Math 2300
Exam 3 topics

The exam will cover sections 8.5, 8.6, 8.7, 7.1, 7.2, and 7.3. Here is a list of topics that you should have mastered for the exam:

- Estimate the sum of a series
  - Remainder Estimate for the Integral Test
  - Alternating Series Estimation Theorem
  - Taylor's Inequality
- Power series.
- Determine the radius and interval of convergence for a power series.
- Representing functions with power series
  - Be sure to know series representations for functions such as: e^x, $\sin x$, $\cos x$, $\frac{1}{1-x}$, $\ln(1+x)$, and $\arctan x$.
  - Know how to find the sum of a power series, by recognizing it as a transformation of a known series.
- Taylor series
  - Be sure to know how to find the Taylor series representation for a function.
  - Recall what Taylor series approximations tell us about a function's behavior.
  - Know what the Taylor polynomial remainder estimate represents.
- Differential equations
  - Write a differential equation to model a physical situation described
  - Set up differential equation for situations such as growth/decay, logistic equation, flow in/flow out.
  - Solve separable differential equations.
  - Interpret or create the directional field (slope field) for a differential equation.
  - Use Euler's method to approximate function behavior.