

Campbellsville University
MTH 310-01
Calculus III (4 semester hours)

MEETING TIMES: MWF 9-9:50 and T 9:30-10:20
TEXTBOOK: Calculus 10th ed. by Anton, Bivens, and Davis

INSTRUCTOR: Chris Bullock
OFFICE: CH 314
OFFICE PHONE: 270-789-5243
E-MAIL: ctbullock@campbellsville.edu
OFFICE HOURS: MWF 12-1
TR 11-12:15
or by appointment

1. DESCRIPTION OF COURSE: This course affords further study in differentiation and integration including, three-dimensional analytic geometry, the polar coordinate system, vectors and vector-valued functions, multivariate calculus including partial derivatives, multiple integration and applications of both, as well as, a continued look at the historical development of calculus. Prerequisite: a grade of "C" or better in MTH 211.
2. STUDENT LEARNING OBJECTIVES: Students in this course are expected to obtain a working knowledge of modern calculus. In particular, students are expected to understand the concepts of limits, derivatives, and integrals of functions of multiple variables and to be able to apply these concepts to real-life situations to solve problems. (Mathematics program objectives: Analytical Thinking Skills and Application to Real-world Situations). Students in this course should gain confidence and experience in mathematics. Also, students should gain an understanding of the usefulness of calculus of multiple-variable functions in many areas of life. Students will use technology to graph multi-variable functions. (Mathematics program objective: Use of Technology). Topics to be covered include calculus applied to parametric curves, polar coordinates, vector-valued functions, calculus applied to functions of more than one variable, differentials, optimization, area of planar regions and volumes of solids. Students' performance in all objectives above will be assessed by means of graded assignments and exams.
3. COURSE OUTLINE: Topics to be covered include:

Maclaurin and Taylor polynomials and series
Power Series
Parametric Equations
Arc Length of parametric curves
Polar Coordinates
Tangent Lines to Parametric curves and polar curves

Rectangular coordinates in 3-space
Spheres and cylindrical surfaces
Vectors
Dot products and projections
Cross product
Parametric equations of lines
Planes in 3-space
Quadric surfaces
Cylindrical and spherical coordinates
Vector-valued functions
Motion along a curve
Multi-variable functions
Limits and continuity of multi-variable functions
Partial derivatives
Differentiability, differentials, local linearity
The Chain Rule for multi-variable functions
Directional Derivatives and Gradients
Tangent Planes, Normal Vectors
Maxima and Minima of two-variable functions
Double integrals
Double integrals over nonrectangular regions
Surface area of parametric surfaces
Triple integrals
Triple integrals in spherical and cylindrical coordinates
Additional topics as time permits

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 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. Homework assignments will be collected at the very beginning of class. If homework is not ready to turn in at the beginning of class, it will not be accepted for a grade.

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

Exam #1: Sep 22

Exam #2: Oct 13

Exam #3: Nov 10

Final: Wednesday, Dec 9 from 8-9:30

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 8 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 16 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 as absent. Furthermore, if you leave your seat for any reason during class or disrupt class in any way, 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. CALCULATORS: Only scientific calculators will be permitted for use on exams. Graphing calculators, cell phones, and other forms of technology are strictly prohibited. It is your responsibility to make sure that you have an acceptable scientific calculator for each exam. Calculators may not be shared under any circumstances.
8. 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.

9. ADDITIONAL SOURCES:

Calculus 7th ed. By Anton, Bivens, Davis

Applied Calculus 9th ed. by Hoffman and Bradley

10. EMERGENCY PHONE NUMBERS:

Security Cell Phone: 270-403-3611

11. 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

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