MATHEMATICS FOR ELEMENTARY EDUCATION II (MATH 152)
FALL 2013
TTH 1:00 - 2:40 NATURAL SCIENCES 212C

1. Important Information

Instructor:	Stephen J. Young
Office:	Natural Sciences 114
Office Hours:	TTh 1:00 pm – 2:40 pm, 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/math152/fall13/
Textbook	*Mathematical Reasoning for Elementary Teachers,* 6th *Edition* Long, DeTemple, and

Milman

2. General Education

Mathematics is concerned with solving real-world problems through mathematical methods. Students who satisfy this requirement will demonstrate that they are able to do all of the following:

◆ Represent mathematical information symbolically, visually, and numerically;
◆ Use arithmetic, algebraic, and geometric models to solve problems;
◆ Interpret mathematical models, such as formulas, graphs, and tables; and
◆ Estimate and check answers to mathematical problems, determining reasonableness; alternatives; and correctness and completeness of solutions.

3. Learning Outcomes

This course is not designed to teach you K-8 mathematics procedures; it is expected that you have already mastered these skills. In Math 152, Mathematics for Elementary Teachers II, among many other things you will learn why the elementary and middle 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 and middle 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, algebraic reasoning and representation, statistical interpretation of data, experimental and theoretical probability, geometric figures in the plane and in space, measurement systems, area, and perimeter, volume and surface area, transformations, symmetries, and tilings.

4. 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)

5. 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 *(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. The written portion of your homework will receive two grades, one from a peer and one from the instructor. Your participation in the peer instruction portion of the written homework will form the final 5% of your homework grade.

Portfolio *(15%)*: Over the course of the semester several questions (at least 25 no more than 50) will be singled out as Portfolio questions. The answers to these questions are to be typed cleanly and turned in at the start of class December 3. Although there is a bit of a learning curve, the use of the document preparation system LaTeX will make preparing the portfolios much easier.

Homework *(5%)*: As the portfolio questions are assigned, some (maybe all) of them will be singled out with due dates. You will receive full credit for turning in a rough draft of a solution or "serious" attempt at a solution to those problems. Note that these rough drafts do not need to be typed, but must be legible.

Exams *(15%) × 3*: There will be three in class exams taking approximately 55 minutes. These exams are tentatively scheduled for October 10, November 5, and December 5. No calculator, notes, or books will be permitted on any exam.

Final Exam *(30%)*: The final exam will be on Friday, December 13, 2:30pm – 5:00 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

6. 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).

7. 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.

8. Class Schedule

Date	Sections Covered	Notes
Aug. 27	**8.1**: Algebraic Expressions	
Aug. 29	**8.2**: Graphing Functions	
Sept. 3	**8.3**: Connections Between Algebra and Geometry	
Sept. 5	**9.1**: Figures in the Plane	
Sept. 10	**9.2**: Curves and Polygons in the Plane	
Sept. 12	**9.3**: Figures in Space	
Sept. 17	**9.4**: Networks	
Sept. 19	**10.1**: Measurement Process	
Sept. 24	**10.2**: Area and Perimeter	
Sept. 26	**10.3**: Pythagorean Theorem	
Oct. 1	**10.4**: Volume	
Oct. 3	**10.5**: Surface Area	
Oct. 8	**No Class: Fall Break**	
Oct. 10	**Exam 1**	Chapters 8 – 10
Oct. 15	**11.1**: Rigid Motions	
Oct. 17	**11.2**: Patterns and Symmetries	
Oct. 22	**11.3**: Tilings	
Oct. 24	**12.1**: Congruent Triangles	Last day to withdraw Oct. 28
Oct. 29	**12.2**: Constructing Geometric Figures	
Oct. 31	**12.3**: Similar Triangles	
Nov. 5	**Exam 2**	Chapters 11 – 12
Nov. 7	**13.1**: Organizing and Representing Data	
Nov. 12	**13.2**: Measuring the Center and Variation	
Nov. 14	**13.3**: Statistical Inference	
Nov. 19	**14.1**: Experimental Probability	
Nov. 21	**14.2**: Principles of Counting	
Nov. 26	**14.3**: Permutations and Combinations	
Nov. 28	**No Class: Thanksgiving Break**	
Dec. 3	**14.4**: Theoretical Probability	Portfolio due
Dec. 5	**Exam 3**	Chapters 13 – 14
Dec. 13	**Final Exam – 2:30 pm - 5:00 pm**	