Math Multiple Measures for Dual Enrollment Students

NOTE: All students must have a minimum 2.0 GPA and be eligible for ENG 101

Student (Sign) _____ _____ Option 1 _____ Option 2

Course _____ Date _____

Eligibility for MAT 177 **Statistics** or MAT 195 **Precalculus for Engineering & Science**

Option 1 – A student has a C or higher in high school Algebra II
AND the recommendation of their Math instructor

Option 2 – A student does not have Algebra II with a C but utilized the **Math Guided Self-Placement** process https://www.middlesex.mass.edu/studentassessment/ to determine that they are eligible for college level Math AND they have the recommendation of their Math instructor

Students using Option 2 review the Math Self-Placement Guide**,** submit a requested document or Math Self- Placement Form, and are assigned a Middlesex Student ID#.
Questions about **Math Guided Self-Placement** should be directed to placement@middlesex.edu.

NOTE: Students ready for MAT 195 and interested in taking MAT 290 Calculus I in the future need to know that the prerequisite for MAT 290 Calculus I is completion of MAT 195 Precalculus for Engineering and Science *and* MAT 165 Trigonometry, both with a C or better.

Eligibility for MAT 290 **Calculus I for Engineering and Science**

Option 1 – A student who has taken the Accuplacer exam and placed into eligibility for MAT 290
AND has the recommendation of their Math instructor

Option 2 – A student knows how to do ALL of the math on page two of this form, has signed below to confirm this for eligibility for MAT 290, AND has the recommendation of their Math instructor

I, _____have read page 2 and have the prerequisite math skills listed for MAT 290

Math Instructor Recommendation Requirement

I recommend/don't recommend (circle one) _____

for MAT _____Comments: _____

Math Instructor (Print) _____
Math Instructor (Sign) _____ Date _____

Math Multiple Measures for Dual Enrollment Students

- *To meet eligibility for **MAT 290 Calculus I for Engineering and Science** a student needs to read the math skills content below and know how to do it, sign page 1 to confirm this, and receive the recommendation of their Math instructor.*

- Apply mathematical concepts to solve real world problems in Engineering and the Sciences
- Identify graphs of functions (e.g., constant, linear, quadratic, cubic, absolute value, square root, reciprocal) and recognize their transformations when shifted horizontally and/or vertically, reflected over the coordinate axes, stretched, or compressed.
- Analyze and graph polynomial functions of degree greater than two by examining the leading coefficient of their equations and algebraically determining the intercepts, the multiplicity of the x – intercepts, and whether the function is odd or even.
- Find the complex zeros of polynomial functions with real coefficients.
- Determine the domain, range, symmetry, and asymptotes of rational functions.
- Construct equations of rational functions from their graphs.
- Solve application problems modeled by rational functions. Examples discussed are average cost for a cubic function, population models, and other functions in which a quantity or species approaches a limit as time increases.
- Determine the domain, range, and asymptotic behavior of exponential and logarithmic functions by examining their equations.
- Solve exponential and logarithmic equations algebraically and graphically.
- Use exponential and logarithmic equations to model real – life applications such as compound interest, growth and decay, the cooling of a hot solution, or finding values of sound intensity or intensity of an earthquake.
- Identify general forms of the conic sections, with emphasis on circles.
- Define angles in degree and radian measure and convert between the systems.
- Define and evaluate the six trigonometric functions using the unit circle and right triangle definitions.
- Graph the six trigonometric functions and determine their amplitude, period, phase shift, and vertical shift.
- Define and evaluate the six inverse trigonometric functions.
- Utilize trigonometric identities to simplify expressions. These identities include Pythagorean relationships, odd/even functions, addition/subtraction of angles, double angle and half angle identities
- Prove simple identities.
- Solve trigonometric equations and inequalities and right triangles.
- Solve any triangle using the Law of Sines or the Law of Cosines.
- Utilize appropriate trigonometric functions in application problems.