Syllabus For SM221P
Fall 2009

Text: CALCULUS, Early Transcendentals, Edition 6e by James Stewart

Day	Section	Topic	Problems
1	12.1	3D Coordinates	**p.769:** 4,5,6,10,13,16,20,22,27,29,30,37
2	12.2	Vectors	**p.777:** 4,6,7,17,20,23,24
3	12.2/12.3	Vectors / Dot Product	**p.777:** 28,31,33,35; **p.784:** 1,7,9,11
4	12.3	Dot Product	**p.784:** 20,23,26,28,37,43,45,51
5	12.4	Cross Product	**p.792:** 3,9,11,13,14,15,19,31,39,43,49
6	12.5	Lines and Planes	**p.802:** 1,4,5,10,12,14,17,24,26,27,51
7	12.5	Lines and Planes	**p.802:** 20,22,33,35,37,43,55,59,66
8	12.6	Cylinders and Quadric Surfaces	**p.810:** 1,3,4,5,7,11,12,14
9	12.6	Cylinders and Quadric Surfaces	**p.810:** 15,23,24,41,42
10	13.1	Vector Functions and Space Curves	**p.822:** 7,9,12,17,19,22,23,41
11	13.2/13.4	Derivatives and Integrals of Vector Functions / Motion in Space	**p.828:** 4,23,26,31 **p.846:** 10,18(a),19,22
12	13.4	Motion in Space	**p.846:** 24,26,27,41
13	13.3/16.2	Arc Length / Line Integrals of Functions	**p.836:** 2,3,11; **p.1043:** 1,3,9,10,34
14		**Review**	
15		**Test 1**	
16	14.1	Functions of Several Variables	**p.865:** 2,9,11,19,21,22,23,26,32,35,36,49,62
17	14.3	Partial Derivatives	**p.888:** 3,10,11,18,19,21,27,28,39
18	14.3	Partial Derivatives	**p.888:** 57,64,70,77,80
19	14.4	Tangent Planes and Linear Approximation	**p.899:** 4,15,19,21,24
20	14.5	The Chain Rule	**p.906:** 2,5,9,13,15,21,37,40,44
21	14.6	Directional Derivatives and the Gradient	**p.920:** 1,5,8,12,17,19,24,28,34
22	14.6	Directional Derivatives and the Gradient [1]	**p.920:** 38,40,53,59
23	14.7	Maximum and Minimum Values	**p.930:** 2,3,4,9,11,19
24		**Review**	
25		**Test 2**	
26	15.1	Double Integrals over Rectangles	**p.958:** 1,5,9,12,14
27	15.2	Iterated Integrals	**p.964:** 5,7,21,24,30
28	15.3	Double Integrals over General Regions	**p.972:** 3,6,10,20,21,23,26
29	15.3	Double Integrals over General Regions 1	**p.972:** 25,40,45,47,52,53,58
30	10.3/15.4	Double Integrals in Polar Coordinates	**p.647:** 1,5,16,17,29,31; p.978: 1-4,8,11,13
31	15.4	Double Integrals in Polar Coordinates	**p.978:** 15,22,25,26,27,29,31
32	15.5	Applications of Double Integrals	**p.988:** 1,7,10,11,13
33	15.6	Triple Integrals	**p.998:** 4,12,13,17,18,21
34	15.6	Triple Integrals	**p.998:** 14,20,33,40,53

35	15.7	Triple Integrals in Cylindrical Coordinates	**p.1004:** 1,3,5,6,9,10(b),11,17,18,19
36	15.7/15.8	Triple Integrals in Cylindrical Coordinates Spherical Coordinates	**p.1004:** 20,23,28 **p.1010:** 1,3,5,6,9,11,13
37	15.8	Triple Integrals in Spherical Coordinates	**p.1010:** 17,19,20,23,26,30
38		**Review**	
39		**Review**	
40		**Test 3**	
41	16.1	Vector Fields	**p.1032:** 1,2,5,6,11,15,16,25,29,33
42	16.2	Line Integrals (of vector fields)	**p.1043:** 13,16,17,19,22,27
43	16.2	Line Integrals (of vector fields)	**p.1043:** 28,32(a),40,41,42,43
44	16.3	The Fundamental theorem for Line Integrals	**p.1053:** 1,2,4,7,11,12,15
45	16.3	The Fundamental theorem for Line Integrals	**p.1053:** 16,17,20,21,23,33
46	16.4	Green's Theorem	**p.1060:** 4,5,7,8,11,18
47	16.5	Curl and Divergence 1	**p.1068**: 1,4,9,10,12,15,17,18,21; p.1107: 37
48	16.6	Parametric Surfaces	**p.1078:** 1,3,4,13,19,20,21,22,23,24,25,26
49	16.6/16.7	Parametric Surfaces /Surface Integrals of Functions	**p.1078:** 33,37,44,46; **p.1091:** 7,8,10,38
50	16.7	Surface Integrals of Vector Fields	**p.1091:** 19,20,21,22,23
51	16.7	Surface Integrals of Vector Fields	**p.1091:** 25,26,41
52	16.9	The Divergence Theorem	**p.1102:** 2,4,6,7,11,12
53	16.9/16.8	The Divergence Theorem / Stokes' Theorem	**p.1102:** 17,19; p.1097: 1,2,3,4
54	16.8	Stokes' Theorem	**p.1097:** 8,9,13
55		**Review**	
56		**Review**	
57		**Test 4**	
58		**Course Review**	
59		**Course Review**	
60		**Course Review**	

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[1] **Note on Proofs:** The syllabus for Calculus III formally includes three proofs of which one will be requested in the common final exam. They are:

- p.916 Theorem 15
- p.973 Exercise 57
- p.1063 Theorem 3

More details later.