

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. No credit earned for this course if student earned credit for MATH 12002. Prerequisite: MATH 10774 or MATH 10775 or MATH 11010 with a minimum C (2.0) grade; or minimum 67% on ALEKS® math score.

Text (for Online Math 11012): Applied Calculus, 7th edition, Berresford and Rockett.

Software: Enhanced Webassign.

Text (for Traditional Math 11012): Calculus for Business, Econ, Life Sciences & Social Sciences, 14 edition by Barnett, Ziegler, Byleeen.

Software: MyMathlabs

Derivatives and Their Uses Limits and continuity

(11 days- 50 minutes class or 6 days- 75 minutes class)

- Limits, continuity
- Rates of change, slopes, derivatives
- Differentiation rules, applications
- Non differentiable functions

Further Applications of Derivatives

(9 days- 50 minutes class or 6 days- 75minutes class)

- Curve sketching
 - Increasing/decreasing, extrema
 - Concavity and inflection points
 - Relative extrema, determine absolute extrema on closed intervals
- Optimization

Exponential and Logarithmic Functions

(8 days- 50 minutes class or 5 days 75min class)

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

(MATH 11012 Syllabus, continued)

Integration and Its Applications (12 days- 50 minutes class or 9 days 75 minutes class)

- Antiderivatives and indefinite integrals
- Integration using exponential and logarithmic functions
- Integration by substitution (indefinite integrals)
- Definite integrals and areas
- The Fundamental theorem of Calculus
- Area between curves
- Integration by substitution (definite integrals and applications)
- Income distribution, Gini coefficients and Lorenz functions and their applications
- Consumers' and Producers' surpluses

Reviews and Exams (4 days)

Optional Topics (covered when class time permitted)

- Elasticity of demands (application of derivatives)
- Diminishing returns (application of derivatives)
- Average values of functions (application of definite integrals)