatives, applications
- Second order partial derivatives
- Joint and marginal cost functions
- Competitive and complementary products

VI. Max/min in two independent variables