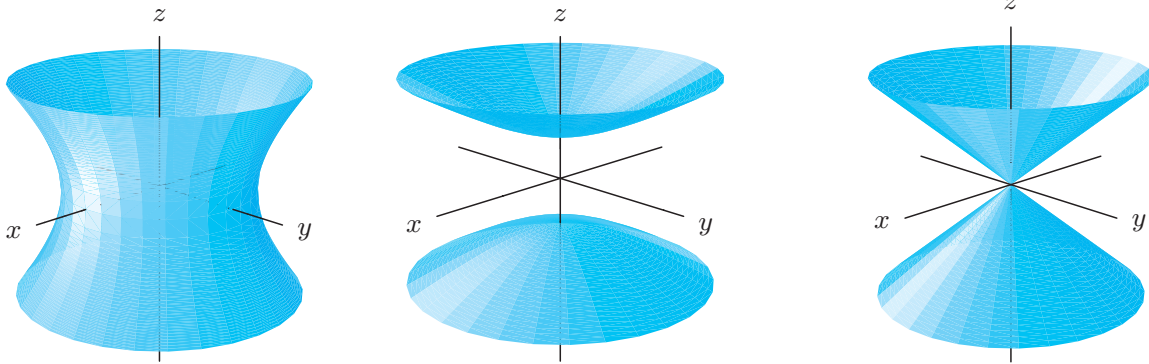# MATHB201: Multivariable Calculus, Fall 2022
Mathematics Department, Bryn Mawr College

Prerequisite: Calculus I and II

Change is omnipresent. Weather patterns, the cost of textbooks, the number of people using Instagram, and our position in the universe are a few examples of things that are changing. **Calculus is the study of how things change.** It provides a framework for modeling systems that undergo change and for making predictions. Calculus has been applied to study and solve numerous problems in many areas including technology, science, and business.

Most functions that influence our lives involve multiple inputs. For example, the temperature you experience depends on your location on the earth, the time of day, and the day of the year. In multivariable calculus, we will learn how to analyze functions with multiple inputs.

From your earlier calculus courses, you should be familiar with ways to represent functions of a single variable and how to take derivatives and integrals of these single variable functions. In this course, you will learn:
   o   Several ways to represent functions of multiple variables;
   o   How to calculate and interpret partial derivatives;
   o   How to evaluate multivariable integrals and their applications.

Throughout the course, there will be an emphasis on both theory and applications. We will make use of Mathematica throughout the course to help understand and visualize multivariable calculus.

The text for the course is by Hughes-Hallett (and many other authors): *Multivariable Calculus, 6th Edition*   **or**
Calculus: Single and Multivariable, 6th Edition (Chapters 12 – 20)