

Syllabus for MTH 230 — Calculus II

DEPARTMENT OF MATHEMATICS AND STATISTICS, WRIGHT STATE UNIVERSITY

Text: James Stewart, *Calculus: Concepts and Contexts*, 3rd Edition

Section ‡	Time†	Sample Homework Assignment
Chapter 4: Applications of Differentiation	1 wk	
4.5 Indeterminate Forms & L'Hopital's Rule	1.5	1ace, 2ac, 3ac, 4ace, 6, 11, 14, 25, 28, 37, 56, 58
4.9 Antiderivatives	2	2, 6, 9, 12, 13, 23, 27, 29, 38 , 40, 44, 48, 50
Chapter 5: Integrals	4 wk	
5.1 Areas and Distances	1.5	2, 12, 16, 20, 22
5.2 The Definite Integral	1.5	6, 8, 10, 18, 30 , 32, 37, 42
5.3 Evaluating Definite Integrals	2	4, 6, 8, 12, 16, 20, 22, 48, 50, 52, 54, 56, 61, 66
5.4 The Fundamental Theorem of Calculus	1.5	1, 2, 4, 7, 10, 12, 19, 22, 24
5.5 The Substitution Rule	2	8, 10, 11, 13, 14, 21, 29, 30, 40, 44, 52, 59
5.6 Integration by Parts	1.5	4, 6, 8, 14, 18, 21, 38, 40, 41
Appendix G: Integration of Rational Functions	1.5	2b, 4b, 6b, 7, 10, 12, 20, 27
5.7 <i>Additional Techniques of Integration</i>	0-1	(9, 10, 16, 18, 19, 20, 27)
5.8 <i>Integration Using Tables and CAS</i>	0-1	<i>Instructor's Choice</i>
5.9 Approximate Integration	1	1, 3, 25, 28, 29
5.10 Improper Integrals	2	2, 6, 13, 16, 20, 24, 28, 41, 49, 50ab, 55
Chapter 6: Applications of Integration	2+ wk	
6.1 More about Areas (<i>parametric optional</i>)	1.5	4, 6, 12, 14, 22, 23, 39, 41, (32, 35)
6.2 Volumes (<i>cylindrical shells optional</i>)	2	2, 7, 13, 14, 21, 23, 25, 26, 30, 43
6.3 Arc Length (<i>parametric case optional</i>)	1.5	1, 3, 7, 12, 20 , (2, 4, 17 , 24)
6.4 Average Value of a Function	0-0.5	(4, 5, 11, 14)
6.5 Applications to Physics and Engineering (<i>Hydrostatic Pressure and Force optional</i>)	2.5	2, 4, 6, 10, 12, 16, 18, 21, 22, 33, 35, 38, 40, (16, 18, 23, 30)
6.7 Probability	0-1.5	<i>Instructor's Choice</i>
Chapter 7: Differential Equations	2 wk	
7.1 Modeling with Differential Equations	1.5	2, 3, 7, 9, 12, 14
7.2 Direction Fields and Euler's Method	1.5	3, 4, 5, 6, 8, 11 , 19, 22, 28
7.3 Separable Equations (<i>omit orthogonal trajectories</i>)	2	2, 11, 14, 16, 28, 32, 36, 38
7.4 Exponential Growth and Decay	2	3, 4, 5, 7, 9, 13, 14, 18, 20
7.5 <i>The Logistic Equation</i>	0-1.5	<i>Instructor's Choice</i>

‡ Sections and problems listed in *italics* are optional and will not be tested on the common final exam. Boldface problems require use of mathematical software such as *Mathematica*.

† For the instructor: Suggested time for chapters is in weeks. Time for sections represents suggested number of fifty-minute classroom "hours", based on 4 hours per week. The suggested hours for required sections add to 32.5 out of the 40 nominally available for the non-lab portion of the course. The remaining hours can be allocated for exams, review, projects, optional sections, etc. It is anticipated that optional sections and subsections will typically be omitted.

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Course policy regarding calculators and computers:

Current departmental policy forbids the use of calculators capable of symbolic differentiation or integration on the common final exams of MTH 229 and MTH 230. Your instructor may also forbid them on some or all midterm exams. Examples of calculator models excluded under this policy are the TI-89, TI-92, and HP-48. If you are using such a calculator, you do not need to buy another, but you *do* need to plan to use a different calculator on the common final.

Information regarding Common Final Examination:

All sections of MTH 229 and MTH 230 take common final exams at the time given in the WSU Class Schedule for the Mathematics Common Examination. *This includes evening sections.* If you discover you have a conflict with the final exam, tell your instructor and attempt to resolve it as soon as possible. Final exam times are published in the Class Schedule; by registering for a course you accept responsibility for being at the final exam as scheduled.

Students in all mathematics and statistics classes are expected to bring a picture identification card (such as a WSU student ID or a drivers license) to the final exam.

The common final will not contain questions from optional sections or problems. If optional sections are covered in your class, you will be responsible for that material on midterm exams or quizzes unless your instructor says otherwise.

Laboratory: Richard Mercer, *Calculus II Computer Laboratory Manual*

Lab [‡]	Text	Sample Assignment
Chapter 4: Applications of Differentiation		
	1 wk	
27 Indeterminate Forms	4.5	L27.1, L27.2, L27.8, (L27.7)
28 Antiderivatives	4.9	L28.1, L28.2, L28.3
31 Area	5.1	L31.1, L31.2, L31.6
Chapter 5: Integrals		
	4 wk	
33 Riemann Sums	5.1	L33.1, L33.2, L33.3, L33.4
34 Areas and Limits	5.2, 5.4	L34.1, L34.2, L34.7
32 Area and Functions	5.3, 5.4	L32.1, L32.3, L32.4
35 Substitution	5.5	L35.1acegi, L35.2b, L35.3
36 Integration by Parts	5.6	L36.1bd, L36.2a, L 36.3
37 Partial Fractions	5.7, App. G	L37.1
38 Trigonometric Integrals	5.7	<i>Instructor's Choice</i>
39 Numerical Integrals	5.9	L39.2, L39.3, L39.6
40 Improper Integrals	5.10	L40.2, L40.3, L40.7
Chapter 6: Applications of Integration		
	2+ wk	
41 Areas in the Plane	6.1	L41.1, L41.2, L41.3
42 Volumes of Revolution	6.2	L42.1, L42.3
43 Arc Length	6.3	L43.1, L43.2, L43.4
Chapter 7: Differential Equations		
	2 wk	
45 Differential Equations	7.2, 7.3	L45.1, L45.2, L45.3, L45.4, L45.5, L45.8

[‡] Labs listed in *italics* are optional. Instructors should feel free to modify the lab syllabus to suit their approach.