The City College of New
Department of Mathematics
Math 201-Calculus I
Fall 2023

Course Supervisor: Cheikhna Mahawa Diagana	**Email:** cmahawa@ccny.cuny.edu
Office: MR 213 **Phone:** (212) 650-5119	**Office Hours:** MW 12:00 - 2:00 pm & by Appointment

Course Pages: https://math.sci.ccny.cuny.edu/courses?name=Math_20100

Textbook: Calculus Early Transcendentals, 9th Ed, by Stewart, Clegg and Watson.

Time	Sec	Topic to be covered	Problem
1	1.1	Functions and Their Graphs.	1-4,7,9,12,15,18, 24, 35, 40, 41,43,47-49, 66, 68,8, 85, 86
1	1.2	A catalog of Essential Functions.	1-4, 5,7, 9,12
1	1.3	New Function and Old functions.	1-3, 5, 6, 13, 17, 23,33,34,35,37,43,45,55, 57, 59
1	1.4	Exponential Functions.	1-3, 9, 13, 15, 17, 19, 29, 30
1	1.5	Inverse Functions and Logarithms.	2-8, 10,15,17,19, 20, 23,26, 30, 35, 41,44(b), 46,57,69
0.5	2.1	Tangent & Velocity Problem.	2, 5, 7
2	2.2	Limit of a Function.	3,4, 5,8,9, 2,22,27,39,44,50,52,53,57,60,62,64 65,78,81
1	2.3	Calculating Limits using Limit Laws	1,2, 3,7,10,14,18,19,22,25,32,34,39-42,44,52,53,61,62,67
1	2.4	The Precise Definition of a Limit.	1-4, 17, 18
1.5	2.5	Continuity	1,3,6,7,11,13,16-18,21-24,26,28,31,37,45,47-50,53,55-58,73
1.5	2.6	Limits Involving Infinity; Horizon Asy.	1,3,5,7,10,17,21-23,25,26,28,29,32,35,36,38-41,49,57,59,67
2	2.8	The Derivative as a Function.	1,3,21-32,39,41-44,49,65
1	3.1	Derivatives of Poly and Expon Fun.	3,8,11,14,17,19,25,31,33,34,37,41,53,59-63,75,85,86
2	3.2	Product Rules and Quotient Rules .	1,3-30,31,34,35,37,45,46,49,52,53,63*
1	3.3	Derivatives of Trigonometric Fun.	1,3,6,12,13,17,22,25,29,37,41,45,48,49,52,53,57,58,61,62
2	3.4	The Chain Rule.	8,10,13,14,19,23,25,27,29,33,37,41,43,53,58,68,69,71,73,84
1	3.5	Implicit Differentiation.	1, 4, 7, 9, 10, 14, 22, 34, 39, 51, 53, 59, 67, 68
2.5	3.6	Derivatives of Log and Inverse Fun.	3,5,9,11,13,17,21,27,29,35,38,39,45,47,49,56,58*,59,63,65,75
	A46	Derivatives of Log and Inverse Fun (**Appendix F**).	**Page 225:** 83-86
1	3.7	Rate of Change in Natural & Social Sci.	1,5,6,7,8,9,11, 35*
1.5	3.9	Related Rates.	1-7,9,12,15,17,25
1	3.10	Linearization and Differentials.	1-5,11,13,17,19,21,27,29,31-36,41,42,51,52
1	4.1	Maximum and Minimum Values.	1,2,3,5,7,11,17,19,27,31,35,42-44,51,53,55,59,66*
1	4.2	The Mean Value Theorem.	1,5,6,9,11,15,17,23,29,30,39
1	4.3	What Deriva Tell us about Graph Shape.	1,7-9,11,12,17,23,26,27,30,31,35,37,39,41,43,44,46,54,60,63,84
2	4.4	Indeterminate Forms & L'Hopital's Rule.	1-4,5,7,9,11,13,15,18,19,21,23,25,27,33,34,37,41,47,51,53,56,75*
2	4.5	Summary of Curve Sketching.	1-8, 11,13,15,21,23,25,27,29,31,34,37,45,51,52,55,67,71,76*
1	4.7	Optimization Problems.	1,3,4,7,8,11,14,18-21,25,26,41,81
1.5	4.9	Antiderivatives.	1,6,7,13,17,19,23,25,27,41,51,61,70,83,91,97,108,113,123
1	5.1	Area and Distance problems.	1-3,7-9,13,15-23, 25*
1	**A36**	Sigma Notation/Finite Sum (**Appendix E**).	1-10, 12,14,17,19,20, 22, 24,27,28,34,36,41,43,45,48-50
1	5.2	The Definite Integral.	1-8,11,14,19,21,23,25,27-34-36,39,41,43,46,52,57,59,61,62,67
1.5	5.3	The Fundamental Theorem of Calculus.	3-6,9,13,15,20,25,31,33,35,37,421,42,49,51,53,63,6771,73,75,77
1	5.4	Indefinite Integrals & Net Change Thm.	1,3,7,9,17,24,31,38,44,46,53,59,61,69
2.5	5.5	The Substitution Rule.	1-8,14,16,21-27,29,32,3537,39,45,51,59,65,70,75,77,84*,93*,98*
1	6.1	Areas Between Curves .	1-7,9,11,13,17,19,21,24,24,30,35,37,41,42,44,61,64*,65*,69*
49.		**Total hours**.	

Course Learning Outcomes (CLO):

After taking this course, the student should be able to:	Contributes to Departmental Learning Outcome(s):
1. Evaluate limits, including the use of L'Hopital's Rule.	a, b, e1, e2
2. Differentiate algebraic and transcendental functions.	a, b, e1, e2
3. Solve maximum and minimum problems.	a, b, c, e1, e2
4. Apply methods of calculus to sketch curves.	a, b
5. Anti-differentiate algebraic and transcendental functions.	a, b, c, e1, e2
6. Approximate integrals by Riemann sums.	e1, e2, g
7. Evaluate elementary integrals using substitution.	a

Department Learning Outcomes (DLO):

(a) perform numeric and symbolic computations,
(b) construct and apply symbolic and graphical representations of functions,
(c) model real-life problems mathematically,
(d) use technology appropriately to analyze mathematical problems,
(e) state (e1) and apply (e2) mathematical definitions and theorems,
(f) prove fundamental theorems,
(g) construct and present (generally in writing, but, occasionally, orally) a mathematical argument.