September, 1996

Syllabus and Problem List for Math 251, Sections 19 and 20

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There will be **lectures** TF2 in RAB-207; the **recitation/workshop** for section 19 will meet Th3 in RAB-110B and for section 20 will meet Th4 in HCK-112.

I will usually have **office hours** on Douglass in Chem 207C from 11:20 to 12:30 on Tuesdays and Fridays (telephone number: 932-9378), or by appointment at either Busch (Hill 542) or Douglass.

I teach on Douglass/Cook and Livingston this semester. The best way to get in touch with me is probably by **e-mail**. I check the address `greenfie@math.rutgers.edu` frequently.

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

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. The computer program `Maple` will be used for some assignments in this course, and can be used prudently for any homework or workshop assignments.

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

OVER

Suggested problem list for Math 251

All section numbers refer to *Calculus (Early Transcendentals)*, 3rd edition, Brooks/Cole, by James Stewart.

Section	Problems
11.1	3, 7, 9, 11, 19, 25, 27, 33, 39, 41, 45, 47
11.2	1, 5, 9, 13, 15, 17, 19, 21, 25, 29, 31, 35, 41
11.3	3, 5, 7, 15, 21, 23, 25, 29, 33, 39, 43, 51, 52, 53, 57
11.4	3, 7, 11, 19, 23, 27, 33, 31, 33, 39
11.5	3, 7, 11, 17, 21, 25, 29, 33, 37, 41, 43, 49, 53, 57, 59, 69
11.6	`Maple` Lab 2
11.7	1–6, 9, 11, 15, 29, 31, 37, 39, 41, 47, 51, 57, 61, 71, 74
11.8	3, 7, 11, 13, 17, 21, 25, 31, 41,
11.9	5, 11, 19, 23, 31
11.10	3, 9, 15, 21, 25, 31, 35, 37, 39, 45, 53, 57
12.1	3, 11, 15, 21, 35, 38, 45, 51, 53, 59–64
12.2	3, 7, 15, 31, 33, 47
12.3	1, 5, 7, 9, 17, 25, 31, 35, 49, 53, 55, 59, 65, 75,79, 89
12.4	1, 5, 11, 17, 23, 31, 33
12.5	3, 5, 9, 13, 17, 21, 29, 35, 39, 41, 49
12.6	1, 7, 11, 15, 17, 25, 27, 29, 35, 37, 57
12.7	1, 5, 7, 13, 35, 39, 41, 43, 47
12.8	3, 7, 9, 15, 23
13.1	9, 13, 15, 16
13.2	1, 3, 5, 9, 17, 25, 31
13.3	1, 5, 7, 9, 13, 17, 21, 33, 37, 39, 43, 47
13.4	3, 5, 9, 11, 17, 19, 21, 23, 27
13.5	5, 7, 15, 17,
13.6	1, 3, 5, 9, 17
13.7	3, 9, 13, 17, 19, 25, 27, 31, 35
13.8	1, 3, 5, 7, 11, 15, 19, 21, 29, 33, 35
13.9	1, 5, 7, 9, 11, 13, 19
14.1	1, 5, 11–14, 19, 21, 25
14.2	1, 5, 7, 15, 17, 19, 27, 29, 35, 37
14.3	1, 7, 9, 11, 17, 19, 23, 29, 31, 33
14.4	1, 3, 11, 15, 19, 21
14.5	1, 3, 7, 13, 17, 25, 28, 31
14.6	1, 5, 7, 9–12, 15, 21, 25
14.7	3, 13, 15, 17, 19, 31
14.8	1, 5, 7, 9, 13, 15, 19
14.9	1, 2, 3, 7, 9, 13