MAC 2311, Calculus 1
Lecture Topics and Homework Assignments

You should read the textbook sections covered in each day's lecture and watch pre-lecture videos before class. After each lecture, review your notes and the text to make sure you understand the main concepts **before** you start working the homework exercises.

If you have questions about lecture material, reading or homework you may ask your discussion leader in class or during office hours. You may also talk to your lecturer after lecture or during their office hours. Free tutoring is available in the Teaching Center at SE Broward Hall.

You should complete each assignment **before** your next lecture class, since the material in new lectures build on previous concepts.

Text: Calculus, Early Transcendentals, 8th edition, by Stewart

Lecture 1 Pre-calculus Algebra

Reading: Sections 1.1 and 1.2
Exercises (1.1), page 19: 2, 4, 27, 29, 30, 34, 35, 45, 48, 57, 58, 60 , 61, 62, 71, 72, 73, 75, 76, 79, 80
Exercises (1.2), page 33: 1, 7, 10, 20

Lecture 2 Pre-calculus Algebra

Reading: Sections 1.3–1.5
Exercises (1.3), page 42: 3, 4, 5, 14, 17, 32, 37
Exercises (1.4), page 53: 7, 8, 23, 30
Exercises (1.5), page 66: 16–18, 22, 24 (Also, find the inverse if $x < 1/2$), 41, 50, 57

Lecture 3 Pre-calculus Trigonometry

Reading: Section 1.2, 1.3 and 1.5
Exercises (1.2), page 33: 5, 6
Exercises (1.3), page 42: 18, 22
Exercises (1.5), page 66: 63, 64, 68, 69–72, 75

Lecture 4 The Tangent and Velocity Problems, Introduction to Limits

Reading: Sections 2.1 and 2.2
Exercises (2.1), page 82: 3, 5
Exercises (2.2), page 92: 1, 19, 22, 25, 27, 28, 31, 32, 35, 38, 40, 44

Lecture 5 Limits

Reading: Section 2.2
Exercises (2.2), page 92: 2, 4, 8, 11, 16, 17,

Lecture 6 Evaluating Limits

Reading: Section 2.3
Exercises (2.3), page 102: 2, 11, 13, 17, 20, 21, 23, 24, 26, 29, 32, 33, 41, 44, 45, 49, 50, 59

Lecture 7 Continuity

Reading: Section 2.5
Exercises (2.5), page 124: 3, 6, 18, 20, 21, 23, 26, 27. 31, 36, 37, 41, 45, 53, 55

Lecture 8 Limits at Infinity

Reading: Section 2.6
Exercises (2.6), page 137: 2, 3, 6, 15–21 odd, 35, 36, 40, 41, 49, 52

Lecture 9 Limits at Infinity and Squeeze Theorem

Reading: Sections 2.6 and 2.3
Exercises (2.6), page 137: 23, 24, 27, 28, 38, 39, 65, 67
Exercises (2.3), page 102: 39, 40

Lecture 10 Derivatives and Rates of Change

Reading: Section 2.7
Exercises (2.7), page 148: 4, 7, 8, 12, 15, 20–22, 37, 38, 41, 42, 59, 60

Lecture 11 The Derivative as a Function

Reading: Section 2.8
Exercises (2.8), page 160: 3, 4–10 even, 25, 26, 27, 49, 51, 61, 62

Lecture 12 Basic Rules of Differentiation

Reading: Section 3.1
Exercises (3.1), page 180: 3, 7–19 odd, 22, 23, 25, 26, 32, 35, 37, 47, 49, 56, 58, 61, 64, 71, 77

Lecture 13 Product and Quotient Rules

Reading: Section 3.2
Exercises (3.2), page 188: 1, 2, 5, 9, 21, 27, 33, 34, 44, 46, 47, 52(d)

Lecture 14 Derivatives of Trigonometric Functions

Reading: Section 3.3
Exercises (3.3), page 196: 1–5, 9, 13, 15, 17, 19, 25, 31, 39–47 odd, 44, 50, 51

Lecture 15 The Chain Rule

Reading: Section 3.4
Exercises (3.4), page 204: 7, 9–13, 18, 21, 32, 37, 40, 53, 54, 60, 62, 65, 77, 78

Lecture 16 Implicit Differentiation

Reading: Section 3.5
Exercises (3.5), page 215: 4, 5, 9, 11, 12, 15, 21, 26, 35, 38, 39, 49, 51, 53

