Course Information

Course Number:	Math 4362/5362
Course Name:	Advanced Calculus I
CRN:	12357 & 12316
Location:	MCS 219
Class Hours:	2:40-3:55pm (Tuesday and Thursday)
Textbook:	Advanced Calculus (2nd edition) by Fitzpatrick
Prerequisites:	Math 2471

Instructor Information

Name:	Dr. Jeffrey Beyerl
Office Location:	MCS 237
E-mail:	jbeyerl@uca.edu
Phone:	501-450-5652

Course Description

This course is required for mathematics majors and serves a mathematics elective for applied mathematics majors. This rigorous theoretical treatment of calculus includes completeness, compactness, connectedness, sequences, continuity, differentiation, integration, and series. Lecture format and problem solving.

Office Hours

My availability changes every day. Go to the website below for up to date availability. When you schedule an appointment, please specify what you're coming for.

Walk-ins are also welcome: if my office door is open, I'm available. However, if somebody with an appointment comes, they will receive priority.

Office Hours Website: https://ucamath.youcanbook.me/

Course Objectives and Requirements

After completing this course, a student will be able to write complete proofs and to do some abstract problem solving in elementary mathematical analysis. Besides the intrinsic importance of the actual subject, the study of advanced calculus instills habits of thought that are essential for proper understanding of many areas of pure and applied mathematics.

Student Learning Objectives

Upon completion of the course, student will be able to:

- Present rigorous definitions of limits, continuity, uniform continuity, and derivatives,
- Understand the concepts of convergence and divergence of a sequence.
- Understand the supremum and infimum of a set of numbers.
- Apply the completeness axiom on the set of real numbers.
- Construct epsilon-N and epsilon-delta proofs.
- Apply the Extreme Value Theorem, Intermediate Value Theorem, And Mean Value
- Theorem to prove simple results.

Grading Policy

- **Make Ups**
  Make-up tests will only be given for official university events or personal emergencies. In the former case the test must be taken before official test date, in the latter case a short letter explaining why you missed the test, why this justifies a make-up, and supporting documentation must be turned in by the day you're able to return to class. In the event that a make-up is justified, it must be taken before you are able to return to class. At his discretion, the instructor may choose to administer a make-up test or use the final exam to replace the make-up.
- **Borderline Grades**
  Borderline grades will be determined based on the final exam and/or the quality of your work throughout the course.
- **Homework**
  Homework will be plentiful. Do them – and other problems that aren't assigned because you need to work problems to develop the proper mathematical intuition.
- Project – Upper Division Capstone Assessment Tool
  - Projects will be marked by the instructor as part of the course grade and given to a university assessment committee as part of the upper division core assessment.
  - Timeline
    - Topics must be selected and approved by the 6th week.
      (A group may select its own topics or get a topic from the instructor).
    - Outline of the paper must be presented to the instructor by 8th week.
    - First Draft must be presented by 10th week.
    - Presentation and final draft of the paper 12th week.
  - Guidelines for organization of the paper
    - Introduction
    - Context
    - Main points of the paper
    - Concluding remarks
    - Bibliography

Item	Weight
Test 1	10%
Test 2	10%
Test 3	10%
Project	10%
Homework	15%
Final Exam	20%
Highest score among test 1, test 2, test 3, your homework average, and the final exam.	25%

Grade	Sufficient Conditions
A	Course grade of at least 90% or top 15% among students
B	Course grade of at least 80% or top 35% among students
C	Course grade of at least 70% or top 50% among students
D	Course grade of at least 60% or top 70% among students
F	Course grade below 60% and bottom 30% among students

Important Dates

Last day to Drop Drop means the course is not on your record	August 29th
Test 1	Tuesday, September 25th
Test 2	Tuesday, October 30th
Last day to Withdraw Withdraw means the course is on your record with a "W" but does not factor into your GPA	November 9th
Test 3	Tuesday, December 4th
Final Exam	Thursday December 13th 2pm-4pm

Outside of class resources

- The Textbook
    - Description of material
    - Example problems
    - Exercise problems
    - Homework problems
- Blackboard
    - Test solutions
- Office Hours
    - Individual help
    - Availability changes every day. See https://ucamath.youcanbook.me/ for up to date availability
- The Math Resource Lab
    - Study Area
    - Tutors available throughout the day

Attendance Policy
Your active participation in this course is expected and required for you to learn the material and earn a passing grade. If you miss more than two weeks of class meetings throughout the term, you may be administratively dropped from the course.

Academic Integrity Statement
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.
Academic integrity is taken seriously: cheating on a test will result in a failing grade in the course; allowing another student to copy off of your test will result in a one-letter-grade penalty.

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.

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 those 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.

Sexual Harassment and Academic Policies Statement
All students are required to familiarize themselves with the University of Central Arkansas policy on sexual harassment and on academic policies. These policies are printed in the Student Handbook.

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.