Math 1497 – Calculus II CRN 26599 Spring 2025

Meeting times: MWF 11:00 – 11:50 pm, TTH 10:50 – 12:05 pm
Room: MCS 220
Instructor: Dr. Danny Arrigo
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Website: www.danielarrigo.com
Office location: MCS 201
Office telephone No.: 450–5668
Office/Student hours: MW 2-3 pm, TR 2-4 pm (unless I have a meeting)
Textbook: Calculus - Early Transcendental 7th Ed., Cengage 2019
Author: Larson and Edwards

Introductory Remarks
This course is the second in a three-semester calculus sequence. In this course, you will continue to learn to analyze and work with quantities that vary. You will continue to learn powerful techniques for studying the rate of change of variable quantities and for determining the accumulated growth of quantities. These two techniques are "differentiation" and "integration," respectively, and collectively are called "calculus;" a language that describes most of the theories in science and engineering. It would be no overstatement to assert that without calculus, few of the technical advances of the last three centuries would have occurred.

Course Description:
As a prerequisite for nearly all upper-division mathematics, this course is a requirement for majors and minors in mathematics and other majors in the natural sciences and engineering. The content includes techniques of integration, parametric equations and polar coordinates, infinite sequences and series, vectors and the geometry of space and vector functions. Lecture and problem solving activities. Prerequisites: Math 1496 Calculus I with a "C" or better or its equivalent. Offered: Fall, Spring, Summer.

Course Outline:
Chapter 8: Sections 1-5 and 8, integration by parts, trigonometric integrals, trigonometric substitutions, partial fractions, improper integrals.

Chapter 9: Sections 1-10, Sequences, series, the integral test, comparison tests, alternating series, absolute convergence and the ratio and root tests, power series, Taylor and Maclaurin series with applications.

Chapter 10: Sections 2-5, parametric equations and the calculus of parametric equations, polar coordinates, areas and arc length in polar coordinates.

Chapter 11: Sections 1-5, Three-dimensional coordinate systems, vectors, the dot and cross product, equations of lines and planes.

Student Learning Outcomes (SLOs)
Upon successful completion of the course, the student will be able to:

- Evaluate integrals using (a) integration by parts, (b) trigonometric substitution and (c) partial fractions.
- Do calculus of parametric equations of curves
    - Sketch the curves defined by parametric equations
    - Find an equation of the tangent line to such curves
- Exhibit an understanding of polar coordinates and find area and arc length using polar coordinates.
- Determine the convergence of sequence and series
    - Explain the definition of convergence of sequence
    - Explain an infinite series as the limit of a sequence of partial sums.
    - Recognize a geometric series and alternating series and correctly apply the convergence theorem.
    - Use a variety of tests to determine convergence of a series
- Compute Macluarin and Taylor series and polynomials
    - Apply appropriate tests to determine the radius of convergence for a power series
    - Recognize the Taylor and Macluarin series of sine, cosine, exponential functions
    - Compute the first few Taylor Coefficients of a function
- Understand 3D lines, planes and surfaces
    - Calculate dot products and cross products and interpret them geometrically.
    - Find the equations of lines and planes given appropriate information

Grades
Your grade for this course will be determined by homework, tests and a cumulative final examination. Your homework will be assigned every class and collected Friday's at the end of class. Late homework will not be accepted! The homework will count 10% of your final grade. There will be weekly problem session days (usually Friday's) where students will form small groups and work homework problems (5%). There will be 3 tests throughout the semester. Each test will count 20% for a total of 60% towards your final grade. The remaining 25% of your grade will be in the form of a cumulative final exam.

The following are the tentative dates for the tests. (As a general rule there are no make-up tests): **Tests**: Feb. 13, Mar. 13 and Apr. 17 **Final Exam Week**: Monday April 28, 2025 – 2-4pm.

Grade		Grade Scale	
Homework:	10%	90% - 100%	A
Prob. Session:	5%	80% - 89%	B
Tests:	60%	70% - 79%	C
Final:	25%	60% - 69%	D
	100%	0% - 59%	F.

Lecture Format
We have lectures scheduled MW 11:00–11:50 pm and TR 10:50–12:05 pm. Test days will be on Thursdays. On Fridays we will have problem session days. I will supply sample tests in advance of the actual test date and the day before the exam we will use it for review.

Attendance
Attendance is highly recommended. If you are absent for approximately 10% without a valid excuse, where appropriate, you will be dropped from the course. It is a good idea to form small groups to work together in doing homework problems. You will learn from each other and your progress will be more rapid. However, joint work (or copying) during tests and exams is forbidden – the University has an academic dishonesty policy that you can find in the student handbook. Severe penalties apply.

University policy on Academic Integrity and Academic Misconduct
The University of Central Arkansas affirms its commitment to academic integrity and expects all members of the university community to accept shared responsibility for maintaining academic integrity. Students in this course are subject to the provisions of the university's Academic Integrity Policy, approved by the Board of Trustees as Board Policy No. 709 on February 10, 2010, and published in the *Student Handbook*. Penalties for academic misconduct in this course may include a failing grade on an assignment, a failing grade in the course, or any other course-related sanction the instructor determines to be appropriate. Continued enrollment in this course affirms a student's acceptance of this university policy.

The Americans with Disabilities Act statement
The University of Central Arkansas adheres to the requirements of the Americans with Disabilities Act. If you need an accommodation under this Act due to a disability, please contact the Office of Accessibility Resources and Services (OARS), 450-3613.

Building Emergency Plan statement
An Emergency Procedures Summary (EPS) for the building, in which this class is held, will be discussed during the first week of this course. EPS documents for most buildings on campus are available at http://uca.edu/mysafety/bep. Every student should be familiar with emergency procedures for any campus building in which he/she spends time for classes or other purposes.

The Title IX disclosure
In furtherance of its core values— academic vitality, integrity, and diversity—UCA is dedicated to promoting a campus community free from discrimination. Title IX of the Education Amendments Act of 1972 requires all educational institutions to address gender-based discrimination on campus, and UCA implements these Federal requirements through a fair, consistent, and appropriate process of investigation and adjudication. Please see UCA's Title IX website (https://uca.edu/titleix/) for the university's policy, relevant forms, training opportunities, and related information

Departmental Policy
Use of cell phones (including texting), MP3 players, web browsers, ear buds/plugs is NOT ALLOWED during class time. Cell phones must be set to silent/vibrant mode while in class. Instructors may also disallow use of any other technology not relevant to the instruction. Use of any type of laptop during class time requires consent of the instructor.

Other Policies
Students should familiarize themselves with all policies listed in the UCA *Student Handbook*, such as the Sexual Harassment Policy and Academic Policies.