Lecture 17 Derivatives of Logarithmic Functions

Reading: Section 3.6
Exercises (3.6), page 223: 2, 3, 4, 9, 13, 17, 23, 31, 40, 41, 43, 44, 51, 52

Lecture 18 Rates of Change

Reading: Section 3.7
Exercises (3.7), page 233: 1, 5, 6, 8, 14, 15, 16, 31

Lecture 19 Related Rates

Reading: Section 3.9
Exercises (3.9), page 249: 3, 5, 6, 7, 10, 12, 13, 21, 25, 26, 33

Lecture 20 Related Rates, Part II

Reading: Section 3.9
Exercises (3.9), page 249: 15, 16, 18, 19, 22, 29, 30, 42, 44, 45

Lecture 21 Linear Approximations and Differentials

Reading: Section 3.10
Exercises (3.10), page 256: 5, 7, 9, 11, 16, 17, 21, 27, 28, 33, 34, 35, 38,

Lecture 22 Extreme Values

Reading: Section 4.1
Exercises (4.1), page 283: 5, 11, 17, 18, 37, 43, 44, 49, 53, 60, 62, 67(b), 77

Lecture 23 Mean Value Theorem

Reading: Section 4.2
Exercises (4.2), page 291: 1, 3, 6, 8, 9, 12, 14, 15, 17, 25, 26, 27

Lecture 24 Derivatives and the Shape of a Graph

Reading: Section 4.3
Exercises (4.3), page 300: 1, 7, 8, 17, 18, 20, 23, 30, 34, 35, 43, 44, 45, 49, 54, 55

Lecture 25 L'Hôpital's Rule

Reading: Section 4.4
Exercises (4.4), page 311: 1–4, 13, 14, 17, 19, 24, 25, 27, 35, 41, 44, 51, 53, 56, 59, 60, 61, 67, 73, 74, 75, 76

Lecture 26 Graph Sketching

Reading: Section 4.5
Exercises (4.5), page 321: 5, 12, 19, 21, 26, 29, 30, 42, 46, 48,

Lecture 27 Optimization

Reading: Section 4.7
Exercises (4.7), page 336: 3, 4, 5, 7, 8, 11, 14, 16, 22, 59

Lecture 28 Optimization, Part II

Reading: Section 4.7
Exercises (4.7), page 336: 25, 27, 31, 34, 35, 48, 54, 57, 63

Lecture 29 Antiderivatives

Reading: Section 4.9
Exercises (4.9), page 355: 5, 14, 15, 17, 22, 23, 24, 53, 59, 62,

Lecture 30 Areas

Reading: Section 5.1
Exercises (5.1), page 375: 3, 5, 13, 21, 22, 24, 25, 26

Lecture 31 The Definite Integral

Reading: Section 5.2
Exercises (5.2), page 388: 5, 17, 18, 21, 23, 29, 30, 34, 37, 38, 40

Lecture 32 Properties of the Definite Integral

Reading: Section 5.2
Exercises (5.2), page 388: 41, 42, 44, 45, 47, 49, 50, 51, 53, 57, 63, 73, 74

Lecture 33 The Fundamental Theorem of Calculus

Reading: Section 5.3
Exercises (5.3), page 399: 2, 5, 7, 11, 13, 18, 23, 28, 29, 31, 32, 34, 39, 42, 48, 55, 58, 60, 61, 64–69, 75, 76

Lecture 34 Indefinite Integrals and Net Change Theorem

Reading: Section 5.4
Exercises (5.4), page 408: 10, 11, 12, 16, 18, 19, 26, 27, 30, 37, 44, 51, 52, 59, 67

Lecture 35 The Substitution Rule

Reading: Section 5.5
Exercises (5.5), page 418: 7, 10, 13, 15, 18, 21, 22, 25, 30, 31, 34, 38, 39, 40, 41,

Lecture 36 The Substitution Rule, Part II

Reading: Section 5.5
Exercises (5.5), page 418: 55, 59, 60, 67, 68, 69, 73, 77, 78, 79, 87, 87, 88

Lecture 37 Areas Between Curves

Reading: Section 6.1
Exercises (6.1), page 434: 1, 3, 7, 9, 11, 12, 17, 18, 22, 24, 27, 28, 35, 50, 56