M316K: Foundations of Arithmetic

Fall Semester 2012

Instructor: Hanna Bennett
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Office hours: MW 11 am–12 pm; Th 3-4 pm
and by appointment

Class meets: MWF 10–11 am in RLM 5.118
Textbook: Mathematics for Elementary Teachers, 3rd Edition, by Sybilla Beckmann.
Content: We will primarily be covering material from Chapters 1–8 of the textbook. We may cover related topics from other sources.
Webpage: Blackboard: http:courses.utexas.edu
Assignments, grades, and additional resources will be posted there.
Prerequisite: Successful completion of any of the following with a grade of C or better: M 302, M 303D, M 305G or 505G, or M 316.
Unique Number: 55855

Course description: An analysis, from an advanced perspective, of the concepts and algorithms of arithmetic, including sets; numbers; numeration systems; definitions, properties, and algorithms of arithmetic operations; and percents, ratios, and proportions. Problem solving is stressed.

What that means: We'll be looking at many of the topics taught in elementary school mathematics classes, but in a much deeper way than you will be teaching it. We'll especially be focusing on questions of *why*: Why are mathematical concepts, such as the decimal system, set up the way they are? Why do the algorithms (methods) for operations (such as division) work? Just as importantly, we'll be strengthening your skills and confidence as a mathematician. The more comfortable you are with mathematics, the better you'll be able to teach it to your students.

Grading: your course grade will be determined from the following components:

- Participation (20%)
- Weekly homework drafts (10%)
- Weekly homework revised (10%)
- Skills Quizzes (20%)
- Calculation Quiz (10%)
- Final exam (30%)

Participation: you will receive a daily participation score out of 3 possible points, which will be posted to Blackboard. If you participated well, you will receive 2/3; 3 points is reserved for exceptional participation. You will receive 1 point if you were tardy or present but need to participate more. If you do not attend class, or attend but are disruptive to others' learning, you will receive a 0. The three lowest scores, except for those received for being disruptive, will be dropped. Note that this means you can miss 3 classes without penalty. At the end of the semester, all scores will be computed as a percentage of the highest participation score in the class.

Homework: Homework problems will be assigned weekly. These problems will not be routine, and will often require lengthy solutions; you should expect to spend a significant amount of time on the homework. Each week, you will be asked to revise your solution to one of the problems from the previous week's assignment. These revisions will be graded closely for clarity, order, and precision in addition to completeness and correctness.

Quizzes: There will be approximately one 20-minute quiz for each chapter; these will be designed to check that you have developed the mathematical skills covered in that chapter. The lowest quiz score will be dropped, and the rest of the quizzes will each contribute equally to the final grade. Makeup quizzes will not be allowed except under exceptional circumstances.

Calculation quiz: The list of Texas Essential Knowledge and Skills for Mathematics states that students are expected to preform many calculations without the use of calculators. As such, it is important that you are able to do this as well! A quiz testing these skills will be given at least once in class and may be retaken up to once a week during office hours (or by appointment). Retakes will have similar, but different problems. Your final grade will include the highest score you earn on this quiz.

Final exam: The final exam for this class will be

Saturday, December 15, 9:00-12:00 noon

The schedule of all final exams can be found at http://registrar.utexas.edu/schedules/129/finals. These times are scheduled by the university and cannot be rescheduled for any reason. Please make travel arrangements accordingly.

Letter grades will be determined on a scale that will be determined after percentages have been computed, but will be *at least* as generous as the following: above 94, A; 90-94, A-; 87-90, B+; 84-87, B; 80-84, B-; 77-80, C+; 74-77, C; 70-74, C-; 60-70, D; below 60: F. Note: percentages will not be rounded, but a grade that is exactly one of the cutoffs will receive the higher grade.

Other policies:

Calculators: will not be allowed on any quizzes or the final. With a few rare exceptions, we will not be using them in class either. In order to prepare for the tests, I recommend that you not use them in your homework unless instructed to do so.

Attendance: Because participation is a large component of your grade, attendance is mandatory. You may miss three classes without penalty.

Documented Disability Statement: Upon request, the University of Texas provides appropriate academic accommodations for qualified students with disabilities. For more information, contact Services for Students with Disabilities (SSD) at (512) 4471-6259 (voice) or 1-866-329-3986 (video phone). If you plan to use accommodations, please notify me early in the semester.

Academic integrity:

- University of Texas Honor Code: The core values of The University of Texas at Austin are learning, discovery, freedom, leadership, individual opportunity and responsibility. Each member of the university is expected to uphold these values through integrity, honesty, trust,

fairness and respect toward peers and community.

- Cheating on exams, including copying, use of prohibited resources (including notes and calculators) will be taken very seriously and will generally result in an immediate F for the course.
- **you are encouraged to work with your classmates** on homework and classroom activities. I am happy to help you find groups to meet with regularly if you would like.
- However, it's important to understand the difference between *collaboration* and *copying*. **The solutions you turn in should be written in your own words**. One way to ensure this is to never look at someone else's solutions, or let them look at yours—if you haven't seen them, you can't copy them!
- If you use a resource other than the textbook for a problem, **cite your sources!** You'll still need to make sure that you write your solution in your own words.
- The bottom line is this: **if you hand something in for credit, you must understand it.** I reserve the right to ask you to come in and explain your solutions.
- For more information, see: **http://www.lib.utexas.edu/services/instruction/learningmodules/plagiarism**

Religious Holy Days: By UT Austin policy, you must notify me of your pending absence at least fourteen days prior to the date of observance of a religious holy day. If you must miss a class, an examination, a work assignment, or a project in order to observe a religious holy day, I will give you an opportunity to complete the missed work within a reasonable time after the absence.

Email: E-mail is recognized as an official mode of university correspondence; therefore, you are responsible for reading your e-mail for university and course-related information and announcements. You are responsible to keep the university informed about changes to your e-mail address. You should check your e-mail regularly and frequently—I recommend daily, but at minimum twice a week—to stay current with university-related communications, some of which may be time-critical.