

BARUCH COLLEGE (CUNY)
Department of Mathematics
MATH 2207 SYLLABUS

Textbook:

Larson, *Brief Calculus, an Applied Approach*, Tenth Edition, Cengage Learning, 2015, ISBN: 9780357896303
This is available as a hardcopy or an ebook.

Students should obtain the “Manual for the Uniform Final Examination.” This is available on the course’s MTH_2207_ALL Blackboard site. Hard copies of this manual are available from SACC (Student Academic Consulting Center), located on the second floor of the Vertical Campus. It also appears on SACC’s web site, <https://sacc.baruch.cuny.edu/>. Faculty schedules, offices and office hours are posted outside the math department office, Room 6-230, and on their office doors.

One of the following calculators **is required**: TI-89, TI-89 Titanium or TI-92 Plus. The TI-83 or TI-84 is **NOT** acceptable.

All students registered in MTH 2207 are automatically included in two Blackboard sites: (1) their MTH 2207 section site, managed by their instructor and (2) the MTH_2207_ALL site managed by the department. The “ALL” site contains the final exam manual as well as the links to various course and final exam videos. (The departmental website address is: www.baruch.cuny.edu/math/)

All Sections are required to use Webassign.

The Webassign homework will correlate with the section number and topic in the textbook.

The textbook and WebAssign access may be purchased at <https://www.cengage.com/shop/isbn/9780357896303>

Note: Any Practice Final Exam Exercise numbered 26 or higher may be worked out using your calculator.

The following assignments are from the Larson text		
Topic	Text	Practice Final Exams
Review of Function Sections 1.3 and 1.4	P.31: 3,9,33,45,47,55,61,79, 89, 91 P.44: 9-16 (all), 25,26,29,30,71,72,75	
Limits and Continuity Section 1.5 and 1.6	P.57: 1,3,5,7,9,25,27,29,31,33,37, 39,43,53,57,59,61, 63,77 P.67: 1-21 (odd), 27,28 ,41,44, 45, D28,F25	B12, B29, A1, C23, D7, E16, F4
Asymptotes Section 3.6	P. 223: 1-15 (odd), 19,20,21, 23,25,29,33,37,39 problems 49,51,55 graph using intercepts and asymptotes	A2, A3, B13, C24, C25, D8, E17, E18, F3, F5, D28, F25,B14
Derivative and Slope of a Curve Section 2.1	P.88: 7,9,11,19, 21, 22,23,27, 29,35,42,44,53,55,56,58	A10, A11, B21, B22, C7, D15, D16, E25, C34, E33
Rules for Differentiation Section 2.2	P.100: 7-27 (odd), 31,33,45, 47, 51,53,55, 57,59,65, 81,82. F26	A9, B20, C6, D14, E24, F1, F6,F26
Rates of Change, Velocity and Marginals Product and Quotient Rules Sections 2.3 and 2.4	P.113: 3-33(odd), 38,39 A30,D34 P.124: 3,7,9,11,13,15,21,23, 25,31,35,42,49,51,55, 57	A21, B8, C15, F26, A30, D33, E26, E27, A6, A7, B17, B18, C3, C4, D11, D12, E21, E22, F29
Chain Rule and Higher Order Derivatives Sections 2.5 and 2.6	P.135: 19-27(odd),39,43,47, 49,51,53,61,62,67,68 P.142: 1,3,5,7,9,19,31,39	A8, B19, C5, D13, E23, F7, F27
Implicit Differentiation Section 2.7	P.149: 1,3,7,8,13,15, 18,21,27,33,39,47	A16, B2, B4, C10, D20, E5
Related Rates Section 2.8	P.156: 1,3,5,9,11,13,15,20,21,24	A17, C11, D21, E7, F8

