

## [MATH 100 and MATH 180, Fall 2012](#)

### COURSE OUTLINE

All lecture sections of MATH 100 and MATH 180 cover the topics listed below. A “Week” represents *approximately* 150 minutes of class time, not necessarily a calendar week. Unless otherwise indicated, the section numbers below refer to the textbook; most sections of Chapters 2 to 4 and two sections of the [Course Notes](#) are covered.

- **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
- **Week 3**
  - §2.7 Derivatives and Rates of Change
  - §2.8 The Derivative as a Function
  - §3.1 Derivatives of Polynomials and Exponential Functions
- **Week 4**
  - §3.2 The Product and Quotient Rules
  - §3.3 Derivatives of Trigonometric Functions
  - §3.4 The Chain Rule
- **Week 5**
  - §1.6 Inverse Functions and Logarithms
  - §3.5 Implicit Differentiation
- **Week 6**
  - §3.6 Derivatives of Logarithmic Functions
  - §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
- **Week 8**
  - [Course Notes](#) §1 Taylor Polynomials
  - [Course Notes](#) §2 Taylor’s Formula with Remainder
- **Week 9**
  - §4.1 Maximum and Minimum Values
  - §4.2 The Mean Value Theorem
- **Week 10**
  - §4.3 How Derivatives Affect the Shape of a Graph (First and Second Derivative Tests)
  - §4.4 Indeterminate Forms and l’Hôpital’s Rule
- **Week 11**
  - §4.4 Indeterminate Forms and l’Hôpital’s Rule (continued)
  - §4.5 Summary of Curve Sketching
  - §4.7 Optimization Problems
- **Week 12**
  - §4.7 Optimization Problems (continued)
  - §4.9 Antiderivatives

[Homework problems](#)