General Information

Professor: Marty Walter

Office Hours: To Be Arranged, and by appointment, in Math 218
(Phone: 303-492-8544, e-mail: Martin.Walter@Colorado.Edu)

Class Meetings: MWF 11–11:50 p.m. in DUAN G1B35.

Text: Our main text, Mathematics for the Environment, (approximately 600 pages, photocopied, bound) is for sale in the U.M.C. bookstore.

You may (most students do) need a hand-held, scientific calculator to do the homework, e.g., look for buttons labeled log, ln, $e^x$, $10^x$. I will explain how to use calculators if you ask.

WEB SITE: Always under construction.
Try http://www.colorado.EDU/math/earthmath and/or http://math.colorado.edu

Prerequisites. High school mathematics.

A Little About The Course.

A fairly good idea of what this class is about can be obtained by reading the Preface to, and “User’s Manual” for, the text, Mathematics for the Environment, and also by glancing through this text. A tentative list of homework assignments, i.e., syllabus, is also given (toward the front of the book).

It is OK if you do not consider yourself “good” at math; that is usually not an insurmountable obstacle. It is NOT OK if you have little or no interest in the subject matter (which includes not just math but an environmental context for the math), and you are here just because you think you are required to be here. Be prepared to work hard in this class. There are easier (but perhaps less interesting) ways of satisfying basics requirements. I assume you are here because you are interested and motivated to some extent. This class requires a good deal of effort: a modest amount of reading and study are expected outside of class (mathematically weaker students will have to spend proportionately more time — but it can be and has been done!), homework is assigned almost every class period, and a term paper is required. Many students do not take what I have just written seriously and complain later that there is too much work, or that the class proceeds to quickly. In summary: the motivated yet mathematically challenged (or gifted) usually do well, those with no motivation or interest usually do not. If you miss 5 classes without legitimate excuses, I will assume that you are not a serious student of this class.

Class Meetings/Homework.

This course will meet three days a week. Homework, I repeat, will be assigned almost every class period (I will write the assignment on the board at the beginning of class); and each homework assignment will be due two class periods after it is assigned. If you hand homework in late, it most likely will not be graded — so get your homework in on time! You are expected to attend class. You should only miss a class due to illness or death or some similarly serious situation. We do not hire private detectives, or consult parents, to keep track of you; but we do take roll. You cannot contribute to the class if you are not here, and it is difficult to keep up with the material if you are not here. If you do not keep up with the material due to absences, you may have to take this
class, or another class, over again when you are prepared to attend (almost) every class. Questions, comments and discussion are encouraged in class subject to one rule: Only ONE PERSON speaks at a time. Occasionally a couple of students have a difficult time grasping this concept.

You are encouraged to work together: you will be broken up into small “teams.” Most of the homework will be handed in individually, but occasionally, your team will make a report. There will be 2 or 3 in-class midterm exams based on the homework, and a final exam which will most likely be part in-class and part take-home.

Term Project.
Each student will be required to study a special topic in depth, write a paper or do a project and make a final report in class. So far the best papers/projects have been those which tackle real problems and perhaps offer solutions, for example, in the spirit of investigative journalism. Further details, such as due dates, will be handed out later. (Note: In this or any other class obtaining a great term paper intact from the web or some other source, without acknowledging that you have done so, can result in your removal from the university.)

Requirements/Grading.
Your final grade in this course will be based on the following percentages: Exams (including midterms and final) 33%, Term project 33%, Homework 33% (plus subjective factors—do you do homework? participate in class? etc).

The most important factor in your success is your interest/motivation and your discipline in doing the reading and homework on time.

Religious Holidays.
Please inform me should you, due to your observance of a religious holiday, need to miss an exam, quiz, or homework. It is university policy to be as accommodating as practicable in these circumstances.

Special Needs.
Please see me if you have any special needs regarding the taking of exams and so forth. For example, if you have a certified medical disability which requires that you be given extra time to take an in class exam, please contact me within the first two weeks of class.

Final Exam.
Time: Monday, May 8, 10:30 a.m. - 1:00 p.m. Place: DUAN G1B35.

First Day of Class, January 18.
You need to buy a copy of “Mathematics for the Environment,” at the C.U. Book Store (in the UMC) as soon as possible (neither I nor the university take any of the purchase price of this text, the charge is only for copying/binding costs); and in preparation for Homework #1 read the first Chapter 1: Mathematics and Food and Everything Else.

Homework #1: Do in this chapter: Exercise 7 (Limbaugh says there is nothing to worry about) part (i), for extra credit do part (ii). Do Exercise 8 (Sperm counts are dropping...) Parts (i), (ii) and (iii). Do Exercise 10 (Less poison can be more ...) part (i).
Consider Homework #1 as being assigned on Wednesday, January 18. It will be due two class periods later, on Monday, January 23.

(Note: The book uses exponential notation because you have to when talking about really big and really small numbers. Thus $10^2 = 100$. Also $10^7 = 10,000,000$ or ten million. More generally, $10^n = 1$ with $n$ zeros after it. Be ready to hand in Homework #1 in class on Monday, January 23. All homework will be due two class periods after it is assigned.

**Phone List/Groups.**

A sheet will be circulated during the first or second week upon which you are to give your name and phone number and e-mail address. This list is to be distributed to the class and hence will be “public information;” so do not put any other information on this sheet. The purpose of the phone list is to facilitate the formation of study groups throughout the semester. If for any reason you do not want to participate, do not put your name and phone number and/or e-mail address on the sheet— you are not required to do this. For those who do participate you will hopefully sharpen your skills at working on problems with other people. This is becoming an increasingly important skill as problems become more complex requiring the combined talents of many people for their successful resolution.