

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

aText: James Stewart, *Calculus: Concepts and Contexts, 4th Edition*

Section	Week	Sample Homework Assignment
1.7 Parametric Curves	1	1.7: 22, 24, 26, 34 , 42; 3.4: 80, 82, 84
4.5 Indeterminate Forms and L'Hospital's Rule	1	1ace, 2ac, 3ac, 4ace, 6, 10, 14, 20, 30, 42, 64, 66
Chapter 5: Integrals		
5.6 Integration by Parts	2	4, 6, 8, 14, 18, 21, 38, 40, 41
Appendix G: Integration of Rational Functions	2	2b, 4b, 6b, 7, 10, 12, 20, 27
5.7 Additional Techniques of Integration	2	2, 4, 6, 8, 12, 14, 16, 18
5.10 Improper Integrals	3	2, 6, 13, 16, 20, 24, 28, 41, 49, 50ab, 55
Chapter 6: Applications of Integration		
6.1 More about Areas	3	4, 6, 12, 14, 22, 23, 32, 39, 41
6.2 Volumes	4	2, 7, 13, 14, 21, 23, 25, 26, 30, 43
6.3 Volumes by Cylindrical Shells	4	2, 6, 8, 14
6.4 Arc Length	4	2, 4, 7, 9, 23, 24
6.6 Applications to Physics and Engineering (omit Hydrostatic Pressure and Force)	5	2, 4, 6, 10, 12, 16, 18, 21, 22, 33, 35, 38, 40
Chapter 8: Infinite Sequences and Series		
8.1 Sequences	5	2, 10, 16, 22, 26, 34, 36
8.2 Series	6	2, 9, 12, 16, 24, 32, 36, 40
8.3 The Integral and Comparison Tests	6	8, 10, 14, 17, 20, 28, 34
8.4 Other Convergence Tests	7	2, 4, 8, 12, 22, 26, 35
8.5 Power Series	7	2, 6, 12, 14, 20, 23
8.6 Representations of Functions as Power Series	8	4, 8, 12, 22, 26, 31
8.7 Taylor and Maclaurin Series	8	2, 12, 20, 24, 30, 40, 44
Chapter 9: Vectors and the Geometry of Space		
9.1 Three-Dimensional Coordinate Systems	9	4, 9, 14, 16, 30, 34
9.2 Vectors	9	6, 8, 12, 16, 18, 19, 21, 22, 24, 29
9.3 The Dot Product	10	1, 4, 8, 14, 17, 21, 24, 26, 34, 39
9.4 The Cross Product	10	1, 2, 4, 6, 14, 18, 24, 30
9.5 Equations of Lines and Planes	11	1bdfhj, 2, 4, 8, 12, 16, 22, 26, 34, 40
9.6 Functions and Surfaces	11	2, 10, 15 , 18, 26, 28
Appendix H.1: Curves in Polar Coordinates	12	2, 4, 10, 14, 15, 18, 23, 29, 46 , 48, 51
Appendix H.2: Areas and Lengths in Polar Coordinates	12	2, 6, 18, 20, 36

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 being at the common final exam 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 chapters 5-9. 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. The weeks given are not meant to correspond to the actual weeks of the semester; they are given only to show that adequate time is available to cover the listed sections. Assignments are examples only but indicate the material eligible for the common final. Boldfaced problems require the use of a computer.

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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

Recommended Laboratory Notebooks:

NOTEBOOK	TEXT SECTION(S)
36 Integration by Parts	5.6
37 Partial Fractions	Appendix G
38 Trigonometric Integrals	5.7
39 Numerical Integration	5.9 (optional)
40 Improper Integrals	5.10
41 Areas in the Plane	6.1
42 Volumes of Revolution	6.2
43 Arc Length	6.4
51 Vectors	9.2
52 Dot Products	9.3
53 Parametric Equations	1.7
61 Cross Products	9.4
70 Sequences and Limits	8.1
71 Numerical Sequences	8.2
72 Convergence	8.3
73 Taylor Polynomials	8.7
74 Taylor Series	8.6, 8.7
75 Euler’s Formula	Appendix I (optional)