

# Course Outline - Math 207

## Fall 2009

### Class 1 - Monday, August 24

**Lecture:** Course Information ([Syllabus](#), [Textbook Info](#), [Calculator Info](#))  
[Decimals and Fractions](#)  
Completing the square ([Part 1](#), [Part 2](#), [Part 3](#))  
[Quadratic Inequalities](#)

**Homework:** [Questions](#) (due Wednesday)  
[Pre-Calculus Review](#) (due next Monday)

**Also posted:** Lecture Notes for your own review: [Solving Linear Equations](#) and [Wordproblems](#)

### Class 2 - Wednesday, August 26

**Lecture:** Functions (definition, domain) (R.6)  
Limits (1.2)

**Extra Credit Assignment:** Let  $F_n$  denote the  $n$ th element of the Fibonacci sequence, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, . . . Find the limit  $\lim_{n \rightarrow \infty} (F_n/F_{n+1})$

### Class 3 - Monday, August 31

**Lecture:** Review of trigonometry  
The remainder theorem  
Limits at Infinity (1.2, [handout](#))

**Also posted:** [Answers for Pre-Calculus Review](#)  
Lecture Notes for your own review: [Quadratic Word Problems](#),  
[Completing the Square - Part 4](#)

### Class 4 - Wednesday, September 2

**Lecture:** Review of inverse functions  
Limits (1.2)

**Homework:** [Problem Set 1](#)

**Also posted:** [Optimization 1](#)

### Class 5 - Wednesday, September 9

**Lecture:** Limits (1.2)

**Homework:** [Problem Set 2](#)

### Class 6 - Monday, September 14

**Lecture:** [The Derivative as a Limit](#) (1.3)

### Class 7 - Wednesday, September 16

**Lecture:** Applications of the derivative 1 - tangent lines  
[Tangent lines](#) (application of the discriminant)  
Continuity

**Also posted:** [Exam 1 Review](#), [Answers for Problem Set 1](#), [Answers for Problem Set 2](#)

**Class 8 - Monday, September 21**

**Lecture:** Exam 1 Review  
[Complete Analysis of a function](#)

**Class 9 - Wednesday, September 23**

**Exam 1**

**Class 10 - Monday, September 28**

**Lecture:** Increasing and Decreasing Functions (3.2)  
Differentiating  $\sin x$  and  $\cos x$  (5.2)

**Class 11 - Wednesday, September 30**

**Lecture:** The product rule (1.5)  
Antiderivatives (2.5)

**Class 12 - Monday, October 5**

**Lecture:** [Graphing rational functions](#)  
The Chain Rule (2.2)  
The Quotient Rule (1.5)

**Class 13 - Wednesday, October 7**

**Lecture:** The second derivative test (3.3)  
[Optimization 2](#) (3.5)

**Also posted:** [Exam 2 Review](#), [Differentiation 2](#), [Answers for Problem Set 3](#)

**Class 14 - Monday, October 12**

**Lecture:** Review for Exam 2  
The derivative of  $f(x) = \ln x$

**Class 15 - Wednesday, October 14**

**Exam 2**

**Class 16 - Monday, October 19**

**Lecture:** Concavity and points of inflection (3.3, 3.4)  
Inverse functions and their derivatives (5.4)

**Also posted:** [Quiz 5 Review](#)

**Class 17 - Wednesday, October 21**

**Lecture:** Differentiating exponential functions (6.3)  
[Hyperbolic functions](#)

**Also posted:** [Differentiation 3](#)

**Class 18 - Monday, October 26**

**Lecture:** Implicit Differentiation (2.3)  
Induction

**Also posted:** [Graphing the Antiderivative](#)

**Class 19 - Wednesday, October 28**

**Lecture:** [Related Rates](#) (2.4)

**Class 20 - Monday, November 2**

Lecture: Riemann sums (4.2, 4.3)

**Class 21 - Wednesday, November 4**

Lecture: [Definite Integrals](#) (4.4, 4.5)  
L'Hopital's Rule

Also posted: [Exam 3 Review](#)

**Class 22 - Monday, November 9**

Lecture: Review for Exam 3

**Class 23 - Wednesday, November 11**

Exam 3

**Class 24 - Monday, November 16**

Lecture: [Integration by Substitution](#)

**Class 25 - Wednesday, November 18**

Lecture: [Improper Integrals](#)

**Class 26 - Monday, November 23**

Lecture: [Integrating by Parts](#)

**Class 27 - Wednesday, November 25**

Lecture: [Applying definite integrals](#) (4.6)

**Class 28 - Monday, November 30**

Lecture: [Applying definite integrals 2](#)

Also posted: [Exam 4 Information](#), [Exam 4 Review 1](#), [Exam 4 Review 2](#)

**Class 29 - Wednesday, December 2**

Lecture: [Graphing in Polar Coordinates](#) (5.6)  
Countable and uncountable sets

**Class 30 - Monday, December 7**

Lecture: Final Review

**Class 31 - Wednesday, December 9**

Final Exam