

List of Student Learning Outcomes for Math 181

Course Goal #1: Communication

Student Learning Outcomes (SLOs)

SLO 1: Students will use correct mathematical notation and terminology to communicate mathematical phrases and concepts that appear in Calculus.

SLO 2: Students will be able to generate, read, and interpret graphs of functions.

Course Goal #2: The Derivative

Student Learning Outcomes (SLOs)

SLO 1: Students will be able to demonstrate an extended knowledge of the uses for the derivative as the slope of the function, moving into multivariable functions and partial derivatives.

SLO 2: Students will be able to find extrema of functions of several variables, using partial derivatives, derivative tests, and Lagrange Multipliers.

SLO 3: Students will be able to generate Least Squares Linear Regression equations from sets of data in pairs.

Course Goal #3: Integrals

Student Learning Outcomes (SLOs)

SLO 1: Students will be able to expand their techniques for integration, demonstrating the ability to integrate using substitution and by parts. techniques, and by using Tables of Integrals.

SLO 2: Students will be able to find areas between curves.

SLO 3: Students will be able to demonstrate mastery of double integrals.

SLO 4: Students will be able to apply double integrals to find volumes and average values.

Course Goal #4: Differential Equations

Student Learning Outcomes (SLOs)

SLO 1: Students will be able to demonstrate how differential equations reveal features about functions.

SLO 2: Students will be able to verify given general solutions to differential equations, and to find their particular solutions given initial conditions.

SLO 3: Students will be able to solve first-order differential equations using separation of variables, finding general solutions and particular solutions.

SLO 4: Students will be able to solve applications of differential equations, for example growth, economic models and physical models.

Course Goal #5: Probability Distributions of Random Variables

Student Learning Outcomes (SLOs)

SLO 1: Students will understand continuous probability density functions, and be able to determine probabilities by integration.

SLO 2: Students will be able to compute expected value, variance, and standard deviation by integration.

SLO 3: Students will be able to use a table of standard normal probabilities to solve Normal Distribution problems.

Course Goal #6: Trigonometry

Student Learning Outcomes (SLOs)

SLO 1: Students will understand radian measurement of angles.

SLO 2: Students will master the unit circle and how to define the six basic trigonometric functions thereof.

SLO 3: Students will be able to graph basic trigonometric functions and their transformations.

SLO 4: Students will master differentiation and integration of trigonometric functions.