

SYLLABUS FOR MATH 2260

Text: Hass, Weir, and Thomas, *University Calculus*
Spring, 2012

Section	Topics and Recommended Exercises *	# Days
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 Using Cross-Sections §6.1: # 1, 3, 9, 10 , 13, 15, 16, 17, 18, 19, 21, 24, 25, 29, 30, 31, 37, 41, 43, 47, 51, 52, 53	3
6.2	Volumes Using Cylindrical Shells §6.2: # 1, 3, 5, 7, 11, 15, 21, 27, 29, 32, 38, 47	2
6.3–6.4	Arclength and Areas of Surfaces of Revolution §6.3: # 1, 3 , 23, 31; §6.4: # 9, 13, 14, 21, 29	2
6.5	Work §6.6: # 1, 3, 5, 6, 7, 8, 13, 17, 25 Additional and Advanced Exercises: #1, 6, 7, 11, 15	2
Chapter 7 and 8: Techniques of Integration		
7.2	Exponential Change and Separable Differential Equations §7.2: #1, 3, 9, 11, 23, 25, 28, 33, 34, 39, 41, 46	3
8.1	Integration by Parts §8.1: # 1, 4, 5, 11, 13, 15, 22, 29, 53, 55, 59, 67, 68, 72	2
8.2	Trigonometric Integrals §8.2: # 7, 9, 17, 23, 25, 39, 69, 71	2
8.3	Trigonometric Substitutions §8.3: # 1, 3, 5, 7, 13, 18, 25, 35, 51, 53	2
8.4	Integration of Rational Functions by Partial Fractions §8.4: # 1, 3, 9, 11, 15, 19, 21, 33, 34, 39, 41, 53, 59	2
—	Miscellaneous Integration Problems Practice Exercises [†] , p. 483: # 69 – 96 (except #91), as needed	1
8.6*	Numerical Integration §8.6: # 5, 9, 23, 25, 32	2
8.7	Improper Integrals §8.7: # 1, 3, 5, 7, 11, 15, 36, 37, 41, 48, 52, 53, 56, 63, 67, 69, 70, 74 Additional and Advanced Exercises: #8, 10, 11, 12, 25, 27, 29, 30, 31, 32	2

*Recommended problems in bold are problems coded in WebWork.

They are listed online as **HWT_X.Y_v2** where X.Y denotes the Chapter and Section number.

[†]The Miscellaneous Integration Problems are listed on WebWorK as **HWT_8X_v2**.

Chapter 9: Infinite Sequences and Series

9.1	Sequences	2
	§9.1: #7, 11, 13, 19, 21, 27, 29, 31, 37, 45, 47, 49, 53, 63, 70, [100], 107	
9.2	Infinite Series	2
	§9.2: #7, 11, 41, 49, 51, 53, 55, 61, 65, 67, 69, 70, 71, 73, 75	
9.3	The Integral Test	1
	§9.3: #11, 12, 13, 14, 15, 16, 19, 20, 29, 30, 34, 37, 43, [57]	
9.4	Comparison Tests	1
	§9.4: #17, 19, 20, 21, 26, 27, 28, 32, 33, 34, 45, 46	
9.5	The Ratio [and Root] Tests	1
	§9.5: #18, 19, 20, 21, 25, 26, 31, 32, 35, 37, 38	
9.6*	Alternating Series, Absolute and Conditional Convergence	1
	§9.6: #2, 9, 10, 15, 16, 17, 19, 23, 31	
9.7	Power Series	2
	§9.7: #2, 3, 5, 6, 9, 11, 43, 45, 46, 47, 48, 49, 50, 51	
9.8	Taylor and Maclaurin Series	1
	§9.8: #3, 5, 7, 9, 11, 13, 15, 23	
9.9	Convergence of Taylor Series	2
	§9.9: #1, 5, 11, 12, 13, 17, 37, 40, 41	
9.10	The Binomial Series and Applications of Taylor Series	2
	§9.10: #25, 29, 30, 31, 32, 33	

Chapter 11: Vectors and the Geometry of Space

11.1–11.2	Three-Dimensional Coordinate Systems, Vectors	2
	§11.1: #1, 2, 3, 6, 9, 25, 29, 33, 43, 44, 47, 51, 55;	
	§11.2: #5, 12, 13, 19, 23, 25, 33, 37, 41, 43, 49, 53, [54]	
11.3	The Dot Product	1.5
	§11.3: #1, 3, 13, 16, 17, 18, 19, 21, 24, 31, 35	
11.4	The Cross Product [‡]	1.5
	§11.4: #1, 6, 13, 15, 17, 21, 25, 27, 33, 43, 44	
11.5	Lines and Planes in Space	2
	§11.5: #1, 3, 9, 21, 23, 25, 27, 28, 31, 32, 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 8 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.”

[‡]It’s probably best to *start* with the determinant definition; if you want to derive the geometric interpretation, you can get there using the triple scalar product.