Math 180/201: Differential Calculus 2014W Term 2
(January – April, 2015) Instructor: Matthew Coles

Course Outline

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Course information and syllabus are posted here.

Evaluation:

- Final Exam: 50%
- Midterms: 16% each
- Webwork: 9%
- Workshops: 7%
- Clicker Participation: 2%

Text Book:

Calculus, Early Transcendentals,
7th edition by James Stewart.
Some supplemental material can be found here.

Topics by Week:

Topics subject to slight changes. Sections refer to the text book unless otherwise noted.

- Week 1
  
  - §2.1 The Tangent and Velocity Problems
  - §2.2 The Limit of a Function
  - §2.3 Calculating Limits Using the Limit Laws

- Week 2
  
  - §2.5 Continuity
  - §2.6 Limits at Infinity; Horizontal Asymptotes
  - §2.7 Derivatives and Rates of Change

- Week 3
  
  - §2.8 The Derivative as a Function
  - §3.1 Derivatives of Polynomials and Exponential Functions
  - §3.2 The Product and Quotient Rules
  - §3.3 Derivatives of Trigonometric Functions
• Week 4
  • §3.4 The Chain Rule
  • §1.6 Inverse Functions and Logarithms

• Week 5
  • Midterm Test 1: Feb 3 in class
  • §3.5 Implicit Differentiation
  • §3.6 Derivatives of Logarithmic Functions

• Week 6
  • §3.7 Rates of Change in the Natural and Social Sciences
  • §3.8 Exponential Growth and Decay

• Week 7
  • §3.9 Related Rates
  • §3.10 Linear Approximations and Differentials
  • Course Notes §1 Taylor Polynomials

• Week 8
  • Course Notes §2 Taylor’s Formula with Remainder
  • §4.1 Maximum and Minimum Values

• Week 9
  • §4.2 The Mean Value Theorem
  • Midterm Test 2: March 12 in class

• Week 10
  • §4.3 How Derivatives Affect the Shape of a Graph (First and Second Derivative Tests)
  • §4.5 Summary of Curve Sketching

• Week 11
  • §4.7 Optimization Problems
  • §4.4 L'Hopital's rule

• Week 12
  • §4.9 Antiderivatives
  • Review