Instructor: Dr. Karl Schaffer   Office phone: 408-864-8214
Class meeting days: Tue./Thu.   Office**:** E-23A
Class time 4:00-6:15 PM   Office Hrs: **Mon., 7:30-8:20 PM, Wed., 3:00-3:50 PM**
Classroom: E-31   or by appointment
email: schafferkarl@fhda.edu   **De Anza class web site: TBA**

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* (4th Ed.) by Long and DeTemple. ISBN-10: 0321286960 or ISBN-13: 978-0321286963. **Not allowed:** computers or other communication capable devices may not be used during class time or exams.

Students **must** have 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 emergiencies; 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!

> **5% Mathematical Autobiography**. **Due Mon., Apr. 11**. See 2nd page of this sheet for a description.

> **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 **Monday, May 9.**

> **10% Portfolio**. You will keep a portfolio of your work and journal of your experiences in this class. You will sometimes be given time in class to write in the journal. You should have at least one journal entry per class session. Record your observations, feelings, and reactions to the class.

> **20% 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.

> **15% One hour exam** on **Monday, Apr. 25.** Open book, open notes, no make-ups or early exams**.**

> **15% Take-home exam** given out on **Monday, May 9** due **Monday, May 23**.

> Your final exam will replace the lower of the previous two exams, but *if and **only if** the final is higher.

> **15% 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. EVER! Homework assignments from the text are listed on page 3 of this green sheet.

> **First homework assignment is to do section 1**.**1, 1.2, and 1.3 homework.**

> **15% Final Exam**: mandatory, comprehensive, open book, open notes, no make-ups or early exams**.** given on: **Wed., June 22, 4-6 PM**

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!

Crucial Non-negotiable Dates:
Sat., April 16: last day to add   Sat., April 23: last day to drop with no record   Fri. May 27: last day to drop with a W.

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 Third 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 "mathhematical 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!

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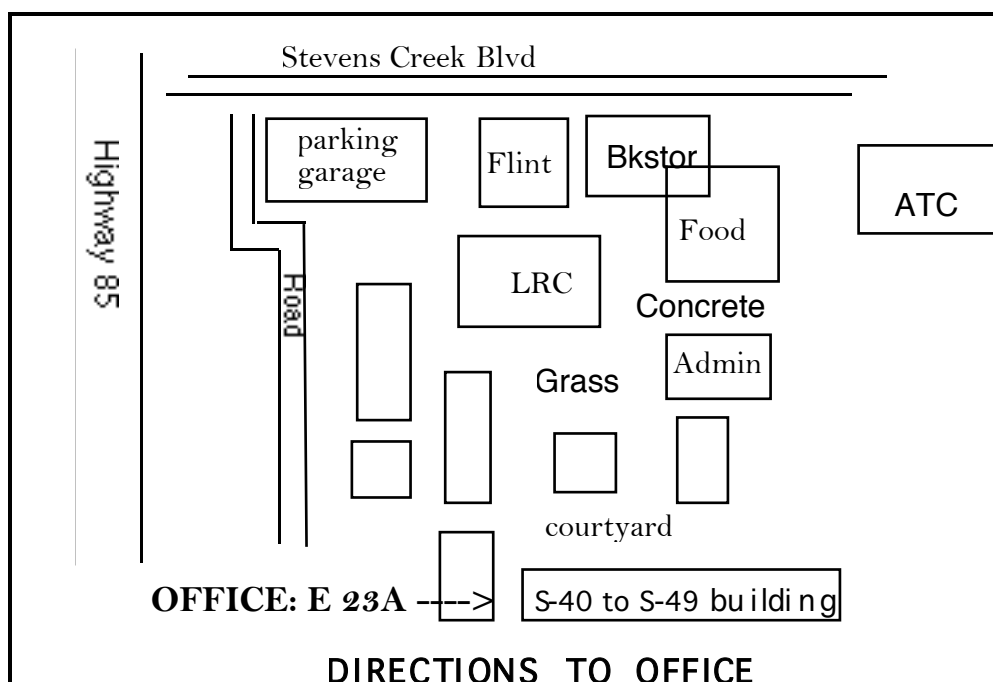
First week assignment: Put together your portfolio, a loose leaf notebook with these sections:

Homework
Handouts
Exams
Journal
Class notes
Articles
Your papers

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!

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

Ch. 1.1, # 2,4,9,10,11,12,14,15
Ch. 1.2, # 5,8,10,20,24
Ch. 1.3, # 4,7-11,14
Ch. 1.3: # 20,21,24
Ch. 1.4: # 1,9,13-15,19
Ch. 1.5: # 1,3,5,6,7,9,10,12,15
Ch. 2.1 #8,9,11,14.15,16-20,25,26
Ch. 2.2 #1,9,12,13,17,22,28,31,34
Ch. 2.3 # 5,6,7,10,14,18,19,26,27,31
Ch. 2.4 # 1-5,7,9,11,15,17,26,32
Ch. 3.1: # 1-5,9-10,25
Ch. 3.2 # 1,5,10,15,16,20
Ch 3.3 # 1,3,5,9a,d,17,21,25
Ch. 3.4 # 3,17,19-24
Ch. 3.5 # 1-3,8-10,15,16,18,19,20,32
Ch. 3.6 # 1-4 (a) only, 9,18
Ch. 4.1 # 5-9 part a only, 10,13,15,17-19,21,30
Ch. 4.2 # 1-4,8,9
Ch. 4.3 # 1-5 part a only, 6-13,19
Ch. 4.4 # 10, 13,16
Ch. 5.1 # 1-3,7,8,13-16,19,20,22,24
Ch. 5.2: # 1-3 a,b,c, 13,17-22,27,31
Ch. 5.3 # 10-13
Ch. 5.4 # 1-15 part a only, 20,21
Ch. 6.1 # 1-21 odd and part a only, 26,27, 29,30,31
Ch. 6.2 #1-20, part a only.
Ch. 6.1 Also do 26,27,29-31
Ch. 6.2 Also do 28,29,31,33,34
Ch. 6.3 # 1-21, part a only, 29,34
Ch. 7.1 # 1-6 part a only,16-18
Ch. 7.2 # 1-7, part a only, 15-17,19,20,27
Ch. 7.3 #1-3,10,14-16,26
Ch. 7.4 #1-4,5-13,16-18
Ch. 8.1 # 7,8,11,20,23
Ch. 8.2 1-17,24,25,27,28
Ch. 8.3 #24-27, 31,32,34,35