# Math 1497 – Calculus II CRN 33242 Summer 2019

Meeting times: MTWRF 11:20am –12:50pm
Room: MCS 220
Instructor: Dr. Danny Arrigo
Office location: MCS 201
Office telephone No.: 450–5668
Website: www.danielarrigo.com
Office hours: M–Th 2–4 pm
Textbook: Calculus – Early Transcendental 7th Ed., Person
Author: Briggs, Cochran and Gillett or really any textbook
Calculator: Voyage 200 (or one with a computer algebra package)

Use of cell phones (including texting), MP3 players, web browsers, ear buds/plugs is **NOT ALLOWED during class time**. **Cell phones must be turned off.** Instructor 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.

**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 4, section 4 L'Hopital's rule

Chapter 7: Sections 1-8, Integration by parts, trigonometric integrals, trigonometric substitutions, partial fractions, improper integrals.

Chapter 8: Sections 1-6, Sequences, infinite series, the divergence and integral test, the ratio, root and comparison tests, alternating series

Chapter 9: Sections 1-4, Power series, absolute and conditional convergence, Taylor series and working with Taylor series.

Chapter 10: Sections 1-3, 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. There will be 3 tests throughout the summer. This will count 20% for each test for a total of towards 60% of your final grade. The homework (assigned after each topic) will count 10% and the remaining 30% 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**: June 19, July 12, July 24 and the **Final**: August 2.

**Grade Scale**
90% - 100% A, 80% - 89% B, 70% - 79% C, 60% - 69% D, 0% - 59% F

**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.

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.

**Academic Integrity**
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.

**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 UCA Office of Disability Services, 450-3613.

**The following Title IX disclosure**
If a student discloses an act of sexual harassment, discrimination, assault, or other sexual misconduct to a faculty member (as it relates to "student-on-student" or "employee-on-student"), the faculty member cannot maintain complete confidentiality and is required to report the act and may be required to reveal the names of the parties involved. Any allegations made by a student may or may not trigger an investigation. Each situation differs, and the obligation to conduct an investigation will depend on the specific set of circumstances. The determination to conduct an investigation will be made by the Title IX Coordinator. For further information, please visit: https://uca.edu/titleix. **Disclosure of sexual misconduct by a third party who is not a student and/or employee is also required if the misconduct occurs when the third party is a participant in a university-sponsored program, event, or activity.*

Please familiarize yourself with all other policies listed in the Student Handbook. For example, the sexual harassment policy and the various academic policies.