

01253 Math 46.27, Mathematics for Elementary Education, Spring, 2013

Instructor: Dr. Karl Schaffer
Class meeting days: Tue./Thu.
Class time 4:00-6:15 PM
Classroom: E-36
email: schafferkarl@fhda.edu

Office phone: 408-864-8214
Office: E-23A
Office Hrs: **MW 5:30-6:20 PM, TT 12:30-1:20 PM**
or by appointment
Class web site: <http://nebula2.deanza.edu/~karl/>
Class link login name: damath password: kmath

Course content: Mathematics for elementary school teaching: problem-solving with the content of mathematical reasoning, sets, integers and integral number theory, rationals and proportion, real numbers and decimal notation, measurement, and the origins of mathematics.

Required text: *Mathematical Reasoning for Elementary Teachers* (5th Ed.) by Long and DeTemple.

ISBN-10: 0321460847 or ISBN-13: 978-0321460844. This is not the current edition, so it is available cheaply online. You need to have it during the first week of classes, so if you purchase online, pay a little extra for expedited shipping!

Not allowed: computers or other communication capable devices may not be used during class time or timed exams. Please put them away and DO NOT use cell phones during class.

Students **must** have either a graphing or scientific calculator and bring it to class!

Grades: 90-100 A, 80-89 B, 70-79 C, 60-69 D, < 60 F, based on:

Participation. You may miss 3 class sessions during the quarter, including absences due to illness or family emergencies; however, you will be dropped from the class if you miss more than 3 classes. If you are late by more than 20 minutes or leave early by more than 20 minutes you will be marked absent for 1/2 class. If you know already know that you will be absent more than 3 times during the quarter, please wait to take the class at another time! If you are consistently late or consistently leave early, you may also be dropped.

5% Mathematical Autobiography. Due Tue., April 16. See 2nd page of this sheet for a description.

15% One hour exam on Thursday, April. 25. Open book, open notes, no make-ups or early exams.

5% Essay. A short paper on a subject related to the course that catches your interest. References will be provided by the instructor. Due date **Tuesday, May 14.**

15% Take-home exam given out on **Tuesday, May 14**, due **Thursday, May 30.**

10% Portfolio and journal. You will keep a portfolio of your work and journal of your experiences in this class. You should have one journal entry per class session. Record your observations, feelings, and reactions to the class.

15% Short in-class activities, quizzes, or writing assignments, (usually unannounced) usually to be given during class. These will often involve group work. You may drop your lowest score.

20% Homework assignments. Homework is assigned during each class and must be kept current. Your homework will be turned in at the end of each chapter. Homework is graded for completion, not correctness. **NO LATE HOMEWORK ACCEPTED!** Homework assignments from the text will be listed at the class web site.

See page 3 of this green sheet for the list of homework assignments.

First homework assignment is to do section 1.1 and 1.2 homework, which we will discuss during the 2nd class. It will not be taken up until we reach the end of chapter 1.

15% Final Exam: mandatory, comprehensive, open book, open notes, no make-ups or early exams. Given on: **Tuesday, June 25, 4-6 PM.** Your final exam will replace the lower of the previous two exams, but **if and only if** the final is higher – that is, only if it would raise your score on an earlier exam. You **MUST** take the final!

There will be no makeups or early exams. The final exam score may be used to replace one of the one hour exams, only if either is lower. **NO LATE WORK IS ACCEPTED - NO MAKE-UPS. IF YOU MUST MISS ONE MAJOR EXAM, IT WILL BE REPLACED WITH THE FINAL EXAM SCORE, BUT THIS IS NOT A GOOD IDEA! HOMEWORK ASSIGNMENTS MAY BE CHECKED AT ANY TIME, SO KEEP YOUR WORK CURRENT!**

Some background on the instructor: Ph.D. and MA in Mathematics from UC Santa Cruz, undergraduate work at University of Chicago and University of Alabama. Grew up in New England and Alabama. Do research in the mathematics of “networks,” and am very active in math education for K-12. I am interested in and will use collaborative learning and interdisciplinary learning techniques in the class. I am also a modern dance performer and choreographer, and company I co-direct does shows about math and dance, among other things. For more background on this see www.mathdance.org and/or www.schafferstern.org.

