

MATHEMATICAL STRUCTURES
MATH 3603 - 002
Fall 2015

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Online Classroom (D2L) Site:	https://oc.okstate.edu (then log in and find our course)
Textbooks:	<u>A Problem Solving Approach to Mathematics for Elementary School Teachers</u> by Billstein, Libeskind, & Lott (12 th Edition) <u>Mathematics Activities for Elementary School Teachers</u>

Syllabus Attachment. Please read the OSU syllabus attachment for the Spring 2015 semester on the web at [https://academicaffairs.okstate.edu/sites/default/files/Fall 2015 Syllabus.pdf](https://academicaffairs.okstate.edu/sites/default/files/Fall_2015_Syllabus.pdf). The syllabus attachment has a lot of important information, including instructions about disability accommodations. Please contact me privately during the first week of the course if you need accommodations as the result of a disability.

Important Note to Students. This course is no longer an A-designated General Education course; it will NOT satisfy the General Education Analytic and Quantitative Thought (A) upper division requirement.

Course Description.

From OSU catalog:

Prerequisite(s): 1483, 1493 or 1513. Foundations of mathematics and number concepts for prospective early childhood and elementary educators. Problem solving, logic, set theory, functions and relations, number systems, number theory, rational numbers, decimals and fractions, exponentiation, probability, and applications. Class format may emphasize student investigation and discovery, discussion and presentation, and working with mathematical tools. Together with MATH 3403, it prepares students for CIED 3153 and 4153 and/or HDFS 3223.

From the instructor:

The content and instructional delivery of this course models the current professional thinking and standards endorsed by the National Council of Teachers of Mathematics (NCTM). Please be aware that

1. MATH 3603 is specifically designed for prospective elementary/ early childhood/ middle level teachers; if you are pursuing a major different from one of these, your advisor will work with you to select a course more appropriate and valuable to your studies.
2. MATH 3603 is a content mathematics class much like other MATH-prefixed courses you have taken; the pedagogical issues related teaching this content in the school setting is addressed in detail in one of the methods courses that you will be taking as part of your program.
3. The value of this course will depend mostly on you - your involvement, effort, and creativity.

Daily Routine. Almost every class meeting will consist of a combination of lectures, individual and/or group activities, and discussion. In addition, there will be assignments and homework, which must be completed outside of class.

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Course Evaluation. Course grades will be determined according to the following distribution.

Examination 1	100 points
Examination 2	100 points
Examination 3	100 points
Quizzes (10)	100 points
Final Examination	100 points
Final Examination	<u>100 points</u>
	600 points

Letter grades will be assigned according to the following scale.

540 - 600 points	A
480 - 539 points	B
420 - 479 points	C
360 - 419 points	D
below 360 points	F

Exams. There will be three (3) 75-minute in-class examinations with a maximum possible score of 100 points each and a 200-point comprehensive Final Examination during Final's Week. The day and time of the **Final Examination** will be announced once it is scheduled. The time for the Final is not negotiable (except when the OSU Final Exam Overload Policy applies). These exams will test not only your content knowledge but also your ability to explain your thought process.

The dates for the exams are as follows and will not change. Put them on your calendar now and plan ahead.

Exam 1: September 22
Exam 2: October 27
Exam 3: November 17

No make-up exams will be given for any reason. In the event that a student must miss a test, the student must request and obtain approval from the instructor **in advance**. I will only grant approval if there is a very serious and unavoidable conflict. If the student does get my approval in advance, then the final exam percentage grade will be recorded for the missed exam. If the student does not obtain my approval in advance, and misses an exam, then a 0 will be recorded for that exam.

Note: Using a false excuse is a violation of academic integrity, and will be dealt with accordingly. As a future teacher, your academic integrity standards should be very high.

Quizzes. There will be twelve (12) unannounced quizzes in class; you must be present for the entire class session to present a quiz. Each quiz will cover material over the homework and/or notes and will be worth 10 points. At the end of the semester, the lowest two (2) quizzes will be dropped. Because the lowest two (2) quizzes will be dropped at the end of the semester, **there are NO make-ups for quizzes, nor will any be considered "excused"**.

Calculators. Calculators will **not** be allowed on quizzes nor may they be used on exams.

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Attendance/Class Participation. For this course in particular, attendance is very important since much of the learning takes place in group activities during class. As a future teacher, you are expected to conduct yourself professionally. You are expected to attend all classes and participate fully. Even though I believe that your active participation in this class is important to your success in it, there is no course attendance requirement. You will have an opportunity to earn course credit, however, through regular active participation in the class meetings that can contribute to improving your final course grade.

Here's how it works. You will be assigned an Attendance/Participation Score at the end of the semester. Attendance will be recorded during each class session. Your attendance/participation score is based on 50 points maximum and will be determined by your total days absent from class. As a prospective teacher, professionalism is expected; therefore, attendance/participation in this course is important. You must be fully participating in class to be considered present and determining "full participation" will be left to the discretion of the instructor. Here are some helpful things to remember about the attendance/participation score.

