

Tennessee Technological University
Mathematics Department

MATH 1920: Calculus II

I. COURSE DESCRIPTION FROM CATALOG:

Limits, continuity, derivatives and integrals of functions of one variable with applications, sequences and series. Lec. 4. Cr. 4.

II. PREREQUISITE(S):

C or better in MATH 1910; or equivalent AP credit for MATH 1910

III. COURSE OBJECTIVE(S):

To study integrals of functions of one variable and their applications in the physical and life sciences.

IV. TOPICS TO BE COVERED:

Chapter 5:

5.6: The Logarithm Defined as an Integral (optional)

Chapter 6:

6.1 Area between Two Curves

6.2 Volumes

6.3 Volumes by Cylindrical Shells

6.4 Work (optional)

6.5 Average Value of a Function

Chapter 7:

7.1 Integration by Parts

7.2 Trigonometric Integrals

7.3 Trigonometric Substitution

7.4 Integration of Rational Functions by Partial Fraction

7.5 Strategy for Integration

7.6 Integration Using Tables of Integrals and Computer Algebra Systems (optional)

7.7 Approximate Integration

7.8 Improper Integrals

Chapter 8:

8.1 Arc Length

8.2 Area of a surface of a Revolution

8.3 Applications to Physics and Engineering

Chapter 10:

10.1 Curves Defined by Parametric Equations

10.2 Calculus with Parametric Curves

Students with a disability requiring accommodations should contact the Office of Disability Services (ODS). 1
An Accommodation Request (AR) should be completed as soon as possible, preferably by the end of the first week of the course. The ODS is located in the Roaden University Center, Room 112; phone 372-6119.

- 10.3 Polar Coordinates
- 10.4 Areas and Lengths in Polar Coordinates
- 10.5 Conic Sections (optional)

Chapter 11:

- 11.1 Sequences
- 11.2 Series
- 11.3 The Integral Test and Estimates of Sums
- 11.4 The Comparison Tests
- 11.5 Alternating Series
- 11.6 Absolute Convergence and the Ratio, and Root Tests
- 11.7 Strategy for Testing Series
- 11.8 Power Series
- 11.9 Representations of Functions as Power Series
- 11.10 Taylor and McLaurin Series

VI. POSSIBLE TEXTS AND REFERENCES:

Calculus Early Transcendentals, 5th edition by James Stewart

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