

**Syllabus for MTH 2300 — Calculus I**  
 DEPARTMENT OF MATHEMATICS AND STATISTICS, WRIGHT STATE UNIVERSITY

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**Text: OpenStax, Calculus Volume 1**

**Free PDF version at <https://openstax.org/details/books/calculus-volume-1>**

Section	Week	Sample Homework Assignment
<b>Chapter 2: Limits</b>		
2.1 A preview of Calculus	1	4-6, 16, 17
2.2 The Limit of a Function	1	30, 31, 38, 42, 44, 48, 50-54, 68-70, 78, 82
2.3 The Limit Laws	1	84, 90, 94, 98, 102, 111, 114, 116, 120, 122, 126, 130
2.4 Continuity	2	136, 138, 144, 154, 158, 168, 173
<b>Chapter 3: Derivatives</b>		
3.1 Defining the Derivatives	2	14, 26, 28, 34, 42, 44, 46, 47, 51
3.2 The Derivative as a Function	3	58, 60, 62, 66, 67, 70, 79, 90, 96-98
3.3 Differentiation Rules	3	108, 110, 112, 115, 119, 128, 132, 136, 142, 144, 146
3.4 Derivatives as Rate of Change	3	151, 152, 157, 159, 160, 161, 165
3.5 Derivatives of Trigonometric Functions	4	179, 180, 181, 182, 187, 189, 191, 196, 197, 198
3.6 The Chain Rules	4	218, 222, 223, 224, 226, 227, 233, 236, 237, 239, 246, 247, 248
3.7 Derivatives of Inverse Functions	5	262, 265, 273, 274, 295, 296
3.8 Implicit Differentiation	5	303, 304, 309, 311, 315, 316, 321, 325
3.9 Derivatives of Exponential and Logarithmic Functions	6	333, 335, 338, 341, 343, 344, 354, 356
<b>Chapter 4: Application of Derivatives</b>		
4.1 Related Rate	6	2, 5, 9, 10, 25, 27, 42
4.2 Linear Approximations and Differentials	7	50, 52, 54, 56, 58, 60, 74, 76, 78, 80, 84, 86
4.3 Maxima and Minima	7	100, 102, 104, 106, 108, 114, 117, 119, 122, 130, 133
4.4 The Mean Value Theorem	8	158, 160, 168, 170, 172, 174, 180, 186, 188, 190
4.5 Derivatives and the Shape of a Graph	8	202, 204, 206, 210, 212, 214, 216, 220, 226, 230, 232, 234
4.6 Limits at Infinity and Asymptotes	8/9	262, 264, 266, 267, 272, 274, 277, 281, 290, 293, 294, 296
4.7 Applied Optimization Problems	9	315, 318, 320, 322, 323, 326, 330, 331, 344, 346, 351, 355
4.8 L'Hopital's Rule	9	370, 373, 375, 377, 380, 381, 384, 390, 392, 395
4.10 Antiderivatives	10	467, 471, 478, 480, 485, 487, 494, 497, 500, 509, 513
<b>Chapter 5: Integration</b>		
5.1 Approximate Areas	10	12, 15, 20, 24, 38, 40
5.2 The Definite Integral	11	70, 72, 76, 78, 84, 88, 90, 92
5.3 The Fundamental Theorem of Calculus	11	150, 153, 155, 160, 172, 176, 180, 182, 186, 195
5.4 Integration Formulas and the Net Change Theorem	12	208, 210, 212, 214, 222, 224, 226
5.5 Substitution	12	258, 262, 265, 267, 269, 271, 275, 282, 292, 294

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**Common Final Examination:** All sections of MTH 2300 take common final exams at the time given in the Registrar's schedule (<http://www.wright.edu/registrar/forms-resources/exam-schedules>). *This includes evening sections.* By registering for this course you accept responsibility for taking the common final exam as scheduled and bringing a photo ID. Calculators capable of symbolic calculus are not permitted on the common final.

**Optional Sections:** Instructors are free to include material from a limited number of additional sections in the textbook. However such material will not be tested on the common final.

**Schedules and Assignments:** Twelve weeks of material are listed, leaving two weeks for exams, review, optional sections, etc. Weeks are given only as a guide to the instructor; they are not a suggested schedule. Assignments are examples only but indicate the material eligible for the common final.

**Wright State Core:** MTH 2300 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

**Calculus Lab:** Your instructor will decide the content and format of the lab session. It could be a help session on homework, a separate problem-solving session, or a lab with Mathematica.

Laboratory Notebooks for Mathematica are available in 170MM and 270MM via the desktop icons "Math Shared" or "Math Alias". They can be downloaded from

<http://www.wright.edu/~richard.mercer/Calculus/Lab/Download/> .