

# Course Outline

## Math 207 GH – Fall 2015

### **Class 1 – Tuesday, August 25**

Lecture: Course Information ([syllabus](#), [textbook info](#), [calculator info](#), [Guide to Review](#))  
Completing the Square [Parts 1,2,3](#) and [Part 4](#), [Factoring 1](#)

Also posted: [Are You Ready for Calculus?](#), [Guide to Review](#), [Radical Expressions](#),  
[Completing the Square - Part 4](#), [Quadratic Formula](#)

### **Class 2 – Thursday, August 27**

Lecture: [Average Velocity - Part 1](#), [Arithmetic, Geometric, and Harmonic Means](#),  
[What is a Function?](#), Review: Parabolas - [Part 1](#), [Part 2](#),  
[Complete analysis of a function - Part 1](#)

Also posted: [Answers](#) for Are You Ready for Calculus

### **Class 3 – Tuesday, September 1**

Lecture: [Average Velocity - Part 2](#), [Circles](#), [Quadratic Inequalities](#)

### **Class 4 – Thursday, September 3**

Lecture: [Limits at Infinity - Part 1](#), [Properties of Limits](#)

Also posted: [Basic Functions](#), [Inverse Functions](#), Logarithms - [Part 1](#), [Part 2](#)

### **Class 5 – Tuesday, September 8**

Lecture: [Limits at Infinity – Part 2](#), [Graphing Polynomials 1](#)

### **Class 6 – Thursday, September 10**

Lecture: [Properties of Limits](#), [Two-sided limits](#)

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

### **Class 7 – Tuesday, September 15**

Lecture: Exam 1 Review, The sum and double-angle formulas ([see this handout](#))  
[Instantaneous Velocity](#)

### **Class 8 – Thursday, September 16**

**Exam 1**

### **Class 9 – Tuesday, September 22**

Lecture: [Differentiating by Finding Limits](#), [Two Important Trigonometric Limits](#)

**Class 10 – Thursday, September 24**

Lecture: [Trigonometric Limits](#), [Differentiating sinx and cosx](#), [Continuity](#)

**Class 11 – Tuesday, September 29**

Lecture: [Differentiation 1](#) (proofs of the rules), [Differentiation 1](#) (practice),  
[Inverse Trigonometric Functions](#), [Tangent Lines](#)

**Class 12 – Thursday, October 1**

Lecture: a bit more on [Continuity](#), a bit more on [Tangent Lines](#), and  
[Limits involving e](#) and compound interest

**Class 13 – Tuesday, October 6**

Lecture: [Relative Extrema](#), [Complete Analysis of a Function – Part 2](#)

**Class 14 – Thursday, October 8**

Lecture: Leibniz notation, [Optimization 2](#)  
Also posted: [Exam 2 Information](#), [Exam 2 Review](#)

**Class 15 – Tuesday, October 13**

Lecture: Review for Exam 2, The Product Rule - [Proof](#) and [Practice](#)  
Differentiating Logarithmic Functions [Proof](#) and [Practice](#)

**Class 16 – Thursday, October 15**

**Exam 2**

**Class 17 – Tuesday, October 20**

Lecture: [The Real Number System](#) , [Intermediate Value Theorem](#), [Extreme Value Theorems](#),  
[Mean Value Theorem](#) (stated it and proved its consequences), [Antiderivatives](#)

**Class 18 – Thursday, October 22**

Lecture: [Mean Value Theorem](#) (proof), The Quotient Rule - [Proof](#) and [Practice](#)

**Class 19 – Tuesday, October 27**

Lecture: The Second Derivative Test, The Chain Rule ( [Practice](#))  
Also posted: [Optimization 3](#)

**Class 20 – Thursday, October 29**

Lecture: [Differentiating Exponential Functions \(Practice\)](#)

**Class 21 – Tuesday, November 3**

Lecture: [Implicit Differentiation \(more practice\)](#), [Related Rates \(more practice\)](#)

**Class 22 – Thursday, November 5**

Lecture: [Antiderivatives after the chain rule](#), [Inverse Trigonometric Expressions](#),  
Differentiating Inverse Trigonometric Functions ([Proofs](#) and [Practice](#)), [Optimization 4](#)

**Class 23 – Tuesday, November 10**

Lecture: Exam 3 Review

**Class 24 – Thursday, November 12**

Exam 3

**Class 25 – Tuesday, November 17**

Lecture: [Concavity Behavior](#), [Graphing the antiderivative](#), [Complete Analysis of a Function](#)  
[L'Hôpital's Rule](#)

**Class 26 – Thursday, November 19**

Lecture: [Induction](#), [Summation 1](#), [Summation 2](#)

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

**Class 27 – Tuesday, November 24**

Lecture: [Riemann Sums](#) and the Definite Integral

**Class 28 – Tuesday, December 1**

Lecture: [The Fundamental Theorem](#), [Definite Integrals](#), [Properties of the Definite Integral](#)

**Class 29 – Thursday, December 3**

Lecture: [Integrating by substitution](#), [Improper Integrals](#)

**Class 30 – Tuesday, December 8**

Lecture: Final Review, [Integrating by parts](#)

**Class 31 – Wednesday, December 10**

Final Exam