The order in which these topics are to be presented is left to the instructor's discretion. Topics preceded by an * are optional.

**Vectors**
- Three dimensional coordinate systems
- Introduction to vectors
- Vector algebra: dot product; cross product
- Quadric surfaces
- Vector-valued functions
- Vector calculus
- Arc length; curvature; unit normal
- Motion in space; velocity and acceleration

**Partial Derivatives**
- Functions of two or more variables
- Limits and continuity
- Partial differentiation
- Tangent planes
- Differentials
- Chain rule; implicit differentiation
- Directional derivatives; gradients

**Multiple Integrals**
- Double integrals over rectangles; volumes
- Iterated integrals
- Integration over general regions
- Double integrals in polar coordinates
- *Moments of inertia; surface area
- Triple integrals
- Triple integrals in cylindrical and spherical coordinates

**Topics in vector calculus**
- Vector fields
- Line integrals
- Fundamental theorem of line integrals
- Green's theorem
- *Curl and divergence; Surface area; Surface integrals, Stokes' theorem

Approved by the Mathematics Department Curriculum Committee, November 26, 2013.