

SYLLABUS FOR SM122 FALL SEMESTER 2012 - 2013

TEXT: CALCULUS, Early Transcendentals, 7e by James Stewart

Problems in **bold and underlined** are WebAssign.

* Indicates a proof which may be on the final exam.

LESSON	MTWF	MWRF	SECTION	TOPIC	ASSIGNMENT	WEB ASSIGN DUE
1	8/20	8/20		Review, Intro to TI-Nspire, Intro to WebAssign	Set up WebAssign account	
2	8/21	8/22	5.3	Review Fund Theorem of Calculus	p.394: <u>3,8,12,19,23,25</u> ,29,31, <u>41</u> ,46,63 FTC applet (optional)	8/27
3	8/22	8/23	5.5	The Substitution Rule - Part 1	p.413: <u>3,5,7,9,11,15,21,23,26,32</u>	8/28
4	8/24	8/24	5.5	The Substitution Rule - Part 2	p.414: 30,33, <u>45,53</u> ,56, <u>57</u> ,60, <u>64,81,85</u>	8/29
5	8/27	8/27	6.1	Areas between Curves	p.427: <u>3,8,12</u> ,17,23, <u>26,44</u> ,47	8/30
6	8/28	8/29	6.2	Volumes	p.438: 1,4, <u>5,12</u> ,15, <u>44</u> ,49 Wing Lab (opt) Volume applet (opt)	9/4
7	8/29	8/30	6.4	Work - Part 1	p.449: 3, <u>5,6,7,8,10,11</u>	9/5
8	8/31	8/31	6.4	Work - Part 2	p.450: 13, <u>15,19</u> ,20,21, <u>22,24</u>	9/6
9	9/4	9/4	6.5	Average Value of a Function	p.453: <u>3,9,10,15,16,19</u> ,* Proof: Ex. 25 Average Value applet (optional)	9/7
10	9/5	9/5	8.3	Hydrostatic Force	p.560: <u>1,3,5,7</u>	9/10
11	9/7	9/6	7.7	Approximate Integration	p.516: <u>1,5,11,30,40</u> (not error bounds) Approx Int applet (optional)	9/11
12	9/10	9/7		REVIEW		
13	9/11	9/10		REVIEW		
14	9/12	9/12		TEST 1		
15	9/14	9/13	7.1	Integration by Parts - Part 1	p.468: 1, <u>2,5,9,11,12,19</u> p.464: * Proof: Equation 1	9/19
16	9/17	9/14	7.1	Integration by	p.468: <u>24,27,29,49</u> ,52,19	9/20

				Parts – Part 2	using 52, 69	
17	9/18	9/17	7.4	Partial Fractions – Part 1	p.492: 3,9,12,14,18	9/24
18	9/19	9/19	7.4	Partial Fractions – Part 2	p.493: 23, 24,27	9/25
19	9/21	9/20	7.8	Improper Integrals	p.527: 1,5, 7,9 ,13, 16,18,28 ,31, 57 ,79	9/26
20	9/24	9/21	9.1	Modeling with Differential Equations	p.584: 3, 4,5,7,9,10 ,14,15 Intro to Diff Eq applet (optional)	9/27
21	9/25	9/24	9.2	Part 1 - Direction Fields	p.592: 1, 3,4,5,6,7,8,9,11 Direction Fields applet (optional)	10/1
22	9/26	9/26	9.2	Part 2 - Euler's Method	p.593: 19,20, 21,23,27,28 Euler's Method applet (optional)	10/2
23	9/28	9/27	9.3	Separable Differential Equations – Part 1	p.600: 3, 10,11,19,20 ,37,39	10/3
24	10/1	9/28	9.3 3.8	Separable DE's – Part 2, Exponential Growth and Decay	p.601: 38; p.243: 5,10,11,16,17	10/4
25	10/2	10/1	Notes: 1 , 2 , 3	Electric Circuits: DC – Part 1	Exercises A – 3,4	
26	10/3	10/3	Notes: 4 , 5	Electric Circuits: DC – Part 2	Exercises B - 1a,b,e,3a,b,e	
27	10/5	10/4		REVIEW		
28	10/9	10/5		REVIEW		
29	10/1 0	10/1 0		TEST 2		
30	10/1 2	10/1 1	11.1	Sequences	p.700: 3,7,13, 14,23,24,25,27,33,43,5 6	10/1 6
31	10/1 5	10/1 2	11.2	Series	p.711: 15, 19,21,25,27,29,51,57 , 59,69,79,(87-optional)	10/1 8
32	10/1 6	10/1 5	11.5	Alternating Series	p.731: 4,5,7,11,23,25,27,30,31	10/1 9
33	10/1 7	10/1 7	11.6	Ratio Test	p.737: 1,3,5,8,9,29,35,37	10/2 2
34	10/1 9	10/1 8	11.8	Power Series	p.745: (rad of conv only) 3,7,9,14,15,18, 23,30,35,42	10/2 3

