January, 1997

Syllabus and Problem List for Math 251, Sections 1, 2, and 3

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Text *Calculus (Early Transcendentals)*, 3rd edition, Brooks/Cole, by James Stewart

Meetings The lectures will be given first period Tuesdays and Fridays in SEC-117. Section 1 will also meet W1 in SEC-218, while Section 2 will meet W2 in TCB-110 and Section 3 will meet W3 in SEC-216. Students *must* attend the workshops (attendance will be taken); I hope the lectures will be interesting and informative.

Date	Lecture	Reading	Topics
1/21	1	11.1, 11.2	Geometry of space; vectors; `Maple` **Lab 0**
1/24	2	11.3, 11.4	Dot & cross products
1/28	3	11.4, 11.5	Lines & planes
1/31	4	11.7, 11.8	Vector functions & curves
2/4	5	11.8, 11.9	Calculus of curves; `Maple` **Lab 1**
2/7	6	12.1, 12.2	Functions of several variables; continuity
2/11	7	12.2, 12.3	Partial derivatives
2/14	8	12.4	Tangent planes; increments
2/18	9	11.6, 12.5	Second order surfaces; the chain rule; `Maple` **Lab 2**
2/21	10	12.6	Gradients and directional derivatives
2/25	11	**First Exam** (usual class time & place)	
2/28	12	12.7	Max & min
3/4	13	12.8	Lagrange multipliers; `Maple` **Lab 3**
3/7	14	13.1, 13.2	Double integrals; interated integrals
3/11	15	13.3, 13.4	More double integrals, including polar coords
3/14	16	13.5, 13.6	Applications of double integrals; surface area
	Spring Break (March 16-23)		
3/25	17	13.7	Triple integrals
3/28	18	11.10, 13.8	Triple integrals in cylindrical & spherical coords
4/1	19	13.8, 13.9	Change of variables in multiple integrals; `Maple` **Lab 4**
4/4	20	14.1, 14.2	Vector fields; line integrals
4/8	21	14.3	Information about line integrals
4/11	22	**Second exam** (usual class time & place)	
4/15	23	14.4	Green's Theorem
4/18	24	14.4, 14.5	Vector differentiation
4/22	25	14.6, 14.7	Surfaces & surface integrals
4/25	26	14.8	Stokes's Theorem
4/29	27	14.9	The Divergence Theorem
5/2	28	...	Catch up!
5/7	**Final Exam**, 12:00-3:00 AM (place to be announced)		

OVER

Technology Students may use graphing calculators in all parts of this course. I am most familiar with the TI-82, but any calculator with equivalent capacities can be used. Calculators or portable computers with QWERTY keyboards *cannot* be used during exams. A page of notes (both sides of a standard 8.5×11 inch sheet of paper) may be used during exams. `Maple` will be used for some assignments in this course, and can be used prudently for any homework or workshop assignments.

Suggested problem list for Math 251

Text *Calculus (Early Transcendentals)*, 3$^{\text{rd}}$ edition, Brooks/Cole, by James Stewart

Section	Problems
11.1	7, 9, 11, 19, 27, 39, 45, 47
11.2	5, 13, 17, 21, 29, 31, 41
11.3	3, 7, 15, 23, 25, 39, 52, 57
11.4	3, 11, 23, 27, 33, 39
11.5	3, 11, 17, 21, 29, 37, 43, 49, 57
11.6	17-24, `Maple` Lab 2
11.7	1–6, 9, 15, 31, 37, 39, 41, 45, 51, 61, 71
11.8	3, 13, 17, 25, 31
11.9	11, 19, 31
11.10	(Do *some* early problems!) 35, 37, 39, 45, 57
12.1	3, 11, 35, 38, 45, 51, 53, 59–64
12.2	3, 7, 15, 33, 47
12.3	1, 7, 9, 25, 35, 49, 55, 57, 75, 79, 89
12.4	5, 11, 23, 31
12.5	3, 9, 13, 19, 29, 35, 39, 41
12.6	1, 11, 15, 17, 25, 27, 29, 37
12.7	5, 7, 13, 39, 41, 43
12.8	3, 7, 9, 17
13.1	10, 16
13.2	3, 9, 17, 25, 31
13.3	1, 5, 7, 13, 17, 21, 33, 37, 39
13.4	3, 5, 11, 19, 21, 25, 27
13.5	7, 15, 17
13.6	1, 3, 5
13.7	3, 9, 13, 17, 19, 25, 31, 35
13.8	1, 3, 5, 11, 15, 19, 29, 33, 35
13.9	7, 9, 11, 13, 19
14.1	1, 5, 11–14, 19, 21, 25
14.2	1, 5, 7, 17, 19, 27, 35, 37
14.3	7, 9, 11, 17, 19, 23, 29, 31, 33
14.4	3, 11, 15, 19, 21
14.5	7, 13, 17, 39, 40
14.6	1, 5, 9–12, 15, 21
14.7	3, 13, 15, 17, 19, 31
14.8	1, 5, 7, 9, 13, 15
14.9	2, 3, 7, 9, 13