MATHEMATICS FOR ELEMENTARY EDUCATION I (MATH 151)
FALL 2012
TTH 3:00 - 4:40 NATURAL SCIENCES 212C

1. Important Information

Instructor: Stephen J. Young
Office: Natural Sciences 114
Office Hours: M 2:30pm – 3:30pm, TTh 11:00am – 12:00pm, TTh , or by appointment.
E-mail: stephen.young@louisville.edu (**Please** include "Math151" in the subject)
Office Phone: (502) 852-3338
Course Webpage www.math.louisville.edu/~syoung/teaching/math151/fall12/
Textbook *Mathematical Reasoning for Elementary Teachers, 6th Edition* Long, DeTemple, and Milman

2. Learning Outcomes

This course is not designed to teach you K-5 mathematics procedures, such as addition, subtraction, multiplication, and division of fractions and decimals. It is expected that you have already mastered these skills. In Math 151, Mathematics for Elementary Teachers, among many other things you will learn why the elementary school procedures, algorithms, and techniques work. Your more profound understanding of these interesting and sometimes subtle matters will provide a basis for your explanations to your own students, allow you to understand the extent of your own students learning, and help you understand and correct the inevitable errors of your students. From the course you will:

◆ develop an adult-level perspective and insight into the nature and concepts of mathematics taught in elementary school;
◆ further develop your mathematical and critical thinking skills;
◆ use mathematical knowledge to solve problems;
◆ improve your ability to communicate mathematically using a variety of representations; and
◆ gain appropriate mastery over the following topics: problem-solving, sets, functions, Venn diagrams, deductive reasoning, inductive reasoning, numeration systems, the four basic arithmetic operations, exponents, factors/multiples, greatest common divisors, least common multiples, integers, fractions, decimals, ratios, percents, scientific notation, irrational numbers, and real numbers.

3. Grading System

All exams and quizzes will be graded on the following holistic five-point scale:

5   Well written and complete work. ($\sim$ A+)
4   Good work with minor errors or small gaps in explanation. ($\sim$ A)
3   Good work with more serious errors or insufficiently clear explanation .($\sim$ B)
2   Significant, but incomplete, explanation that will clearly lead to the correct answer. ($\sim$ C)
1   Some ideas that might lead to the correct answer are presented. ($\sim$ D)
0   No work, work that will not lead to a correct result, or illegible. ($\sim$ F)

4. Grading Breakdown

Final grades in this course will be determined according following, with the proviso that in order to pass the class you must pass (C- or better) the final exam. At the judgement of the instructor and on an individual basis, course grades may be higher than the numerical calculation would yield.

MathXL/Homework *(5%/ 5%)*: Homework for each section will be divided into two components a MathXL component available online and a written portion turned in during class. Each of these components will be 5% of your final grade.

Participation *(10%)* : You are expected to attend and participate in class every day, having read the appropriate sections in the textbook. At times during class students will be randomly selected to answer questions or explain portions of the text. Although these answers will not be explicitly graded, they will affect your participation grade.

Exams *(15%) × 3*: There will be three in class exams taking approximately 55 minutes. These exams are tentatively scheduled for September 27, November 1, and December 4. No calculator, notes, or books will be permitted on any exam.

Final Exam *(35%)*: The final exam will be on December 8, 11:30am – 1:00 pm and will be comprehensive.

Grade Distribution

A+	A	A-	B+	B	B-	C+	C	C-	D	F
95	85	80	75	65	60	55	45	40	30	0

5. American Disabilities Act

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact the Disability Resource Center (852-6938).

6. Course Policies

◆ Unless otherwise specified in writing, all tests are closed book and closed notes. In order to receive credit all work must be shown and complete sentences must be used where appropriate.

◆ Please silence all cell phones and noise making devices during class. Note that some models of cell phone when put on vibrate make a significant amount of noise.

