Math 4010-002: Math for Elementary School Teachers I
Spring 2010

Course Information:

Instructor: Ben Trahan
E-mail: trahan@math.utah.edu
Time and Place: 4:35-6:30, Tuesdays and Thursdays in LCB 121
Web Page: http://www.math.utah.edu/~trahan/Teaching/4010
Office Hours: JWB 333 (time TBA)

Materials

The following materials are in addition to normal ones, such as a notebook for notes. You won’t need a calculator.

- *Mathematics for Elementary School Teachers, 7th Edition* by Musser, Burger, and Peterson
- *Graph Paper Fractions Book*; this will be available on the web site
- Index cards (one package of at least 60)
- Dictionary — a small notebook in which to record the vocabulary you learn in this class. You will find this to be a handy reference, and should keep it for Math 4020.

Prerequisites

Math 1050 with a grade of C or higher.

Course Content

This course is the first in a two-semester sequence of required mathematics courses for elementary school teachers. The sequence is designed to help K-6 pre-service teachers develop a conceptual framework for mathematics, especially for those aspects normally experienced
in primary and elementary school. Through their work in each course in the sequence students examine the common threads of mathematics throughout the curriculum, consider both mathematical and pedagogical issues in teaching, and spend a six hour practicum in a local school relating their course work to the classroom situation.

Please note: This course is designed for pre-service elementary school teachers and requires time spent in the elementary school classroom. Students must complete the practicum (described below) in order to pass the course.

It is often wrongly assumed that having successfully finished high school is enough of a preparation for teaching K-6 students. Teaching mathematics requires a lot of specialized knowledge, knowledge that other professionals, although having had advanced mathematics courses, do not necessarily possess. Your job will be to prepare lessons and determine mathematical goals of activities. You will need to anticipate students’ responses, the problems they might face and how to help them navigate through the new material. You will have to generate easier problems if you realize that your students have trouble with the ones you’ve given, or harder ones when you need to challenge your students more. You will need to choose good questions to ask, and learn how to lead classroom discussion. You will need to be able to evaluate explanations and arguments. You will need to listen to your students and their reasoning and decide whether what they are saying makes sense and why. The goal of this course is to, apart from revisiting and solidifying your knowledge of mathematics that is needed to teach K-6, acquire this specialized mathematical knowledge needed for teaching. We expect that you will see yourself as a teacher in both places rather than as a student here and an observer in school.

**Grading**

<table>
<thead>
<tr>
<th>Assignment, Quizzes, Portfolio</th>
<th>25%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final Project</td>
<td>5%</td>
</tr>
<tr>
<td>Midterms</td>
<td>30%</td>
</tr>
<tr>
<td>Practicum</td>
<td>15%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>25%</td>
</tr>
</tbody>
</table>

The ordinary grade breakdown of 90% for an A, 80% for a B, and so forth will be used as a rough guideline. In other words, if you get 90% in the class, you will get an A; however, it may be possible to get an A with a lower score.

**Class Work**

I expect you to come to every class on time, turn assignments when they are due, participate actively in classroom discussions and activities, and take notes in class. Because you are preparing to be a teacher, your participation needs to reflect professional learning. This
means it will not just be judged on the basis of its content but also on the basis of its form: You will need to speak audibly, connect with your audience, modulate the words you utter, and use standard English. I will give you feedback on what you say and on how you say it, in the understanding that it matters to you because so much of our work as teachers includes speaking for others to understand us. For the reason that you need to be prepared to think on your feet and talk in public you should expect to be called on even when you don't volunteer. It is fair game (and deserves all our respect) if you ask for time to think about something or if you say, I don't know but here is how I would find out. For the same reason, I expect you will give me feedback when I speak in ways that are difficult to understand or to hear and that you will accept that at times I also need to regroup and think for a while.

I will expect you to ask questions!

I encourage you to provide feedback at any time, written or oral.

Portfolio: The portfolio is a way to organize your work for the semester. It will count as two assignments. As the semester goes by you will do readings and homework and you'll also have time to reflect on issues of teaching and learning mathematics in response to the course. A rubric indicating explicitly what the portfolio should include will be handed out in class.

Assignments, Quizzes: There will be weekly homework assignments, graded solely on completion. Additionally, there will be worksheets assigned during class, to be completed in groups. Each individual should turn in her own copy. There may also be quizzes occasionally. In general, any assignment that does not clearly fall into another category will fall into this one.

Late assignments will not be accepted. However, I will drop the lowest three assignments (this number may be revised upward as the semester progresses).

I also expect homework to be stapled. Points will be deducted if a homework is turned in unstapled.

Midterms: There will be two midterms. The dates will be announced by the second week of class. If you need to miss one because of a university-approved excuse, tell me well in advance. The more notice I have, the better a mood I'll be in, and the better off everyone will be.

Practicum: Each student will spend six hours in an elementary school classroom, three periods observing and three periods working with one or two children in the classroom. This classroom experience will be the subject of some class discussion and an assignment so please make sure to complete your observations early. After that you will spend 3 hours working with a small group of children: teaching, not tutoring and not doing worksheets that teacher assigns. The practicum report is a typewritten analysis of your mathematical work with the children. Be sure to keep careful notes from your work with the children in order to have the information available when you write your
practicum report. The details and due dates for the observations and written report will follow shortly.

**Final Exam:** The final exam, as per university regulations, will be held from 6:00-8:00pm on May 4th in LCB 121 (the normal classroom). There will be no opportunity for a make-up, unless you have a university approved excuse and I have been informed in advance. The final will be cumulative.

**ADA**

The Americans with Disabilities Act requires that reasonable accommodations be made for students with physical, sensory, cognitive, systemic, learning, and psychiatric disabilities. Please contact me at the beginning of the semester to discuss any such accommodations for the course.