Mathematical "autobiography." Due one week after first class session.

(Those of you who have taken a class from me before may turn in a previous autobiography with a page attached about your recent experiences. Please use a word processor.)

Write a "mathematical autobiography." Think about experiences you have had doing mathematics, both in and out of school. Include at least one successful and one not-so-successful episode. You might write about teachers, particular math problems, courses, or real-life applications of mathematics that have affected you and of which you have strong recollections. Include the good, the bad, and the ugly, and be as entertaining as you like. This will give me an opportunity to get to know you a little better; it should also give you an opportunity to reflect on your own experiences with mathematics.

Please also include a statement as to when you took math most recently, which class it was, where you took the class, and how well you did.

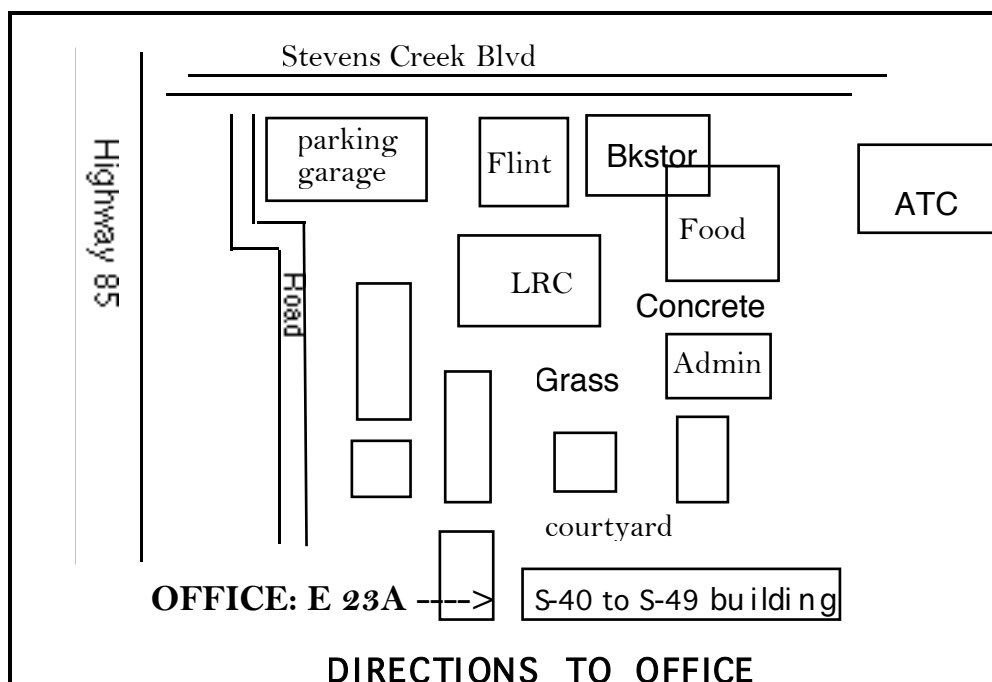
You must write at least 600 words (about one page SINGLE-SPACED typewritten or two pages longhand. Do not use wide margins or point size larger than 12 point. (You should check the number of words using the "word count" command in most word processors – for example, in Microsoft Word, that command is found in the "Tools" menu.) For full credit write a little TOO much! (These will *not* be read to the class! Write about anything you feel comfortable about having the teacher read.)

Many, if not all of us have had particularly negative experiences with mathematics and especially mathematics teaching. Perhaps you can remember a specific incident which seems to have impacted your learning and study of mathematics since that time. Or your experiences might have been primarily positive and supportive: success in a difficult class, a teacher who acknowledged your skills at mathematics, an enjoyment in doing mathematics. Write about those experiences that have been most important to you in the greatest detail. Be specific and describe the circumstances and the people involved. Think about the later impact of your experiences - how do they still affect you today?

You might also want to think about how you actually use mathematical thinking in everyday life - diverse mathematical skills are used in building or designing or in doing craft work, estimating money or amounts, planning complex activities, collecting and organizing data. These activities might not necessitate the use of the quadratic formula, but they probably require good intuitions and understandings about geometric and quantitative knowledge. Write about activities you do which require this kind of mathematical insight.

