

Campbellsville University  
MTH 430-01  
Foundations of Analysis

MEETING PLACE: CH 109  
MEETING TIMES: MWF 11-11:50  
TEXTBOOK: Introduction to Analysis 5<sup>th</sup> ed. by Gaughan

INSTRUCTOR: Chris Bullock  
OFFICE: CH 314  
OFFICE PHONE: 789-5243  
E-MAIL: [ctbullock@campbellsville.edu](mailto:ctbullock@campbellsville.edu)  
OFFICE HOURS: MWF 11-12, 1-2 and TR 11-12:15 or by appointment

1. DESCRIPTION OF COURSE: Topics include historical development of advanced calculus, the study of sequences, infinite series, limits of functions, continuity, differentiation, and the Riemann integral. Prerequisite: MTH 310 or consent of the instructor. Students must have upper division standing.
2. COURSE OBJECTIVES: As a result of successfully completing this course, students will satisfy the following mathematics program goal: Students will construct and communicate, in writing, logical arguments using appropriate mathematical language and terminology. In this course, the subject of calculus will be developed rigorously using principles of mathematical justification. Students will gain an understanding of the historical development of calculus. This course will also equip students for further study in advanced mathematics.
3. COURSE OUTLINE: Chapters to be covered include 0-3, with some of 4.  
Chapter 0: Notions from Set Theory including operations on sets and functions  
Mathematical Induction, Countable Sets, the Real Number System  
Chapter 1: Sequences, Convergence, Cauchy sequences, Arithmetic operations on Sequences, Monotone sequences  
Chapter 2: Definition of Limit of a function, Limits of Sequences, Limits of monotone functions  
Chapter 3: Continuity of a function at a point, algebra of continuous functions, Uniform continuity, Open, Closed, Compact sets, Properties of continuous functions  
Chapter 4: The derivative of a function, algebra of derivatives
4. EVALUATION: There will be a total of four tests including a final exam. Each test will be worth 100 points. Also, there will be a homework grade worth 100 points. Thus, there will be a total of 500 attainable points in this class. The grading scale will be as follows:

90-100% A

80-89% B

70-79% C

60-69% D

0-59% F

Homework will be assigned and graded after almost every class meeting. Each homework assignment will consist of a variable number of questions. The percentage of earned points out of the total possible points will be recorded for each assignment. At the end of the semester, these homework grades will be averaged to get the final 100-point homework grade. This grade will then be averaged with the four test grades to obtain the final grade for the class.

5. REQUIREMENTS: The tentative dates for the exams are as follows:

Exam #1: Feb 12

Exam #2: Mar 11

Exam #3: Apr 15

Final: May 13 from 11-12:30

6. ATTENDANCE: Campbellsville University has an attendance policy which states that a student who misses two weeks worth of a class (for any reason) receives a warning. Thus, any student missing 6 class periods in this class will receive a warning. Any student who misses four weeks worth of a class (for any reason) is automatically withdrawn from the class with a failing grade. Thus, any student missing 12 class periods in this class will be withdrawn from the class. PLEASE NOTE THAT, BY THIS POLICY, ANY ABSENCE COUNTS, WHETHER EXCUSED OR UNEXCUSED.

Attendance will be recorded by me every class period at the beginning of class. If you are late for class, you will be counted absent.

You must notify me in advance if you are going to miss a test. You may contact me by phone or by e-mail. Make-up exams are possible if I am notified in advance and if I think the excuse is reasonable.

7. DISABILITIES: Campbellsville University is committed to reasonable accommodations for students who have documented physical and learning disabilities, as well as medical and emotional conditions. If you have a documented disability or condition of this nature, you may be eligible for disability services. Documentation must be from a licensed professional and current in terms of assessment. Please contact the Coordinator of Disability Services at 270-789-5192 to inquire about services.

8. ADDITIONAL SOURCES:

Advanced calculus / William F. Trench.

9. EMERGENCY PHONE NUMBERS:

Security Cell Phone: 270-403-3611

10. TITLE IX STATEMENT:

Campbellsville University and its faculty are committed to assuring a safe and productive educational environment for all students. In order to meet this commitment and to comply with Title IX of the Education Amendments of 1972 and guidance from the Office for Civil Rights, the University requires all responsible employees, which includes faculty members, to report incidents of sexual misconduct shared by students to the University's Title IX Coordinator.

Title IX Coordinator:

Terry VanMeter  
1 University Drive  
UPO Box 944  
Administration Office 8A  
Phone – 270-789-5016  
Email – [twvanmeter@campbellsville.edu](mailto:twvanmeter@campbellsville.edu)

Information regarding the reporting of sexual violence and the resources that are available to victims of sexual violence is set forth at: [www.campbellsville.edu/titleIX](http://www.campbellsville.edu/titleIX)