

Syllabus for SM221 and SM221P Calculus III

Fall Semester, 2008-2009

TEXT: Multivariable CALCULUS, Early Transcendentals, Edition 6e by James Stewart

1. Please see www.usna.edu/MathDept/website/Courses/Syllabi/2008Spring/221_SYL_Spring08.htm
This site will have the most up to date information about the course, including this syllabus, practice exams, links to the Maple worksheets etc.

2. Calculus III is very geometric in nature. Almost every concept we will study has a corresponding visualization. To help us in this regard, all students in this course are expected to have a calculator like the Voyage 200 with the capabilities to graph and do symbolic calculations. There will be assignments that use such a calculator as well as questions on the common final exam for which it is expected that the student has such a calculator. At the same time the ability to do simple computations by hand is extremely important. The final exam will have a number of problems for which the use of the calculator will not be allowed.

3. If you would like help in the course, you should contact your instructor for extra-instruction. If your instructor is not available, try the **Math Lab**. It is staffed all six periods every class day with instructors who should be able to answer your questions. Also, hard copies of web page information will be kept there (syllabi, practice tests, etc.). Also, the **Midshipman Group Study Program (MGSP)** will be available evenings from Sunday through Thursday. Upper class midshipmen will be available to help as you work on Calculus III in groups. More information will be given to you about the particulars of MGSP at the start of the semester.

4. The two labs included in the syllabus were created to illustrate the concepts in this course. Your instructor may or may not assign them.

LESSON	SECTION & TOPIC	PROBLEMS
1.	12.1/2 Review 3-D and Vectors	p. 769: 3,4,8,10,27,31; p. 777: 6,16,22,27
2.	12.3/4 Review Dot & Cross Prod	p. 784: 8,10,19,38,48; p. 792: 5,7,14,18,19,31 Torque
Wrench Lab		
3.	12.5 Review Lines and Planes	p. 802: 5,16,24,30,40,43
4.	12.6 Cylinders and Quadric Surfaces	p. 810: 3,4,7,11,14,21-28,41
5.	13.1 Vector Functions & Space Curves	p. 822: 1,5,6,7,9,12,17,19-24,41
6.	13.2 Derivatives & Integrals of Vector Functions	p. 828: 5,9,13,19,21,29,31,33,35
7.	13.3 Arc Length	p. 836: 1,4,5,9,11
8.	13.4 Motion in Space thru p842	p. 846: 1,2,3,5,7,9,13

9.	13.4 Continued	p. 846: 15,17,19,23,25,28,29
10.	Review	
11.	Test on Chapters 12 & 13	
12.	14.1 Func of Several Var.	p. 865: 2,11,20,21,22,23,30
13.	14.1 Continued	p. 865: 32,34,35,55-60,62
14.	14.3 Partial Derivatives	p. 888: 3,4,10,16,19,20,24,27,39
15.	14.3 Partial Derivatives	p. 888: 6,7,36,57,63,70a,b,c,e,77,80, Hill Web Lab
16.	14.4 Tangent Planes & Linear Approximations (omit differentials)	p. 899: 4,14,15,19,24
17.	14.5 Chain Rule	p. 907: 2,5,9,10,21,23,37,40,42
18.	14.6 Directional Derivative & the Gradient Vector	p. 920: 1,5,12,17,24,28
19.	14.6 Continued	p. 920: 31,34,38,40,55,59
20.	14.7 Max and Min Values	p. 930: 2,4,9,11,15
21.	Review	
22.	Test on Chapter 14.	
23.	15.1 Double Integrals over Rectangles	p. 958: 1,5,9,12,14
24.	15.2 Iterated Integrals	p. 964: 5.7.15.24.30
25.	15.3 Double Integrals over General Regions	p. 972: 3,6,9,10,15,21
26.	15.3 Continued	p. 972: 26,31,40,47,52,58
27.	10.3 Polar Coordinates	p. 647: 1,5,9,12,16,17,21,22,29,31
28.	15.4 Double Integrals in Polar Coordinates	p. 978: 1,2,3,4,8,10,11,13
29.	15.4 Continued	p. 978: 15,22,25,27,29,31
30.	15.5 Applications	p. 988: 1,3,7,9,11,13
31.	15.6 Triple Integrals	p. 999: 3,6,12,13,17,21
32.	15.6 Continued	p. 999: 14,20,33,39,40
33.	15.7 Triple Integrals-Cylindrical	p. 1004: 1,3,5,6,9,11,15
34.	15.7 Continued	p. 1004: 17,18,19,21,25,27
35.	15.8 Triple Integrals-Spherical	p. 1010: 1,3,5,6,7,9,11,13,17
36.	15.8 Continued	p. 1010: 19,20,21,22,23,26,30
37.	Review	
38.	Test on Chapter 15	
39.	16.1 Vector Fields	p. 1032: 1,2,5,6,11,15-18,25,29
40.	16.2 Line Integrals	p. 1043: 3,5,8,13,14,17,19
41.	16.2 Continued	p. 1043: 22,33,40,41,43
42.	16.3 Fundamental Theorem for Line Integrals	p. 1053: 1,2,3,5,7,11
43.	16.3 Continued	p. 1053: 15,16,20,23,28
44.	16.4 Green's Theorem	p. 1060: 1,3,4,5,7,9
45.	16.4 Continued	p. 1060: 11,13,17,18

46.	16.5 Curl & Divergence	p. 1068: 1,2,4,5,8,9,11
47.	16.5 Continued	p. 1068: 12,13,16,18,21,22
48.	16.6 Parametric Surfaces	p. 1078: 1,3,4,13-18
49.	16.6 Continued	p. 1078: 23,24,25,37,38,41,44
50.	16.7 Surface Integrals	p. 1091: 5,7,8,9,10,13,15
51.	16.7 Flux Integrals	p.1091: 19,20,21,22,25,
52.	16.7 Continued	p. 1091 23,24,26,41,43
53.	16.9 Divergence Theorem	p. 1103: 2,4,5,7,11
54.	16.9 Continued	p. 1103: 12,13,17,19,24
55.	16.8 Stokes' Theorem	p. 1097: 1,2,3,4
56.	16.8 Continued	p. 1097: 8,9,13
57.	Review	
58.	Test on Chapter 16	
59.	Review	
60.	Review	

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