Math 2551 - Multivariable Calculus

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Prerequisites: Math 1553 - Introduction to Linear Algebra or equivalent.

Course description: Math 2551 is an introduction to multivariable calculus. Topics include:
- Vectors and the geometry of space;
- Vector-valued functions, parametric curves, tangents, arclength and motion in space;
- Functions of several variables, partial derivatives, gradients, extreme values, Lagrange multipliers, Taylor's theorem in several variables;
- Double and triple integrals, applications;
- Integration and vector fields, including the theorems of Green, Gauss, and Stokes.

Course materials:
- **Textbook:** *Thomas' Calculus Early Transcendentals,* by G. B. Thomas, J. Hass, C. Heil and M. D. Weir (14th edition); Addison Wesley/Pearson.
- **MyMathLab:** We will be utilizing MyMathLab (MML) for homework. The MML course will be linked from Canvas.

Course goals and learning outcomes: The primary goal of Math 2551 is to prepare students for upper level courses that require multivariable calculus as a pre-requisite. Upon successful completion of the course, students will be able to use the basic theory of calculus for functions of several real variables:
- calculate partial derivatives, evaluate multiple, line and surface integrals;
- apply different techniques to solve some practical problems, such as constrained optimization problems and other problems involving differentiation and integration of multivariable and vector-valued functions.