MIDTERM #2 INFORMATION – MATH 3210 FALL 2018

- The first page will be short answer questions. I may ask you to define terms. I may ask you to state a theorem. I may ask you to prove something very short. I may ask you for an example of something (like a continuous function that is not differentiable, or an integrable function that is not continuous)
- The second page will ask you to compute a specific derivative or integral using the definition.
- The third page will be a more abstract proof.
- The fourth page will ask you to prove one of the following 5 theorems.
 - (a) The Mean Value Theorem (Theorem 4.3.2 in the text).
 - (b) Every continuous function $f:[a,b] \to \mathbb{R}$ is integrable (Theorem 5.2.2 in the text).
 - (c) The first Fundamental Theorem of Calculus (Theorem 5.3.1 in the text).
 - (b) A part of the second Fundamental Theorem of Calculus (Theorem 5.3.3 in the text). In particular, you may need to show the part where one shows that F'(x) = f(x) assuming f is continuous at x. Thus I will *not* ask you to prove that F(x) is continuous.
 - (e) The chain rule (Theorem 4.2.7 in the text).
- The fifth page will be an extra credit problem (worth up to +10 points to the exam, out of 100). It will require a more subtle proof.