

NorthWest Arkansas Community College
Division of Science and Mathematics

Course Number and Title

MATH 2564 Calculus II

Catalog Description

This course is a continuation of MATH 2554. Topics include applications of integration, techniques of integration, improper integrals, infinite series, conic sections, parametric curves, and polar coordinates.

Prerequisites

MATH 2554 with a grade of C or better, or appropriate placement scores or consent of instructor.

Credit hours/Contact hours/Load hours

4 credit hours/ 4 contact hours/ 4 load hours

Target Audience/Transferability

This course is designed for transfer students who are interested in technical or science based fields. It is the first in a sequence of three differential and integral calculus courses and transfers as such.

Student Learning Outcomes

Upon successful completion of this course students will exhibit mastery of certain knowledge and basic skills. These skills include, but are not limited to:

- 1) Evaluate area between curves.
- 2) Evaluate surface area and arc length.
- 3) Compute volumes of solids of revolution.
- 4) Compute work.
- 5) Evaluate definite and indefinite integrals using a variety of integration techniques.
- 6) Evaluate improper integrals.
- 7) Determine convergence or divergence of infinite series.
- 8) Represent various functions using power series (including Taylor and Maclaurin series).
- 9) Convert among rectangular, polar and parametric forms.
- 10) Apply calculus topics using polar coordinates and parametric equations.
- 11) Identify basic properties of and graph conic sections.

Topics

1. Applications of integration including velocity and net change, area between curves, volumes of revolution, length of curves, and surface area of revolution, and work
2. Logarithmic and Exponential functions and models
3. Hyperbolic Functions
4. Integration techniques including basic approaches, integration by parts, trigonometric integrals, trigonometric substitution, and partial fractions
5. Improper Integrals
6. Sequences
7. Infinite Series and Series Tests
8. Power Series
9. Polynomial Approximations and Taylor/Maclaurin Series
10. Parametric Equations
11. Polar coordinates, graphs and areas of polar graphs
12. Conic Sections

Forms of Assessment

Assessment of student learning outcomes will be administered according to the math department's current assessment plan.