

## MATH2231 - Calculus III

Credits:	4 (4/0/0)
Description:	Meets MnTC Goal Areas 2 and 4. The course content includes a study of vectors in the plane and space, differentiation and integration of vector-valued functions, and partial differentiation, multiple integrals, including line and surface, in rectangular, polar, cylindrical, spherical and other systems, and a study of Stokes' Theorem, Green's Theorem, and the Divergence Theorem.
Prerequisites:	• MATH1135
Corequisites:	
Pre/Corequisites <sup>*</sup> :	
Competencies:	<ol> <li>Interpret vector operations geometrically in two and three dimensions.</li> <li>Evaluate the limits of vector-valued functions.</li> <li>Perform dot products and cross products of two vectors.</li> <li>Differentiate and integrate vector-valued functions.</li> <li>Relate planes in space with parametric equations.</li> <li>Define the equations of surfaces in space.</li> <li>Evaluate the limits and continuity of multivariable functions.</li> <li>Differentiate multivariable functions.</li> <li>Divelop directional derivatives and gradients.</li> <li>Investigate Lagrange Multipliers to solve problems with constraints.</li> <li>Produce triple integrals in rectangular, cylindrical, and spherical coordinates and other change of variable systems.</li> <li>Analyze vector fields, line, and surface integrals.</li> <li>Investigate Green's Theorem, Stokes Theorem and the divergence of a vector field.</li> </ol>
MnTC goal areas:	2. Critical Thinking 4. Mathematics/Logical Reasoning

\*Can be taking as a Prerequisite or Corequisite.