Topic	Text	Practice Final Exams
Increasing and Decreasing Functions Section 3.1	P.175: 1, 3, 17, 19, 21, 22, 23, 29, 30, 31, 37	A12, A22, D4, E1, E12, F9, B26
Extrema and First derivative Test Section 3.2	P.184: 1,3,5,9,11,13,17,19,21, 23,25,29,35,47,49 A26,A32,C30,E32	A14, B11, B24, C8, C21, C22, D6, D18, E3, A26, C30, E32
Concavity and the Second Derivative Test, Section 3.3	P.193: 1-4(all),5,7,13,18,20, 21,24,25,35,39,43, 51-56 (all), A27,F27	A15, B3, B25, D19, E4, E6, A27, D30
Curve Sketching, Summary Section 3.7	P.233: 5,7,9,10,15,16,23,27,29	A32
Optimization Section 3.4	P.201: 1,3,5,6,13,14,15,17,29	A20, B7, B10, C14, D5, D24, E10
Business and Economic Applications Section 3.5	P.212: 1,5,9,10,13,15,17,21	C17, D25, E11, E13, A33, C31
Differentials and Derivatives of Exponentials Sections 3.8 and 4.3	P.240: 1,3,13,17,21,23,25, 27,33,35,41,42, P.273: 3,5,7,9, 15,17,18, 21, 25,27,29,45,47	A13, B9, B23, C15, D17, E2, C35, A5, B16, C2, D10, E20, F2, F10, A31, B31, C26, D29, D35,
Derivatives of Logarithmic Functions Section 4.5	P.291: 1-19(odd), 47, 48, 49, 53, 77	A4, B15, C1, D9, E19, D34, F28
Antiderivatives and Integrals Section 5.1 Integration by Substitution Sections 5.2 and 5.3 (*)	P. 319: 3,5,9,13,15,17,19,21 23,27,31,33,37,41,45, 47,48,52,53,55,57, 61,66,67,69 P. 329: 1,3,15,17,19,28,51,53 P. 336 : 7,21,25,27,31,35,37, 47,53	A18, B6, E8, A29, D32
Areas and the Fundamental Theorem Section 5.4	P. 348: 1,3,9,11,13,17,19,23, 25, 27, 31,33,43,45, 55,57,59	A19, C12, C13, D22, E3, B28, C28, E34
Area of a Region, Consumer Surplus and Producer Surplus Section 5.5	P. 357: 1,3,7,17,21,37,39, 43,45,47	B5, D23, A28, B27, C27, D31, E35

* In Sections 5.2 and 5.3, students are expected to do *basic* substitutions both with and without the calculator.

LEARNING GOALS OF COURSE: Upon completion of this course, students will be able to:

- Compute limits of functions, and use limits to determine the derivative of a function.
- Use appropriate theorems to determine derivatives of algebraic, exponential, and logarithmic functions.
- Interpret the derivative as a rate of change, and apply this interpretation to other disciplines.
- Apply the first and second derivatives to determine the slope and concavity of a graph and locate its extreme points.
- Solve optimization problems in geometry, business, and economics.
- Approximate functions locally using differentials.
- Perform algebraic operations on, and differentiate, exponential and logarithmic functions as needed in problems, with and without a calculator.
- Antidifferentiate functions directly and by change of variable.
- Express the definite integral as the limit of a sum of products; evaluate definite integrals; and find solutions to problems that require definite integrals.
- Determine the area of planar regions by using the definite integral. Apply this skill to compute consumer and producer surplus.

PATHWAYS LEARNING OUTCOMES: This course satisfies the Mathematical and Quantitative Reasoning requirement for the Pathways Required Core. Upon completion of this course, students will be able to:

- Interpret and draw appropriate inferences from quantitative representations, such as formulas, graphs, or tables.
- Use algebraic, numerical, graphical, or statistical methods to draw accurate conclusions and solve mathematical problems.
- Represent quantitative problems expressed in natural language in a suitable mathematical format.
- Effectively communicate quantitative analysis or solutions to mathematical problems in written or oral form.
- Evaluate solutions to problems for reasonableness using a variety of means, including informed estimation.
- Apply mathematical methods to problems in other fields of study.