MAT 319 – Chapter 4, 5, 6 Study Guide

Know the precise statements of the following definitions and major results:

- Axiom 12 (page 121)

- Intermediate Value Theorem (page 126)

- Nested Intervals Theorem (page 129)

- Mean Value Theorem (page 155)

- Extreme Value Theorem (page 156)

- Cauchy Mean Value Theorem (page 165)

- L'Hôpital's Rule (page 165)

- Definition of "partition" (page 173)

- Faster-Farther Theorem (page 175)

- Corollary 4.13 (page 177)

- Definition of "step function" (page 178)

- Lemma 5.1 (page 196)

- Lemma 5.2 (page 198)

- Proposition 5.8 (page 202)

- Definition of "integrable" (page 205)

- Definition of "enclosing pair" (page 208)

- Proposition 5.10 (page 208)

- Theorem 5.11 (page 210)

- Lemma 5.12 (page 213)

- Definition of "integral" (page 214)

- Proposition 5.13 (page 215)

- Theorem 5.14 (page 216)

- First Fundamental Theorem of Calculus (page 242)

- Second Fundamental Theorem of Calculus (page 243)

- Definitions of convergent and divergent series (page 255)

- Sum of a geometric series (page 257)

- Proposition 6.3 (page 260)

- Ratio Test (page 270)

- Root Test (page 272)

- Proposition 6.8 (page 274)

- Definition of "absolute convergence" and "conditional convergence" (page 276)

- Absolute convergence implies convergence, but not vice versa (page 276)

- Alternating Series Test (page 278)

- p-test (page 327)

- chart (page 331)

- Theorem 6.24 (page 348)

- Taylor's theorem (page 362)

Know the statements **and proofs** of the following major results:

- Proposition 4.3 (page 123)

- Proposition 5.4 (page 200)

- Prooposition 5.7 (page 201)

- Theorem 5.15 (page 221)

- Proposition 5.16 (page 225)

- Proposition 5.17 (page 227)

- Proposition 5.18 (page 236)

- Proposition 6.1 (page 258)

- Proposition 6.2 (page 259)

- Proposition 6.4 (page 262)

- Proposition 6.5 (page 263)

- Integral Test (page 326)

- Limit Comparison Test (page 329)

Know how to do the following exercises:

- 3,4 (page 125)

- 8 (page 136)

- 22 (page 168)

- 27, 28 (page 183)

- 1 (page 200)

- 2 (page 201)

- 8 (page 204)

- 10 (page 210)

- 12 (page 214)

- 15 (page 226)

- 17, 18 (page 230)

- 22, 23 (page 240)

- 29, 30 (page 254)

- 3 (page 260)

- 4 (page 262)

- 10(a)(b)(c) (pages 280-281)

- 23 (page 328)

- 25, 26, 27, 28 (pages 333-334)

- 34, 35 (page 348)