

SYLLABUS FOR MATH 2260

Text: Hass, Weir, and Thomas, *University Calculus*
Summer, 2007

<u>Section</u>	<u>Topics and Recommended Exercises</u>	<u># Days</u>
Chapter 5: The Integration		
	Review definition of the integral, Fundamental Theorem of Calculus, area, and integration by substitution	5
Chapter 6: Applications of Definite Integrals		
6.1	Volumes by Slicing and Rotation About an Axis §6.1: #1, 3, 7, 8, 11, 13, 15, 17, 19, 22, 23, 27, 28, 29, 35, 39, 41, 45, 49, 50, 51	3
6.2	Volumes by Cylindrical Shells §6.2: #1, 3, 5, 7, 11, 15, 21, 23, 25, 28, 34, 39	2
6.3–6.4	Lengths of Plane Curves, Areas of Surfaces of Revolution §6.3: #1, 3, 9, 11, 17, 27, 29, 33; §6.4: #9, 13, 14, 21, 29	2
6.5	Exponential Change and Separable Differential Equations §6.5: #1, 3, 9, 11, 19, 21, 24, 29, 30, 35, 37, 41	3
6.6	Work §6.6: #1, 3, 5, 6, 7, 8, 11, 12, 13, 14, 15, 19, 22, 23 Additional and Advanced Exercises: #1, 6, 7, 11, 15	2
Chapter 7: Techniques of Integration		
7.1	Integration by Parts §7.1: #1, 4, 5, 7, 9, 11, 22, 29, 33, 35, 37, 43, 44, 48	2
7.2	Trigonometric Integrals §7.2: #1, 3, 7, 11, 15, 17, 23, 41, 43	2
7.3	Trigonometric Substitutions §7.3: #1, 3, 5, 7, 13, 16, 19, 21, 29, 39, 41	2
7.4	Integration of Rational Functions by Partial Fractions §7.4: #1, 3, 9, 11, 15, 19, 21, 29, 30, 35, 37, 43, 49	2
—	Miscellaneous integration problems Practice Exercises, p. 499: #69–98 (except 91), as needed	1
7.6*	Numerical Integration §7.6: #3, 9, 23, 25, 32	2
7.7	Improper Integrals §7.7: #1, 3, 5, 7, 11, 15, 35, 37, 41, 47, 51, 53, 55, 63, 67, 68, 69, 70, 74 Additional and Advanced Exercises: #8, 10, 11, 12, 25, 27, 29, 30, 31, 32	2

Chapter 8: Infinite Sequences and Series

8.1	Sequences	2
	§8.1: #7, 11, 13, 17, 19, 23, 25, 27, 33, 41, 43, 45, 49, 59, 66, [86], 93	
8.2	Infinite Series	2
	§8.2: #1, 3, 5, 7, 11, 15, 23, 25, 27, 29, 35, 37, 39, 41, 42, 43, 45, 47	
8.3	The Integral Test	1
	§8.3: #1, 2, 3, 4, 5, 6, 9, 10, 19, 20, 23, 27, 33, [41]	
8.4	Comparison Tests	1
	§8.4: #1, 3, 4, 5, 8, 9, 10, 17, 19, 20, 25	
8.5	The Ratio [and Root] Tests	1
	§8.5: #2, 3, 5, 9, 15, 19, 21	
8.6*	Alternating Series, Absolute and Conditional Convergence	1
	§8.6: #1, 2, 3, 5, 11, 13, 15, 19, 27	
8.7	Power Series	2
	§8.7: #1, 2, 3, 5, 9, 11, 13, 33, 35, 36, 37, 39, 40, 41	
8.8	Taylor and Maclaurin Series	1
	§8.8: #1, 3, 5, 7, 9, 11, 13, 21	
8.9	Convergence of Taylor Series	3
	§8.9: #1, 4, 7, 8, 9, 13, 19, 22, 23, 25, 29, 31, 32, 33, 35	
	Additional and Advanced Exercises: #5, 15, 27, 28, 29, 30, 31	

Chapter 10: Vectors and the Geometry of Space

10.1–10.2	Three-Dimensional Coordinate Systems, Vectors	2
	§10.1: #1, 5, 9, 19, 23, 27, 37, 41, 45, 49; §10.2: #5, 12, 13, 19, 23, 25, 33, 37, 41, 43, 45, 47, 49, 51, [52]	
10.3	The Dot Product	1.5
	§10.3: #1, 3, 13, 16, 17, 18 or 19, 21, 24, 29, 33	
10.4	The Cross Product	1.5
	§10.4: #1, 6, 13, 15, 17, 21, 25, 27, 33, 41	
10.5	Lines and Planes in Space	2
	§10.5: #1, 3, 9, 21, 23, 25, 27, 31, 35, 39, 47, 53, 73, [74]	
	Additional and Advanced Exercises: #5, 8, 10, 11, 16, 20, 21, 22, 23	

Sections marked with an asterisk (*) are optional. In order to complete the material on vectors, you may have to skip numerical integration and give somewhat short shrift to some of the material on series. You might want to motivate the material on series by starting with Taylor polynomials, leading to Taylor series and the question of what they mean.

This syllabus allows 9 days for tests and review (based on a 60-day semester). Problems listed in brackets are best saved for the better students, as are the recommended “Additional and Advanced Exercises.”