

**BARUCH COLLEGE (CUNY) - DEPARTMENT OF MATHEMATICS**  
**MATH 2003 SYLLABUS**

Textbook: Gordon, Wang and Materowski, *Applied Calculus for Business, Economics and Finance*, Second Edition, Pearson, 2015. Ordering Information will be found on Blackboard.

- Graphing calculator required: Texas Instruments TI-89 or TI-92 Plus.
- Online homework through MyMathLab required (access may be purchased by following instructions on Blackboard).
- Tutoring is available at SACC, Room 2-116, Vertical Campus, (646) 312-4830
- Videos, Final Exam Review Manual and Text Errata Sheet available at the Blackboard MTH 2003 ALL Blackboard Site.
- Additional Calculator Exercises are posted on the Master Blackboard ALL site in the Course Document tab.
- Answers to the textbook exercises may be found at [www.baruch.cuny.edu/math/Applied\\_Calculus/](http://www.baruch.cuny.edu/math/Applied_Calculus/)

Chapter 0 contains material that the student is expected to know prior to this course; topics in these five sections may be reviewed at the discretion of the instructor. Note the calculator tips in these sections should be looked at carefully.

Exercises in red may be done with a calculator, all others without.

Section	Topic	MyMathLab Assignment	Text (As recommended by Instructor)	Practice Final Exams	Video Links
1.1	The Line	1.1	9, 12, 14, 17, 18, 19, 20, 29, 38, 41, 43, 47, 49, 55, 61, 63, 69, 71, 73, 76, 81, <b>82, 83</b>	A4, B15, B21, C3, C25, D18, D19, D26, E4, E16	<a href="#">Full Lesson</a> <a href="#">Horizontal/Vertical lines</a> <a href="#">Finding equations of lines</a> <a href="#">Graphing lines</a> <a href="#">Parallel and perpendicular lines</a>
1.2	Applications of Linear Functions	1.2	4, 5, 7, 10, 12, 13, 16, 19, 21, <b>23</b>	A6, B31, C34, D28, E5	<a href="#">Full Lesson</a> <a href="#">Linear Cost/Revenue/Profit</a> <a href="#">Linear Cost/Revenue/Profit Example</a> <a href="#">Linear depreciation</a>
1.3	Regression	1.3	5, 9, <b>11,12</b>	A19, A34, B29, C20, D34, E30	<a href="#">Full Lesson</a> <a href="#">Linear regression on TI-89</a>

Section	Topic	MyMathLab Assignment	Text (As recommended by Instructor)	Practice Final Exams	Video Links
1.4	Basic Notions of Functions	1.4	1 –19 (odd), 22, 26, 30, 43, 45, 55, 57, 67, 68, 72, 74, 83, 85, 88, <b>90, 92, 93</b>	A5, A8, A27, B8, B9, B22, C1, C35, D2, E2, E3	<a href="#">Full Lesson Part 1</a> <a href="#">Full Lesson Part 2</a> <a href="#">Domain of rational function example</a> <a href="#">Domain of square-root function example</a> <a href="#">Difference quotient example</a> <a href="#">Composition of functions</a>
1.5	Quadratic Functions - Parabolas	1.5	1 –15 (odd), 22, 25, 27, 30, 34, <b>40, 41</b>	A9, A21, B7, D22, E13	<a href="#">Full Lesson</a> <a href="#">Graphing parabolas</a> <a href="#">Graphing parabolas in standard form example</a> <a href="#">Graphing parabolas in vertex form example</a> <a href="#">Projectile motion</a> <a href="#">Minimize cost</a>
1.6	More on Functions	1.6	2, 4, 5, 7, 10, 13, 15, 18, 21, <b>22, 24</b> , 28, 31, 42	A3, A20, A25, A26, B6, B14, B23, B33, C2, C4, C8, C9, C11, D1, D23, D25, D30, D33, D35, E7, E11, E23, E27, E35	<a href="#">Full Lesson Part 1</a> <a href="#">Full Lesson Part 2</a> <a href="#">Intervals where a function is positive/negative</a> <a href="#">Even/odd functions</a>
1.7	The Circle	1.7	1 –21 (odd), 22, <b>29</b> , 32, <b>34</b>	A7, B20, D12, E18	<a href="#">Full Lesson</a> <a href="#">Completing the square to obtain standard form of a circle</a>
1.8	Economic Functions	1.8	1, 3, 7, 8, <b>10, 13</b> , <b>21, 23</b> , 28, 30, 33	A24, A32, B12, B18, B34, C13, C24, D11, D21, E15, E21, E22	<a href="#">Full Lesson</a> <a href="#">Market equilibrium example</a> <a href="#">Maximize revenue/profit example</a>
Chapter One Review			10, 11, 12, 21, 24, <b>25</b> , 34		

