

Course Outcome Guide (COG)

Course:	Math 265: Calculus III	Credits:	4	Updated:	February 20, 2020
Course Description:	Multivariate and vector calculus including partial derivatives, multiple integration and its applications, line and surface integrals, Green's Theorem, Stoke's Theorem, and Divergence Theorem.				
Concepts and Issues	Process Skills	Assessment Tasks	Intended Outcomes		
			Course	Program	Institutional
<ul style="list-style-type: none"> • Vectors in the Plane & in Space • Dot & Cross Products • Vector-Valued Functions • Vector Calculus • Velocity & Acceleration • Curvature & Arc Length • Functions of Several Variables • Multivariate Calculus • Tangent Planes & Normal Lines • Multiple Integration • Center of Mass • Moments of Inertia • Vector Fields • Line Integrals • Green's Theorem • Stoke's Theorem • Divergence Theorem 	<ul style="list-style-type: none"> • Write vectors • Perform basic vector operations • Represent vectors graphically • Find dot product and cross product of two vectors • Recognize and write equations of cylindrical and quadric surfaces and surfaces of revolution • Use cylindrical coordinates and spherical coordinates • Apply concepts of limits, continuity, and derivatives to vector valued functions • Describe and determine velocity and acceleration of a vector-valued function • Write tangent and normal vectors • Find arc length and curvature of a curve • Expand calculus to functions of several variables • Write and evaluate double and triple integrals • Solve application problems requiring multiple integration • Define center of mass • Compute moments of inertia • Evaluate line and surface integrals Summarize Green's Theorem, Stoke's Theorem, & the Divergence Theorem 	<ul style="list-style-type: none"> • Complete textbook readings, questions, and problems demonstrating mastery of both concepts and process skills. • Complete examinations demonstrating mastery of both concepts and process skills. 	<ol style="list-style-type: none"> 1. Write and graph equations for surfaces in space. 2. Differentiate and integrate a vector-valued functions to solve real world applications. 3. Evaluate an iterated integral to find area and volume. 4. Evaluate line and surface integrals. 	<ol style="list-style-type: none"> 2. Students will use reasoning skills to analyze and solve problems. 	<ol style="list-style-type: none"> 2. Students will use reasoning skills to analyze and solve problems.