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*:	
Competencies:	1. Interpret vector operations geometrically in two and three dimensions. 2. Evaluate the limits of vector-valued functions. 3. Perform dot products and cross products of two vectors. 4. Differentiate and integrate vector-valued functions. 5. Relate planes in space with parametric equations. 6. Define the equations of surfaces in space. 7. Evaluate the limits and continuity of multivariable functions. 8. Differentiate multivariable functions. 9. Develop directional derivatives and gradients. 10. Investigate Lagrange Multipliers to solve problems with constraints. 11. Produce triple integrals in rectangular, cylindrical, and spherical coordinates and other change of variable systems. 12. Analyze vector fields, line, and surface integrals. 13. Investigate Green's Theorem, Stokes Theorem and the divergence of a vector field.
MnTC goal areas:	2. Critical Thinking 4. Mathematics/Logical Reasoning

Can be taking as a Prerequisite or Corequisite.