Section	Topic	MyMathLab Assignment	Text (As recommended by Instructor)	Practice Final Exams	Video Links
2.1	Slope of a Curve (and Derivatives)	2.1 (Note that the 4- step process is the definition of the derivative)	7, 9, 11, 14, 15, 20, 26, 28, 29, 31, 32, 33, 34, 36, 37,	A22, B27, C26, E28	<a href="#">Full Lesson Part 1</a> <a href="#">Full Lesson Part 2</a> <a href="#">Limit definition of derivative examples</a>
2.2	Derivative Rules 1	2.2	3, 4, 6, 11, 13, 15, 17, 20, 21, 26, 28, 30, 34	A11, A15, A23, A31, B13, B32, C16, C27, C28, D7, D13, E1, E9, E14	<a href="#">Full Lesson</a> <a href="#">Power Rule</a> <a href="#">Power Rule (additional examples)</a> <a href="#">Tangents of polynomials</a>
2.3	Limits and Continuity	2.3	1 – 23 (odd), 24, 30, 31, 33, 34, 44, 47, 51, 58, 76, 77	A1, A2, B2, B4, B30, C6, C7, C30, D5, D17, D20, D27, E6, E8, E12, E24	<a href="#">Limit examples</a> <a href="#">Removable discontinuity (factoring)</a> <a href="#">Removable discontinuity (conjugate)</a>
2.4	Limits at Infinity, Infinite Limits and Asymptotes	2.4	1 – 25, 31, 33, 35, 38, 39, 41, 45	A33, B5, B11, C5, C12, D6, E17, E26, E29	<a href="#">Full Lesson</a> <a href="#">Vertical Asymptotes</a> <a href="#">Limits at infinity/horizontal asymptotes</a> <a href="#">More limits at infinity examples</a> <a href="#">Finding horizontal asymptotes</a>
2.5	Derivative Rules 2	2.5	1, 3, 4, 6, 7, 9, 12, 15, 16, 23, 27, 28	B16, B24, C10, D3, D8, E25	<a href="#">Full Lesson Part 1</a> <a href="#">Full Lesson Part 2</a> <a href="#">Product Rule</a> <a href="#">Quotient Rule</a>

Section	Topic	MyMathLab Assignment	Text (As recommended by Instructor)	Practice Final Exams	Video Links
2.6	The Chain Rule	2.6	3, 7, 9, 13, 14, 16, 17, 20, 21, 26, 28, 30	A10, A12, A18, B10, B35, C15, C29, D10, E10	<a href="#">Full Lesson</a> <a href="#">Chain Rule examples</a> (beginning-4:11, 9:11-end)
2.7	Marginal Functions and Rates of Change	2.7 (Note that the "4- step process" is the definition of the derivative)	1, 3, 5, 14, 16, 19, 20, 29	A35, B17, B26, C21, C23, C32, D16, D24, D29, E33, E34	<a href="#">Full Lesson</a> <a href="#">Marginal cost, revenue, profit</a> <a href="#">Physics</a> <a href="#">Average rate of change example</a>
2.8	Implicit Differentiation	2.8	3, 8, 10, 12, 15, 19, 20, 21, 22	A14, B1, C22, D4	<a href="#">Full Lesson</a> <a href="#">Implicit differentiation examples</a>
2.10	Related Rates	2.10	3, 5, 8, 10, 13, 14, 20, 23	A13, A30, B3, C14, C31, D9	<a href="#">Area of a circle</a> <a href="#">Area of a rectangle</a> <a href="#">Falling ladder</a>
Chap. Two Review			1 – 21		

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

- Represent functions algebraically and graphically.
- Compute limits of functions, and use limits to determine the derivative of a function.
- Use appropriate theorems to determine derivatives of algebraic functions.
- Interpret the derivative as a rate of change, and apply this interpretation to other disciplines.
- Use a graphing calculator to perform various calculations occurring in precalculus and calculus.

**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.