I would particularly like to read about any cultural influences on your mathematical background. Have you learned ways of doing mathematics that you can identify as being from a culture other than the dominant one in this country? Did you begin learning mathematics in another country, and if so, what changes did you find when you moved here? Can you identify specific cultural influences on how you see your own mathematical knowledge and on your motivation to study mathematics?

Please do not simply list the classes you have taken and the grades received. I am much more interested in whether you were affected by the class, the teacher, and the experience, and in what ways. Describe in detail!



First week assignment: Put together your portfolio, a loose-leaf notebook with these sections:

- Homework
- Handouts and papers provided at the web site
- Exams
- Class notes
- Articles
- Your papers or essays

For your two papers you will use Turnitin.com. I will add everyone to the class list soon.

Class name: Math 46, Spring 2013
Enrollment password: Spr2013_M46
Class ID: 6341166

Write a journal entry for each class. It should be one long or several short paragraphs detailing your reflections on each day's class. What struck you as interesting, useful, helpful, unhelpful, puzzling, etc.? How are you feeling about the class? What are your expectations of the class and your own participation? Imagine you are writing to your future self (as in a popular South Park episode?!) and mention those things most memorable!

Keep your journal entries at a page you get at an etherpad site. Email the URL for your site to the instructor at schafferkarl@deanza.edu. There are many free etherpad sites; I suggest you use a "public pad" at <https://etherpad.mozilla.org/>. Use this format:

Stanley Student (keep your name at the top of the page!)

Th. Jan. 12 (most recent entry)

Blah, blah, blah (at least 2 long or 3 medium size paragraphs).

Tue. Jan. 10 (older entry)

Blah, blah, blah (at least 2 long or 3 medium size paragraphs).

If you have trouble using the etherpad site, try opening it with a different browser. I have only occasional trouble using the (free) Google Chrome browser.

Here's a complete list of the homework from the textbook. Other homework will be assigned periodically:

Ch. 1.1, # 4,5,9,10,11,12,14,15
Ch. 1.2, # 4,5,11,13,19,22
Ch. 1.3, # 1,3,6,7,10,13,17,22
Ch. 1.4: # 5,7,8,9,10,12,18,21
Ch. 1.5: # 4,7,9,11,13,14,15,19
Ch. 1.6: # 2,5,8,15

Ch. 2.1: 3,7,10,12,14,17,18,23,24
Ch. 2.2: 4,9,11,13,17,22,23
Ch. 2.3: 2,7,13,18,20,29,33,34
Ch. 2.4: 1,2,3,5,9,16,25,31,32

Ch. 3.1 # 1,4,5,10,11
Ch. 3.2 # 1,6,9a,10a,11a,13a,14,19
Ch. 3.3 # 1a,7a,16,17,20,24
Ch. 3.4 # 1a,7,13,17,21,23,24,25
Ch. 3.5 # 1,2,3,4,8a,18,22
Ch. 3.6 # 1,5,16

Ch 4.1 # 6,8,11,14,15,16, group: 22-24, 25, group: 31-32
Ch 4.2 # 1,2,6,9,10,12,14, group: 16 & 17, group: 20
Ch 4.3 # 1a,2a,3a,4a,5a,12,26,32,group:16,group:17&20, group:21

Ch 4.4 # 1,3,5,6a,7a,14,17,18

Ch. 5.1: # 1,4,7,8,17,18,22,23
Ch. 5.2: # 1,2,13,16,19,27,28,30,31
Ch. 5.3: # 5,6,11,13,14,18,20,21

Ch. 6.1: # 2,3,5,6,11,23,24,30,31,41
Ch. 6.2: # 1,2,9,13,21,22,23
Ch. 6.3: #1,2,10,13,14,16,17,18,20,34
Ch. 6.4: # 1,12,13,16,19,27,28,29,34

Ch. 7.1: # 1-7,9,10,18,19,20,21,22,25,34
Ch. 7.2: # 7,8,17,18,21,28,29
Ch. 7.3: # 1,3,7,8,12,18,19,29,36
Ch. 7.4: # 4,6,8,19,20,22,23,26,34