

FIRST DAY OF CLASS

1/13/10

1 Sign-in sheet

11 Course webpage: [/math.arizona.edu/~rbergerin/250Bspring2010/overview.htm](http://math.arizona.edu/~rbergerin/250Bspring2010/overview.htm)

- overview (very similar to 250A)
- grading (" ")
- emphasize recitation

2 Philosophical shift (to think about): 'effort' vs. 'results'

→ grading approach will be similar to last semester, but there conceptually will be a shift towards focusing effort/study onto understanding problems and identifying the mathematics needed to solve it

effort $\neq$ time spent memorizing

⇒ put another way, this is an issue of maturity: effort without results/understanding doesn't cut it anymore (at least not @ the university level)

- also note the distinction between simple mechanical errors (e.g. arithmetic error) versus a lack of deeper conceptual understanding

3 Quick review of 250A final

- overall performance
- attempt to grade uniformly/fairly
- quick overview of each problem



1/13/10 (cont.)

[4] Rough Initial Outline

- improper integrals + convergence
- series (e.g. geometric series) + convergence
- Taylor series
 - as approximations of functions
 - as a means to 'linearize' things
 - as a means to solve ODEs
 - convergence
- other types of series/transforms: Fourier series, Laplace transforms
 - complex #'s
 - [the notion of linear independence will become important here]
- 2nd order ODEs
- system of ODEs
- Nonlinear ODEs + linearization

Probable Lab Projects

- 1 Fourier series (see H.H. 10.5)
- 2 Appl. math lab (hands-on)
- 3 Michaelis-Menten kinetics (nonlinear coupled ODEs)