18.02A Multi-variable Calculus
Spring 2007

This course completes the multi-variable calculus sequence at MIT, and is open only to students who have already passed the first half of 18.02A (offered in the fall).

Website: The course website will contain the most up-to-date information about reading, homework assignments, and schedules. Please check it frequently!

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www-math.mit.edu/$\sim$ mahlburg/18_02A.html

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Instructor: Karl Mahlburg (giving both lectures and recitations)

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Schedule: The class will meet for the first six weeks of the spring semester only, from **Tuesday, February 6th** to **Friday, March 16th**. Office hours are always available by special appointment. Exam review sessions will be announced during the semester.

Lectures	TR 1:00 and F 2:00	Room 4-159
Recitations	MW 2:00	Room 2-142
Office Hours	T 10:30-12:00 and W 11:00-12:30	Room 2-308

Recitations will be largely devoted to problem solving, although there will also be time for you to ask questions about lecture topics and homework assignments.

Grading: Homework assignments will be due on **Fridays** at the beginning of class (2:00), and returned on Tuesdays. The grading breakdown for this half of 18.02A follows; your total grade will be calculated in combination with your scores from the fall.

	Date	Points
4 Problem Sets	Due on most Fridays	100 (25 each)
Exam	Feb. 23th (in class)	100
Final Exam	March 16th (2 hours)	200

You will have the opportunity to take make-up exams if you fail, and you must pass the final exam to pass the course. You are also expected to do the homework, and are required to turn in at least 3 completed assignments. The problem sets will also be available on the website; you should download them promptly if you miss class, as they will contain more detailed information about lecture topics and reading.

Texts: You will need to purchase both of these books:

- *Calculus with Analytic Geometry,* 2nd *edition*, G. Simmons, McGraw-Hill. (Available at bookstore)

- *18.02 Notes, Exercises, and Solutions*, A. Mattuck, MIT. (Available at Copy-Tech)

Topic Outline

Day	Date	Lecture # and Topics
T	Feb. 6	40. Change of variables in double integrals
R	Feb. 8	41. Triple integrals
F	Feb. 9	42. Spherical coordinates; Vector fields
T	Feb. 13	43. Line integrals
R	Feb. 15	44. Conservative vector fields
F	Feb. 16	45. Gradient fields; Potential functions; **Problem Set 5 due**
T	Feb. 20	46. Recitation only (*Holiday on Mon.*)
R	Feb. 22	47. Green's Theorem
F	Feb. 23	48. **Exam** covering lectures 40-45; **Problem Set 6 due**
T	Feb. 27	49. Flux; Normal form of Green's Theorem
R	Mar. 1	50. Surface integrals
F	Mar. 2	51. Curl; Stokes' Theorem; **Problem Set 7 due**
T	Mar. 6	52. Stokes' Theorem (continued); Flux
R	Mar. 8	53. Divergence Theorem
F	Mar. 9	54. Applications of Divergence Theorem; **Problem Set 8 due**
T	Mar. 13	55. Applications of Stokes' Theorem; Topology
R	Mar. 15	56. Review
F	Mar. 16	57. **Final Exam** covering lectures 40-56 (2 hours).