

MATH 129 – Calculus II

Credits, contact hours, categorization of credits:

3 credits, 45 contact hours, Math

Instructor's or course coordinator's name:

Various sections and instructors

Textbook, title, author and year:

Calculus Single Variable; Sixth Edition by Hughes-Hallett et al (2018).; published by Wiley and access to the online homework system, WebAssign. – The package is available through the Inclusive Access Program offered by the UA Bookstore.

Other Supplemental materials:

Graphing calculator

2021-2022 catalog description:

Continuation of MATH 122B or MATH 125. Techniques of symbolic and numerical integration, applications of the definite integral to geometry, physics, economics, and probability; differential equations from a numerical, graphical, and algebraic point of view; modeling using differential equations, approximations by Taylor series. A graphing calculator is required for this course. We recommend the TI-83 or TI-84 models. Calculators that perform symbolic manipulations, such as the TI-89, NSpire CAS, or HP50g, cannot be used. Examinations are proctored.

Prerequisites:

MATH 122B or 125 with C or higher.

Co-requisites:

None

Required, Elective, or Selected Elective:

Required

Instruction Outcomes:

Upon completion of the course, the student will:

- Be able to use techniques of analytical and numerical integration;
- Be able to apply the definite integral to problems arising in geometry and in either physics or probability;
- Be able to work with the concept of infinite series and be able to calculate and use Taylor series;

- Be able to analyze first order differential equations from a graphical and algebraic point of view and model physical and biological situations by differential equations.

Student Outcomes:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.

Topics covered:

Math 129 covers the fundamentals of the integral calculus, including:

- developing the techniques of analytical and numerical integration, including improper integrals;
- applying the definite integral to problems arising in geometry and in physics;
- developing the concept of infinite series and the ability to calculate and use Taylor series;
- analyzing first order differential equations from a graphical and algebraic point of view and modeling physical and biological situations by differential equations;
- promoting problem-solving and critical thinking skills through the application of calculus concepts to various situations.