

## **Mathematics 2243: Calculus III**

### *Information about Exam II*

Exam II will take place in our usual classroom. Rather than taking your usual seat, you will need to sit so that there is no one on either side of you. Please use pencil. No calculator may be used.

The exam will be worth 53 points (graded out of 50), and will cover sections 11.2-11.9. (Note: the schedule says Exam II will only cover 11.3-11.9, but 11.2 will also be covered.) The *approximate* point breakdown by section of the text is as follows:

11.2	4
11.3	4
11.4	10
11.5	(combined with 11.7)**
11.6	6
11.7	15
11.8	9
11.9	7
Total	55

\*\*You will be asked to apply the ratio and the root tests to determine the convergence of power series, so I have included these points in 11.7. Also keep in mind that there is a considerable amount of overlap between sections here (thus, the fact that, say, section 11.6 is stated to be worth 6 points means that this is the amount of points from questions that ask about these concepts directly; the concepts of absolute and conditional convergence from 11.6 are certainly relevant in later sections)

The following topics will definitely be covered (of course, the exam is not limited to these topics):

1. definition of convergence of a series in terms of the partial sums  $s_n$
2. Comparison Test, Limit Comparison Test
3. Alternating Series Test
4. how to analyze the convergence behavior of a series/power series using the Ratio Test and Root Test
5. Maclaurin series for the basic functions
6. the general formula for the Taylor series, how to use it to compute the Taylor series of a specific function at a specific point

You will need to know the following from memory: Maclaurin series for  $e^x$ ,  $\sin(x)$ ,  $\cos(x)$ , and  $\ln(1+x)$ , and the general formula for the Taylor series at  $x=a$ .