SYLLABUS

MATH 11012 – Intuitive calculus

(3 Credit Hours)

Catalog Information:

Designed to give an overview of differential and integral calculus to business and life-science majors. Does not include trigonometric functions. This course may be used to satisfy the LERs.

Prerequisite: A grade of C (2.0) or better in one of MATH 11010, MATH 11011, or MATH 12001, or appropriate placement test score.

Text: *Brief Applied Calculus*, 4th edition, by Berresford and Rocket.

Derivatives and Their Uses (11 days)

- Limits and continuity
- Rates of change, slopes, derivatives
- Differentiation rules, applications
- Nondifferentiable functions

Further Applications of Derivatives (9 days)

- Curve sketching
    - Increasing/decreasing, extrema
    - Concavity and inflection points
- Optimization

Exponential and Logarithmic Functions (8 days)

- Exponential functions
- Logarithmic functions
- Differentiation of exponential and logarithmic functions
- Relative rates and elasticity of demand

Integration and Its Applications (12 days)

- Antiderivatives and indefinite integrals
- Integration using exponential and logarithmic functions
- Integration by substitution (*indefinite integrals*)
- Definite integrals and areas
- Average value and area between curves
- Integration by substitution (*definite integrals and applications*)
- Consumers' surplus and income distribution

Reviews and Exams (5 days)