Syllabus for MTH 2320 — Calculus III

DEPARTMENT OF MATHEMATICS AND STATISTICS, WRIGHT STATE UNIVERSITY

Text: OpenStax, Calculus Volume 3

Free PDF version at https://openstax.org/details/books/calculus-volume-3

Section	Week	Sample Homework Assignment
Chapter 2: Vector in Space		
2.1 Vectors in the Plane	1	1, 2, 11, 16, 18, 25, 29, 34, 35, 45, 53
2.2 Vectors in Three Dimensions	1	61, 63, 65, 67, 68, 70, 73, 76, 78, 83, 85, 87,92,104,111,113
2.3 The Dot Product	1	125, 129, 132, 135, 142, 143, 168, 169, 177, 180
2.4 The Cross Product	1	183, 199, 203, 211, 214, 221, 235
2.5 Equations of Lines and Planes in Space	2	243, 251, 255, 256, 257, 261, 264, 268, 271, 272, 281, 291
2.7 Cylindrical and Spherical Coordinates	2	363, 367, 371,372,375,379,383,385, 390, 393, 396,399, 401
Chapter 3: Vector-Valued Functions		
3.1 Vector-Valued Functions and Space Curves	3	5,6,9,10,16,23,25
3.2 Calculus of Vector-Valued Functions	3	41,42,52,56,63,94,95,100,101
3.4 Motion in Space	3	158,162,183,194
Chapter 4: Differentiation of Functions of Several Variables		
4.1 Functions of Several Variables	4	6, 7, 11, 14, 16, 20, 25, 30, 31, 47, 48, 49, 50, 53, 54
4.3 Partial Derivatives	4	114,116,118,122,124,128,132,135,138,143,145,149,159
4.4 Tangent Planes and Linear Approximations	5	167,169,172,174,176, 183, 184, 186, 194, 198, 209, 211
4.5 The Chain Rule	5	215,217,220, 222, 225,229,232,234,245,250,254,255, 257
4.6 Directional Derivatives and the Gradient	6	262,265,272,275,278,284,287,291,294,296,300,302,306
4.7 Maxima/Minima Problems	6	311, 314, 316, 318, 322, 324, 333, 339, 346,349, 353, 355
Chapter 5: Multiple Integration		
5.1 Double Integrals over Rectangular Regions	7	4, 8, 14, 18, 24, 26, 30, 34, 38
5.2 Double Integrals over General Regions	7	60, 66, 74, 78, 80, 82, 86, 90, 94, 96, 98, 102, 108
5.3 Double Integrals in Polar Coordinates	8	122, 126, 130, 134, 138, 140, 148, 155, 156, 166
5.4 Triple Integrals	8	182, 186, 188, 192, 198, 202, 210, 222, 224
5.5 Triple Integrals in Cylindrical and Spherical Coordinates	9	242, 245, 250, 258, 262, 270, 272, 286, 292
5.6 Calculating Center of Mass and Moments of Inertia	9	298, 306, 322, 328, 346, 348
Chapter 6: Vector Calculus		
6.1 Vector Fields	9	6,12,18,20,26,27,32,33,34
6.2 Line Integrals	10	44,46,48,49,53,56,69,72,84,92
6.3 Conservative Vector Fields	10	105,107,109113,117,119,122,125,130,131,143
6.4 Green's Theorem	10	140,149,151,152,158,16,5,167,171,173,184,201,204
6.5 Divergence and Curl	11	214,217,226,227,232,242,246,252,254
6.6 Surface Integrals	11	274,276,278,281,283,286,292,296,299,303,305,311
6.7 Stokes' Theorem	12	329,331,335,339,344,346,348,351,353,356,367
6.8 The Divergence Theorem	12	378,380,385,387,388,392,394,397,402,410

Optional Sections: Instructors are free to include material from a limited number of additional sections in the textbook.
Schedules and Assignments: Twelve weeks of material are listed, leaving two weeks for exams, review, optional sections, etc. Weeks are given only as a guide to the instructor; they are not a suggested schedule. Assignments are examples only.