

Syllabus for MTH 231— Calculus III

DEPARTMENT OF MATHEMATICS AND STATISTICS, WRIGHT STATE UNIVERSITY

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

Section ‡	Time†	Sample Homework Assignment	Lab ¹
Chapter 9: Vectors and the Geometry of Space	3.5 wk		
9.1 Three-Dimensional Coordinate Systems	1.0	4, 9, 14, 16, 30, 34	
9.2 Vectors	2.0	6, 8, 12, 16, 18, 19, 21, 22, 24, 29	L51# 2, 4, 5, 7
9.3 The Dot Product	1.5	1, 4, 8, 14, 17, 21, 24, 26, 34, 39	L52# 2, 3, 4, 5
9.4 The Cross Product	1.5	1, 2, 4, 6, 14, 18, 24, 30	L56# 2, 4b, 5
9.5 Equations of Lines and Planes	1.5	1bdfhj, 2, 4, 8, 12, 16, 22, 26, 34, 40	L66# 1ab, 2, 5
Appendix H.1: Curves in Polar Coordinates	1.5	2, 4, 10, 14, 15, 18, 23, 29, 46 , 48, 51	L55# 2, 5, 6
<i>Appendix H.2: Areas and Lengths in Polar Coordinates</i>	<i>0.5</i>	<i>2, 6, 18, 20, 36</i>	
9.6 Functions and Surfaces	1.5	10, 12, 15 , 18, 22, 28	
9.7 Cylindrical and Spherical Coordinates	1.5	2, 6, 8, 10, 14, 18, 22, 36	
Chapter 10: Vector Functions	2.0 wk		
1.7 Parametric Curves	1.5	6, 14, 18, 20, 22, 24 , 27, 32 , 40, §3.5: 69, 74	L53# 1, 3, 4, 5
10.1 Vector Functions and Space Curves	1.0	6, 10, 17-22 , 30, 32	L54# 1ab, 2, 3
10.2 Derivatives and Integrals of Vector Functions	1.5	4, 14, 16, 18, 20, 28, 30, 45, 46	L58# 1ab, 2, 5
<i>10.3 Arc Length and Curvature</i>	<i>0.5</i>	<i>instructor's choice</i>	
10.4 Motion in Space	1.5	4, 14, 20, 24, 26, 35	L57# 2, 3, 4, 6
10.5 Parametric Surfaces	1.5	4, 11-16 , 18, 20, 22, 26	L67# 1, 3
Chapter 8: Infinite Sequences and Series	4.0 wk		
8.1 Sequences	1.5	2, 10, 16, 22, 26, 34, 36	L70# 1, 3, 4, 5
8.2 Series	2.0	2, 9, 12, 16, 24, 32, 36, 40	L71# 1, 3, 4abc
8.3 The Integral and Comparison Tests	2.0	8, 10, 14, 17, 20, 28, 34	
8.4 Other Convergence Tests	2.0	2, 4, 8, 12, 22, 26, 35	L72# 2, 3(i), 4
8.5 Power Series	1.5	2, 6, 12, 14, 20, 23	L73# 1, 2, 3, 7
8.6 Representations of Functions as Power Series	1.5	4, 8, 12, 22, 26, 31	
8.7 Taylor and Maclaurin Series	2.0	2, 12, 20, 24, 30, 40, 44	L74# 1, 2, 3, 5
Appendix I: Complex Numbers	1.5	16, 34, 42, 44, 46, 48	L75# 2, 3, 4, 8

‡ Sections and problems listed in *italics* are optional. You should use the computer on problems listed in **boldface**, even if the text says not to! You do not have to “give reasons for your answers”, even if asked to.

† 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 33 out of the 40 nominally available for the non-lab portion of the course. The remaining hours can be allocated for optional sections, projects, exams, review, etc.

¹ These are suggestions only. Instructors should feel free to modify the lab syllabus to suit their approach.