Calculus B/C

Successful students will be able to:

- Analyze planar curves given in parametric, polar, and vector form, including velocity and acceleration
- Calculate derivatives of parametric, polar and vector functions
- Calculate improper integrals
- Find antiderivatives by simple partial fractions
- Find numerical solutions to differential equations using Euler's method
- Use L'Hospital's Rule to determine limits and convergence of improper integrals and series
- Understand the concept of a series, and convergence of a series
- Recognize and apply geometric series and the harmonic series
- Test series for convergence using the alternating series test (with error bound), the integral test, the ratio test, and the comparison test
- Use Taylor polynomials to approximate various curves
- Find Taylor and Maclaurin series centered at $x = a$
- Recognize the Maclaurin series for e^x, sin x, cos x, and $\frac{1}{1-x}$
- Formally manipulate Taylor series using substitution, differentiation, and antidifferentiation
- Calculate radius and interval of convergence of power series
- Calculate the Lagrange error bound for Taylor polynomials