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 suplemental 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