

**Department Syllabus for MTH 2280 (Business Calculus)**  
**Department of Mathematics and Statistics, Wright State University**

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**Prerequisites:** MTH 1280 Minimum Grade of D or MPL 40

**Textbook:** *Applied Calculus*, 7<sup>th</sup> edition, by Hughes-Hallett et al. Wiley.

**Calculator:** A scientific calculator is required for this course. A graphing calculator like the TI-84 is strongly recommended, but those capable of symbolic manipulation (e.g. TI-89/92, TI-nSpire CAS, HP Prime) are not allowed.

Chapters/Sections	Days	Suggested Problems	
1: Functions and Change	1.1	1	1, 4, 6, 8, 11-13, 23-27, 30, 34, 49
	1.2	1	1, 5, 9, 10, 13, 16, 17, 27, 35
	1.3	1	1, 2, 4-7, 9, 16, 20, 54
	1.4	2	1-5, 8, 11, 17, 21, 23, 29, 38, 45
	1.5	1	1-4, 8, 10, 31, 38
	1.6	1	2, 10, 18, 22, 24, 35, 36, 39, 46
	1.7	1	3, 5, 8, 9, 16, 44, 46, 48, 52
2: Rate of Change: The Derivative	2.1	2	1-3, 5, 7, 9, 12, 13, 16, 17, 22, 23, 30, 31, 36, 37
	2.2	2	1, 3-5, 8, 9, 12, 17, 21, 33
	2.3	1	4, 8, 20, 35, 36, 49, 58, 61
	2.4	1	1-10, 12, 14, 16, 17, 19, 21, 23, 26, 28, 29, 33, 38
	2.5	1	1-4, 7-10, 13-16, 18
3: Shortcuts to Differentiation	3.1	2	2, 7, 16, 17, 22, 23, 26, 29, 41, 42, 46, 48, 49, 52, 54, 61, 63, 72-74
	3.2	2	1, 6, 16, 17, 25, 35, 38, 41, 44-47, 54, 56, 58, 60
	3.3	2	6, 8, 9, 18-20, 29, 35, 39, 40, 44, 46, 51, 52
	3.4	2	5, 13, 14, 17-19, 25, 26, 28, 33, 35, 41, 45, 46, 53
4: Using the Derivative	4.1	2	2, 4, 5, 7, 11, 21, 22, 30, 38, 40, 42, 44
	4.2	2	2, 4, 7, 8, 11, 14, 27, 31, 34
	4.3	1	2, 6, 9, 10, 18, 21, 22, 32, 34, 37, 43
	4.4	2	1, 5, 7-11, 20, 24, 26, 28
	4.5	1	1, 3, 4, 6-11, 13
	4.6	1	1, 5, 7, 12-15, 18
	4.7	1	2-5, 10, 13, 14
5: Accumulated Change: The Definite Integral	5.1	2	5, 8, 13, 24, 27, 31, 32, 39
	5.2	2	1, 5, 18, 20, 24-27, 39
	5.3	1	1, 3, 5-8, 10-17, 21, 38, 39
	5.4	1	1, 6, 7, 10, 24
	5.5	1	2, 8, 12, 14, 16, 18
6: Antiderivatives and Applications	6.1	1	7, 8, 11, 12, 15, 23, 26, 33
	6.2	2	3, 10, 11, 20, 28, 56, 57, 59, 60, 64, 86, 94
	6.3	2	2, 5, 6, 14, 16, 20, 25-27, 31, 33
	6.4	2	3, 4, 7, 9, 10, 15

**Topics:** This course has been divided into 47 days; the remaining 7 or 8 days of the semester are to be used for exams, review, more time on required sections, class activities (see below), extra/optional sections, etc. The number of days per section and the suggested homework problems are recommended, but instructors may make adjustments as needed.

**Class Activities:** Instructors are strongly encouraged to incorporate in-class groupwork, labs (pencil and paper, Excel, etc.), and other active learning experiences into their courses. The recommended schedule includes time for these activities.

**WileyPLUS:** WileyPLUS is an online homework system that also contains the eBook and other resources. Access to WileyPLUS is included with the student's tuition via inclusive access/courseware. *Instructors are required to use WileyPLUS so students can access the eBook; online homework is optional (but encouraged).*

**Course Learning Objectives/Outcomes:** At the completion of the course, students will be able to (or, students successfully completing this course can):

1. Estimate derivatives and integrals numerically and graphically.
2. Apply shortcuts/rules to calculate derivatives and integrals exactly.
3. Interpret derivatives and integrals in context with correct units.
4. Apply derivatives and integrals to solve business problems.
5. Use marginal analysis to make business decisions.

**Wright State Core:** MTH 2280 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 representation 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