

Placement, Prerequisite, Course Description, Course Objectives and Learning Outcomes – Math 121

Placement: It is important to know that the placement process may have placed you in the next class after your last high school class, WITHOUT using your placement test result.

Some students may be underprepared to succeed in this class.

Students will not be “socially promoted” in college. You must learn the material to pass.

If you suspect you are underprepared, please discuss your situation with the professor as early as possible.

- You can work extra hard and get extra help to learn the missing knowledge simultaneously with taking this class.
- You may be able to change to a lower class or have the instructor help you move you, depending on when you try to make the change and what SWC Math classes you have previously passed.

Prerequisite: Credit for Math 72 (Intermediate Algebra I & II for STEM) or Math 62 (Intermediate Algebra II for STEM) with a grade of ABC.

Course Description:

Emphasizes concepts and applications of algebra, analytic geometry and the polynomial calculus to solving problems in the physical, biological and social sciences. Requires graphing calculator.

Course Objectives:

1. Student will demonstrate knowledge of properties and notation of real numbers, properties of exponents and radicals, factoring techniques, solving polynomial equations, operations with rational expressions.
2. Student will graph on the Cartesian Plane polynomial, rational, and radical functions, and will find horizontal and vertical asymptotes, and points of intersection of curves.
3. Student will define function, domain, range, inverse functions, and will operate on functions and use functional notation.
4. Student will define one-sided, general, and at infinity limits, and evaluate them by using the properties of limits.
5. Student will define and apply the properties of continuous functions and determine discontinuities.
6. Student will define first and higher order derivatives and evaluate them using constant, power, constant multiple, product, quotient and chain rules and by implicit differentiation.
7. Student will apply the rules of derivatives to finding tangent line, slope, rate of change, velocity/acceleration, marginal analysis, increasing/decreasing functions, curve sketching with maxima/minima and concavity, and to optimization problems.
8. Student will demonstrate a knowledge of properties of exponential and logarithmic functions and their derivatives.
9. Student will apply the above to applications from natural, physical, and social sciences.

Student Learning Outcomes:

Upon successful completion of Math 121, the student should be able to:

- 1) Apply knowledge of the definitions, properties, and concepts of the differential calculus to evaluating derivatives of polynomial, rational, radical, exponential, and logarithmic functions.
- 2) Apply appropriate critical thinking, analytical reasoning, and concepts of first semester calculus to the solutions of problems in the fields of physical science, social science and biology.
- 3) Demonstrate knowledge and the application of concepts of algebra, analytic geometry, and properties and concepts of differential calculus to finding tangent lines, rates of change, velocity, curve sketching, and optimization.