

## ABET Course Syllabus for MATH 173: Calculus II

1. Course number and name: MATH 173: Calculus II
2. Credits and contact hours: 5 credit hours, 5 hours per week
3. Instructor's Name: Dr. Peter Klosterman
4. Textbook, title, author, and year:
  - *Calculus*, 4th Edition (Early Transcendentals) by Rogawski, Adams, and Franzosaa.
  - a. Other supplemental materials:
    - A computer
    - Decent internet connections
    - A method to convert images to PDF
    - Zoom access
5. Specific course information:
  - a. Brief description of the content of the course (catalog description): Theory, techniques, and applications of differentiation and integration of the elementary functions.
  - b. Pre-requisites: Prerequisites: Prerequisite: MATH 172 with a grade of C or higher.
  - c. Required, elective, or selected elective (as per Table 5-1) course in the program: Required
6. Specific goals for the course:
  - Calculate, interpret, and apply definite and indefinite integrals
  - Integrate area, volume surface area, amount of work, and fluid force
  - Chapters 5 through 8
  - a. Specific outcomes of instruction:
    - Use the process of antidifferentiation to solve problems.
    - Demonstrate an understanding of the definition of a definite integral.
    - Use the Fundamental Theorem of Calculus to solve problems.
    - Compute antiderivatives using basic antidifferentiation rules.
    - Use improper integrals to solve problems.
    - Set up definite integrals to represent quantities that are given in context.
    - Relate the techniques of integration to the solution of differential equations.
  - b. Criterion 3 student outcomes addressed by course:
    - 3 (1)
7. Brief list of topics covered:
  - Riemann sums
  - The limit of a Riemann Sum

- The definite and indefinite integral
- Integration by substitution
- Integration by parts
- Trigonometric Substitution
- Evaluation of improper integrals
- Applications of integration to geometry, physics, economics and probability