

Syllabus for MTH 2240 – Applied Calculus

Textbook: Calculus by Hoffmann, Bradley, Sobecki, and Price, 11th ed. McGraw Hill

Calculator: a graphing calculator such as the TI-84 is required for this course. *Calculators capable of symbolic differentiation (for example, the TI-89) cannot be used in this course.*

Wright State Core: MTH 2240 is an option for Element 2: Mathematics of the Wright State Core. It meets University Learning Objective 2: “Demonstrate Mathematical Literacy”. It also addresses the learning outcomes for Element 2, which are:

- a. Identify the various elements of a mathematical or statistical model
- b. Determine the values of specific components of a mathematical/statistical model or relationships among various components
- c. Apply a mathematical/statistical model to a real-world problem
- d. Interpret and draw conclusions from graphical, tabular, and other numerical or statistical representations of data
- e. Summarize and justify analyses of mathematical/statistical models for problems, expressing solutions using an appropriate combination of words, symbols, tables or graphs

Topics: This course has been divided into 49 days. It is suggested that the instructor cover a section in the recommended number of days (the remaining days are for in-class projects, review, or tests), but an instructor may choose to cover sections in more or fewer days than is listed below.

Days	Section	Suggested Homework Problems
2	1.1 Functions	9, 14, 21, 22, 29, 32, 35, 36, 38, 43, 51, 55 63, 69, 70, 71, 73, 76, 77
1	1.2 The Graph of a Functions	11, 19, 27, 31, 32, 37, 50, 53, 55, 57
1	1.3 Lines and Linear Functions	1, 5, 13, 14, 16, 17, 22, 25, 28, 33, 35, 40, 41, 47, 50, 54, 57
2	1.4 Functional Models	1, 2, 6, 9, 26, 28, 42, 45 46, 47, 48, 57, 59, 60
3	1.5 Limits	1, 3, 4, 5, 6, 39, 40, 42 7, 11, 12, 13, 15, 16, 17, 20, 22, 23 27, 29, 31, 32, 34, 35, 38
1	1.6 One-sided Limits and Continuity	1, 4, 7, 10, 15, 18, 20, 21, 27, 30, 35, 38, 47, 48
2	2.1 The Derivative	3, 5, 6, 9, 18, 19, 24 30, 33, 34, 37, 52, 56
2	2.2 Techniques of Differentiation	9, 12, 13, 14, 17, 18, 21, 22, 24, 25, 29, 32 35, 40, 45, 52, 53, 59, 60, 61, 63
2	2.3 Product/Quotient Rules; Higher Order Derivatives	1, 4, 8, 11, 22, 23, 27, 32, 35, 41 43, 44, 58, 59, 65, 67, 68

3	2.4 The Chain Rule	3, 6, 9, 16, 17, 23, 24, 25, 28, 29, 30 31, 33, 35, 36, 37, 43, 44, 47 57, 58, 65, 67, 75, 76
2	2.5 Marginal Analysis and Approximations Using Increments	3, 7, 8, 9, 13, 14 22, 23, 24, 26, 29
2	3.1 Increasing and Decreasing Functions and Relative Extrema	1, 2, 3, 5, 6, 12, 13, 19, 23, 26 35, 36, 43, 49, 50, 51, 70, 71
3	3.2 Concavity and Inflection Points	1, 2, 7, 8, 11, 39, 42 15, 16, 19, 21, 45, 46 27, 28, 29, 30, 31, 49, 50, 51
2	3.3 Curve Sketching	1, 3, 5, 8, 9, 12, 13, 14 17, 23, 24, 26, 33, 34, 56
2	3.4 Optimization	3, 5, 6, 7, 8, 9 11, 12, 15, 29, 45, 46, 51, 58
2	3.5 Additional Applied Optimization	1, 2, 5, 6, 13, 14 31, 34, 39, 45, 46
2	4.1 Exponential Functions and Continuous Compounding	1, 3, 5, 10, 11, 13, 16, 19, 21, 22, 27 35, 36, 60, 61, 64, 65, 67, 70, 73
2	4.2 Logarithmic Functions	1, 4, 5, 7, 9, 12, 23, 24, 27, 30, 31, 36 50, 51, 57, 58, 65, 66, 70
2	4.3 Differentiation of Exponential & Logarithmic Functions	2, 3, 5, 8, 9, 13, 15, 18, 19, 21, 24 40, 48, 53, 54, 83, 84, 85, 87
2	4.4 Additional Applications and Exponential Models	2, 7, 11, 12, 14, 18, 39, 40, 41, 52, 54, 60
2	5.1 Indefinite Integration	5, 10, 13, 14, 15, 16, 19, 23, 25, 27 39, 40, 42, 59, 62, 64, 65, 71
2	5.2 Integration by Substitution	1, 5, 7, 9, 11, 12, 14, 15, 21, 22, 23 25, 26, 45, 46, 62, 67, 68
3	5.3 The Definite Integral and Fundamental Theorem of Calculus	3, 4, 6, 7 19, 21, 28, 29, 31, 35, 36, 41, 42, 43 51, 52, 54, 55, 73, 74, 77, 79
2	5.4 Applying Definite Integration and Average Value	1, 4, 5, 6, 9, 11, 12, 17 25, 26, 53, 56, 59