Study Guide for Calculus II Final Exam

December 2013

The final exam is scheduled for Wednesday, December 11 9am–12noon. Please arrive on time with nothing in hand but some writing instruments — cell phones should be left at "home." Be sure to prepare to complete the Honor Code statement on the exam, while being mindful that you are obligated to report any observed violations.

I will announce office hours for exam week during the week.

The last Calculus Help Session is scheduled for the evening ??? in the usual location, the Mathematics Department Common Room. Please bring questions to our last class meeting on Friday the 6th.

The final exam will be comprehensive, though a large part of the exam will cover material since the most recent exam. Below I try to capture succinctly the material since the most recent exam for which you are responsible.

I am likely to ask you to:

- find a Taylor series of a function f centered at a (or a Maclaurin series),

- show that a Taylor series (or Maclaurin series) does indeed 'represent' the function it is meant to (this involves using Taylor's inequality),

- derive any of the Maclaurin series you find on page 786 of the text,

- use an nth-degree Taylor polynomial to approximate a function or an integral,

- use Euler's method or a direction field to approximate the solution of a differential equation,

- solve a separable differential equation,

- solve a first-order linear differential equation,

- be able to work with models for population growth and with mixing problems,

- work with parametric equations, and do basic calculus with them (i.e. find tangent lines, areas and arc lengths.)

Please realize that I will be able to examine you on much of the prior material through these questions. That is, I will be able to test your ability to compute a limit, find an antiderivative, test a series for convergence, etc. through questions of the above type. However, you should be prepared to answer any question about the material we discussed.

Old exams are available on the course webpage. Note that some questions that appear on these we have not discussed, and so you are not responsible for them. Please prepare well for the exam and best of luck on it! (Remember, good rest and good food are important in preparation.)