35	10/2 2	10/1 9	11.9	Functions as Power Series	p.751: 3, 6,7,13 ,14, 29 ,31,34,37	10/2 5
36	10/2 3	10/2 2	11.10	Maclaurin and Taylor Series - Part 1	p.765: 6, 7,8,30,39 ,41,63 Taylor series applet (optional)	10/2 6
37	10/2 4	10/2 4	11.10	Maclaurin and Taylor Series - Part 2	p.765: 2, 13,15 ,17, 49,50 ,52, 54,57 ,74	10/2 9
38	10/2 6	10/2 5	11.11	Taylor Polynomials	p.774: 1, 5,7,9 ,27, 29,31	10/3 0
39	10/2 9	10/2 6		REVIEW		
40	10/3 0	10/2 9		REVIEW		
41	10/3 1	10/3 1		TEST 3		
42	11/2	11/1	10.3	Polar Coordinates	p.662: 3,5,7,9,17,22,25,27,28 ,31, 35	11/7
43	11/5	11/2	10.4	Areas in Polar Coordinates	p.668: 2, 5,9,19,23,24 (area only, not arc length)	11/8
44	11/6	11/5	12.1	Three-Dimensional Coordinates	p.790: 3,5, 7,11 ,13, 15 ,17,27,31, 33 ,37	11/1 3
45	11/7	11/7	12.2	Vectors - Part 1	p.798: 1,5, 10,13,17,20 ,21,23, 25,26	11/1 4
46	11/9	11/8	12.2	Vectors - Part 2	p.799: 29,31,32 ,33, 34	11/1 5
47	11/1 3	11/9	12.3	The Dot Product - Part 1	p.806: 1,3, 5,9 ,11,14, 15,20	11/1 6
48	11/1 4	11/1 4	12.3	The Dot Product - Part 2	p.806: 23,39, 41,43 ,*45, 46,50,51 *Proof: Ex. 45	11/1 9
49	11/1 6	11/1 5	12.4	The Cross Product - Part 1	p.814: 3,9,15,16,17,19 x-prd applet (optional)	11/2 0
50	11/1 9	11/1 6	12.4	The Cross Product - Part 2	p.814: 13,27,29 ,39, 40,45 Wrench Lab (optional)	11/2 7
51	11/2 0	11/1 9	12.5	Lines and Planes - Part 1	p.824: 1,3, 4,7 ,11, 15,18	11/2 8
52	11/2 1	11/2 1		REVIEW		
53	11/2 6	11/2 6	12.5	Lines and Planes - Part 2	p.824: 5,24,27 ,31, 33 ,41, 51 ,75,73 (use #75 to solve #73)	11/2 9
54	11/2 7	11/2 8	13.1	Vector Functions and Space Curves	p.845: 1, 2,3,7,9 ,11,12, 15,18 ,21-26,47 3D Parametric Curves applet (opt)	11/3 0

55	11/2 8	11/2 9	13.2	Derivatives and Integrals of Vector Functions	p.852: 1, <u>3,5,8,19,23</u> ,31, <u>35,42</u> ,54	12/3
56	11/3 0	11/3 0		REVIEW		
57	12/3	12/3		REVIEW		
58	12/4	12/5		TEST 4		
59	12/5	12/6		COURSE REVIEW		
60	12/7	12/7		COURSE REVIEW		

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* Indicates a proof which may be on the final exam (see Notes, item 7 below).

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Useful Links

Syllabus and practice tests:

<http://www.usna.edu/MathDept/website/local/courses.htm>

[SM122 Google Calendar for 2012 - 2013](#)

NOTES

1. The value you get out of this course is proportional to the effort you put into it. Keep in mind that the primary goal (and your responsibility) is not just doing the problems, but rather understanding the material. Exercises that ask for verbal explanations should be answered in complete sentences. Suggestions on how to study mathematics may be found on pp. 8 - 10 of the Academic Center's Academic Success Handbook at <http://intranet.usna.edu/AcCenter/docs.php>

2. Classes on Tuesday 04 September 2012 will follow a Monday schedule. Classes on Wednesday 21 November will follow an early schedule. The last day of classes is Friday 07 December. There is a review and study day scheduled for Monday 10 December. There are 60 class days in both the MTWF schedule and the MWRF schedule. The final exam period is 11 December - 18 December.

3. Problems in WebAssign are indicated in the syllabus by underlined bold numbers and are available at <https://www.webassign.net/login.html>. Your instructor will provide you with a class key. Since not every topic is covered in WebAssign, you should also look at the text problems, indicated in regular font.

4. There will be assignments and questions on the final exam for which use of a graphing calculator will be essential. At the same time, sketching graphs and performing simple computations by hand is extremely important. There will be questions on the final exam for which the use of calculators is not allowed. More details on the final exam will be available later in the semester.

a. All students in this course are expected to have a calculator like the TI-Nspire which can graph and do symbolic calculations. Guidebooks for the TI-Nspire calculator are available at <http://education.ti.com/calculators/downloads/US/Guidebooks>

b. The software programs Mathematica and DPGraph are available for graphing in three dimensions and may be downloaded from the IRC Software Downloads web page at <http://intranet.usna.edu/IRC/software/softwareList.htm>

5. a. If you would like help in the course, contact your instructor for extra instruction.

b. Also try the Math Lab in CH130. It is staffed all six periods every class day with instructors who should be able to answer your questions. See <http://www.usna.edu/MathDept/website/local/resources.htm>

c. The Midshipman Group Study Program (MGSP) will be available evenings from Sunday through Thursday. Upper-class midshipmen will help you work on mathematics problems in groups. More information will be available early in the semester. See <http://intranet.usna.edu/AcCenter/programs/MGSP.php>

6. There will be a gateway quiz on Calculus II material. Use of calculators will not be allowed on the quiz. Students must answer at least 9 out of 10 problems correctly to receive credit for the gateway quiz. Retests, using similar versions of the quiz are allowed. No more than one gateway quiz may be taken per day. Your instructor may also give a gateway quiz on Calculus I material and a calculator gateway quiz. Sample quizzes may be viewed at <http://www.usna.edu/MathDept/website/local/courses/gateways/gateways.html>

7. One final exam problem will require you to write a short proof. The problem will be one of the following: a. **p.453**: Proof : Exercise 25, b. **p.464**: Proof: Equation 1, c. **p.807**: Proof: Exercise 45.

8. Your instructor may modify the schedule and list of problems.