



The work you will do in this course is subject to the Student Honor Code. The Honor Code is a commitment to the highest degree of ethical integrity in academic conduct, a commitment that, individually and collectively, the students of Northern Kentucky University will not lie, cheat, or plagiarize to gain an academic advantage over fellow students or avoid academic requirements.

### **Course learning objectives**

#### **Pre-requisite**

The student will know the mathematics needed to have a reasonable expectation of success in the mathematics and statistics courses for which Calculus I is a pre-requisite.

#### **Breadth**

The student will be able to solve problems involving limits, derivatives, definite integrals, and indefinite integrals.

#### **Communication**

The student will be able to write clear explanations of the techniques of calculus including the proper use of standard mathematical notation.

#### **Connections/applicability**

The student will be able to model applications by using calculus.

The student will be know and be able to use the connections that exist between the course topics (for example the connections between: limits and the derivative; the derivative and the integral, the definite integral and area; the value of the derivative at a point, the slope of the tangent line to the graph at that point, and rate of change).

#### **Mathematical thinking**

The student will be able to recognize the problem type, select an appropriate solution strategy, and apply rules and procedures for solving the problem.

#### **Technology**

The student will be able to use a CAS to graph functions (on a rectangular coordinate system), find derivatives, find definite and indefinite integrals, and investigate the existence of the limit of a function.

Attainment of course learning objectives will be measured by three tests, a comprehensive final exam, and homework.