Logistics and Structure of Exam

- 1:30 pm - 3:30 pm Thurs May 21, OWS 250

- Most problems will be similar to review problems and problems on quizzes and exams. Study those problems and similar problems (e.g. the practice problems listed below.)

- No calculators, notes, books, cell phones permitted.

- Bring whatever you need to help yourself concentrate for 2 hrs: watch, water bottle, granola bar ...

Limits, Continuity, Differentiability, Understanding Derivatives (Ch 2, S 4.4, S 3.10)

1. Evaluating limits using the limit laws and using L'Hospital's rule, use limits to describe horizontal and vertical asymptotes

2. Definition of continuity, the three conditions for continuity, determining whether a function is continuous at a specified point, points of continuity and discontinuity on a graph

3. Definition of differentiability, limit of difference quotient (slopes of secant lines), points of differentiability and non-differentiability on a graph

4. Estimating the derivative from a table or from a graph (slope of tangent)

5. Interpreting the meaning of the derivative in an application and using units, using the derivative to estimate values of a function, explaining the approximation process in terms of differentials

   Practice: CR2 # 1, 4, 16, 47, 49; 2.7 # 47; 2.1 #3; 2.8 # 36(a)(b); 3.10 #43; CR 4 #11, 40 (a)(b), 4.4 #42

Differentiation and its Applications (Ch 3-4)

1. Catalogue of derivatives, differentiating functions, implicit differentiation

2. Position, velocity, acceleration, total distance traveled

3. Intervals of incr/decr, local max/min, intervals of concavity, inflection points

4. Find absolute max/min values, optimization

   Practice: CR3 #1-50, 71-74; 3.7 # 5, 6, 18; 4.1 # 48; 4.2 #9; 4.3 #8; CR4 #57

Antiderivatives, Integrals, Net Change (S 4.9, Ch 5)

1. Finding antiderivatives, evaluating indefinite integrals (family of antiderivatives)

2. Approximating net change/areas by adding estimates over small intervals, using definite integrals to describe net change/area exactly, units of definite integrals, properties of definite integrals

3. FTC: evaluating definite integrals using antiderivatives, the area-so-far function as an antiderivative

4. Using the method of substitution to evaluate integrals

   Practice: CR4 #65-67, 74, CR5 # 5, 9-13, 16, 28, 29, 41-43, 45, 47; 5.2 # 48; 5.4 #53, 56, 68