Outline for Exam 2

The exam will cover sections 10.5, 11.1-11.3 and 12.1-12.3. The topics by section are

10.5 Planes in $\mathbf{R}^3$. Finding the equation of the plane through a given point normal to a given vector. Finding the equation of a plane through three points. Finding the equation of the plane through a given vector, parallel to a given plane.

11.1-11.3 Vector-valued functions. Motion in space and on the plane. Position, velocity, speed and acceleration. Projectile motion. The arc length integral.

12.1 Functions of several variables. Level curves and level surfaces.

12.2 Limits and continuity. The two paths test.

12.3 Partial derviatives. Calculation of first and higher-order partial derivatives. Computing first partial derivatives of implicitly defined functions. Equality of certain mixed partials, e.g. $f_{xy} = f_{yx}$, $f_{zzx} = f_{zxz} = f_{xzz}$, etc.