◆ If you believe an exam or quiz has been graded incorrectly do not mark it in any way. Submit to me, in writing, along with exam or a quiz, a short statement of why your think a *particular* problem, or set of problems was graded incorrectly. Regrade requests will not be accepted later than the end of the class period after they are returned. I reserve the right to photocopy any or all of your exams in order to prevent regrade abuse.

◆ In order to receive full credit on exams and quizzes you must show all work in a clear and coherent manner. In particular, correct answers not fully supported by explanations using complete sentences, where appropriate, will not receive full credit. It is your responsibility to present your solutions in an easily understood manner.

◆ If you need help outside of normal office hours, please feel free to stop by my office. I may not be able to help at that moment, but we will at least be able to arrange another time to meet.

◆ Please keep all your exams and quizzes; if you believe there has been an error in the recording of your grades they are the only way to validate your claim. Also, grades will be placed on Blackboard, so please periodically check the grades posted there so we can resolve any issues quickly.

◆ As a general rule the questions on the quizzes will be harder than the average question on the homework and the questions on the exams will be on average harder than the questions on the quizzes.

◆ MathXL homework items are to be completed by yourself. For written home works you may discuss the questions with your classmates but the homework you turn in must be written completely by yourself.

◆ Make up exams will be only guaranteed to be given as required by university policy (i.e, a conflicting university sanctioned events), all other situations, such as medical procedures or emergencies, will be considered on a case by case basis. All make up exams will be taken through University Testing Services. Note that University Testing Services charges a fee to administer an exam. There will be no make up quizzes.

◆ Academic dishonesty is prohibited at the University of Louisville. It is a serious offense because it diminishes the quality of scholarship, makes accurate evaluation of student progress impossible, and defrauds those in society who must ultimately depend upon the knowledge and integrity of the institution and its students and faculty. Any instances of academic dishonesty in this course will be taken extremely seriously.

◆ All content in this syllabus is subject to change in order to accommodate unforeseen circumstances and achieve the learning outcomes. Any changes in the syllabus will be announced in class, via email, and on the class website.

7. Class Schedule

Date	Sections Covered	Notes
Aug. 21	1.1, 1.2: Problem Solving and Polyá	
Aug. 23	1.3, 1.4: More Problem Solving Strategies	
Aug. 28	1.5, 1.6: Reasoning Mathematically	
Aug. 30	2.1, 2.2: Sets, Set Operations, and Counting	
Sept. 4	2.2: Sets, Counting, the Whole Numbers	
Sept. 6	2.3, 2.4: Operations on the Whole Numbers	
Sept. 11	3.1: Historical Number Systems	
Sept. 13	3.2: Positional Number Systems	
Sept. 18	3.3, 3.4: Algorithms for Operations	
Sept. 20	3.4, 3.5: Algorithms for Operations	
Sept. 25	4.1: Divisibility	
Sept. 27	4.1: Divisibility	**Exam 1** Chapters: $1 - 3$
Oct. 2	4.2: Divisibility Tests	
Oct. 4	4.2: Divisibility Tests	
Oct. 9	**No Class: Fall Break**	
Oct. 11	4.3: GCD and LCM	Last day to withdraw
Oct. 16	4.3: GCD and LCM (cont.)	
Oct. 18	5.1: Representation of Integers	
Oct. 23	5.2: Addition and Subtraction	
Oct. 25	5.3: Multiplication and Division	
Oct. 30	6.1: Fractions and Rational Numbers	
Nov. 1	6.2: Addition and Subtraction	**Exam 2** Chapters: $4 - 5$
Nov. 6	**No Class: Election Day**	
Nov. 8	6.3: Multiplication and Division	
Nov. 13	6.4: Rational Number System	
Nov. 15	7.1: Decimals and Real Numbers	
Nov. 20	7.2: Computations with Decimals	
Nov. 22	**No Class: Thanksgiving**	
Nov. 27	7.3: Proportional Reasoning	
Nov. 29	7.4: Percent	
Dec. 4		**Exam 3** Chapters: $6 - 7$
Dec. 8	**Final Exam − 11:00am - 1:30 pm**	Strickler Hall 102