

Syllabus for MTH 2310 — Calculus II
 DEPARTMENT OF MATHEMATICS AND STATISTICS, WRIGHT STATE UNIVERSITY

Text: OpenStax, Calculus Volume 2

Free PDF version at <https://openstax.org/details/books/calculus-volume-2>

Section	Week	Sample Homework Assignment
Chapter 1: Integration		
1.6 Integrals Involving Exp and Log Functions	1	329, 331, 333, 334, 335, 339, 355, 356, 357, 358, 363, 364
1.7 Integrals Resulting in Inverse Trig Functions	1	392, 393, 395, 398, 400, 402, 412, 423, 424, 425, 426
Chapter 2: Application of Integration		
2.1 Areas between Curves	1	2, 3, 5, 6, 7, 9, 16, 17, 20, 21, 22, 30, 31, 35
2.2 Determining Volumes by Slicing	2	63, 69, 70, 76, 79 (add $x = \frac{\pi}{4}$), 81, 87, 92
2.3 Volumes of Revolution: Cylindrical Shells	2	123, 124, 128, 135, 136, 142, 144, 146, 152, 153
2.4 Arc Length of a Curve and Surface Area	3	169, 171, 172, 173, 176, 182, 186, 192, 195, 200, 203
Chapter 3: Techniques of Integration		
3.1 Integration by Parts	3	9, 10, 11, 15, 16, 19, 25, 30, 39, 40, 42, 66
3.2 Trigonometric Integrals	4	73,75,83,91,94,98,100,104,106,110,112,118,120
3.3 Trigonometric Substitution	4	134,136,138,141,146,147,150,151,160,162,181
3.4 Partial Fractions	5	197,198,201,206,207,211,215,216,227,232
3.7 Improper Integrals	5	348,349,350,351,355,356,359,364,366,368,383,394
Chapter 4: Introduction to Differential Equations		
4.1 Basics of Differential Equations	6	20,22,26,28,32,35,36,40,46,65
4.2 Direction Fields and Numerical Methods	6	68,69,70,73,76,80,83,89,90,91,92,93,96,97,99
4.3 Separable Equations	7	124,127,129,134,138,142,152,156,159,165
Chapter 5: Sequences and Series		
5.1 Sequences	7	1, 10, 27, 40, 46, 50, 51
5.2 Infinite Series	7	69, 81, 87, 92, 93
5.3 The Divergence and Integral Tests	8	138, 146, 153, 158, 160, 178
5.4 Comparison Tests	8	196, 200, 204, 210, 211, 221
5.5 Alternating Series	9	250, 252, 260, 300, 301, 303
5.6 Ratio and Root Tests	9	317, 324, 325, 349
Chapter 6: Power Series		
6.1 Power Series and Functions	9	1--6, 10, 12, 14, 16, 26, 36, 40
6.2 Properties of Power Series	10	64,66,68,70,84,88,90,96
6.3 Taylor and Maclaurin Series	10	120,122,142,146,154
6.4 Working with Taylor Series	11	176,184,194,202,206,208,211,226
Chapter 7: Parametric Equations and Polar Coordinates		
7.1 Parametric Equations	11	2,4,12,20,26,28,40,46,54
7.2 Calculus of Parametric Curve	11	64,66,70,80,86,88,90,98,102,116,122
7.3 Polar Coordinates	12	126,130,136,158,160,164,170
7.4 Area and Arc Length in Polar Coordinates	12	188,192,194,212,214,222,230,238,245,248,252

Syllabus for MTH 2310 — Calculus II
DEPARTMENT OF MATHEMATICS AND STATISTICS, WRIGHT STATE UNIVERSITY

Common Final Examination: All sections of MTH 2310 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. Boldfaced problems require the use of a computer.

Wright State Core: MTH 2310 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/> .