MATH 444
STUDY GUIDE
MIDTERM 3

The exam covers all of the material we have discussed, but will focus on the material from sections 6.1 to 7.3. Some important concepts include:

Ch. 6: derivative, differentiable function, relative (or local) max/min, extreme value, increasing/decreasing function

Ch. 7: partition, tag, tagged partition, Riemann sum, Riemann integrable function, indefinite integral, null set

The following are some of the more important results from this part of the course, and you should be familiar with their statements:

Ch. 6: Algebraic properties of differentiation (Theorem 6.1.3), Carathéodory's Theorem, Chain Rule, Inverse function theorem (Theorem 6.1.9), Interior Extremum Theorem, Mean Value Theorem, First Derivative Test

Ch. 7: Algebraic properties of integration (Theorem 7.1.4), Boundedness Theorem (7.1.5), Squeeze Theorem (7.2.3), Integrability of Continuous or Monotone functions (7.2.6, 7.2.7), Additivity Theorem (7.2.8), First Fundamental Theorem of Calculus, Second Fundamental Theorem of Calculus, Lebesgue's Integrability Criterion

Some Suggested Exercises from the Text
6.1: 4, 6, 8(a,c), 10, 11(a,c), 14
6.2: 3(a,c), 4, 6, 10, 11
7.1: 1, 2, 4(a), 9, 18
7.2: 2, 3, 6, 10, 12, 13, 19
7.3: 3, 5, 6, 14, 15, 20(a)