1. You must be present for the **entire** class session in order to be counted as present.
2. Because there is no class attendance requirement, **there are no "excused" absences for any reason**, including university-sponsored activities and illness.
3. The instructor has complete discretion in awarding attendance points. If you are sleeping during class, or are otherwise not participating in class (including texting, reading a paper, working on a computer, etc.), **you may be counted as absent**.
4. The attendance score/participation score is optional and is meant to reward students for good attendance. A low class attendance score (due to excessive absences) will not lower your overall grade.
5. You will be given 50 attendance/participation points at the beginning of the semester. You will receive one "free" absence, with no points deducted. For each absence after that, you will have 3 points deducted from your attendance/participation score.
6. If a person has no absences at all during the semester (present at every class meeting), 3 additional bonus points will be added to the attendance/participation score (in this instance, the total is 53).

Replacing an Exam. At the end of the semester, you may replace the lowest of the first three exam scores or one of the two final exam scores (if it is your lowest score), provided it improves your letter grade, with points awarded to you as follows.

$$\begin{array}{r} \text{One-half of your} \\ \text{lowest exam score} \end{array} + \begin{array}{r} \text{Your Attendance/} \\ \text{participation score} \end{array} = \begin{array}{r} \text{The grade that replaces} \\ \text{your lowest exam score} \end{array}$$

Example: Sam's lowest exam score is 59 and he has 2 absences. Sam's points are calculated as follows:

Half of Sam's lowest test score	30 (half of 59 is 29.5, rounded up to 30)
Attendance/participation score	+47 (first absence is "free", so $50 - 3 \cdot 1 = 47$)
Replacement Grade	<u>77</u>

Sam's lowest exam score of 59 will be replaced with a score of 77.

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Drop and Withdrawal Policy. "Dropping" means you are withdrawing from a specific course but you are still enrolled in at least one other OSU course; the last day to drop a course with an automatic grade of "W" is November 6, 2015. "Withdrawal" means you are dropping *all courses* and you are no longer enrolled for the current semester; the last day to withdraw completely from OSU classes with an assigned grade of "W" or "F" is November 20, 2015. Additional information about "dropping" and "withdrawing" is available on the Fall 2015 Syllabus Attachment. IT IS YOUR RESPONSIBILITY TO KNOW AND COMPLY WITH ALL DEADLINES.

Incomplete Grade. The grade of "I" is given to students who satisfactorily completed the majority of the course work and whose work averages "D" or better, but who have been **unavoidably** prevented from completing the remaining work of the course.

Academic Dishonesty/Misconduct. The university has explicit rules governing academic dishonesty and academic misconduct. The policies are detailed in the document "Student Rights and Responsibilities Governing Student Behavior." It is available from the Deans' Offices, the Provost's Office, and various other places around campus. The university policies will be followed in this class. The minimum penalty for an act of academic dishonesty will be the assignment of a grade of 0 on the examination or homework assignment. Working with another person or in study groups on problems can be helpful in learning the material. I encourage you to work together in your groups. However, **all written work submitted must be your own.** *Copying someone else's problem solution or showing your written solution to someone else is prohibited.* In order to be successful in learning the material and doing well on the examinations you must think very hard about the problems themselves **before** discussing them with anyone else.

Special Accommodations for Students. If any member of this class feels that he/she has a disability and needs special accommodations of any nature whatsoever, he/she should notify the instructor and request verification of eligibility for accommodations from the Office of Student Disability Services, North Hall 204. Please advise the instructor of such disability as soon as possible, and contact Student Disability Services, to insure timely implementation of appropriate accommodations. Faculty have an obligation to respond when they receive official notice of a disability but are under no obligation to provide retroactive accommodations.

Final notes.

- I want every single one of you to come out of this class feeling better about mathematics than when you came in. I am more than willing to help you in any way that I can, and I **genuinely** care about your success and general welfare. Please **do not hesitate** to ask any questions, or voice any concerns.

Any changes in this syllabus will be communicated to you in class by the instructor.

First Assignment

Please complete this assignment by Friday, August 21.

1. Send me an e-mail at emily.quinn@okstate.edu. Write a **paragraph** (not a list) including your name, year in school, major, hometown, last math class (and instructor if taken at OSU), and anything interesting about yourself you would like for me to know, especially your interests in and out of school. Please attach a picture of yourself as well. These e-mails let me know something about my students and help me get to know everyone. If you don't get a reply from me within a day, I probably didn't get the email – talk to me about it.
2. Read the Syllabus Attachment at [https://academicaffairs.okstate.edu/sites/default/files/Fall 2015 Syllabus.pdf](https://academicaffairs.okstate.edu/sites/default/files/Fall%202015%20Syllabus.pdf).

Course Outline

Math 3603 – Mathematical Structures

Text: A Problem Solving Approach to Mathematics for Elementary Teachers
by Billstein, Libeskind and Lott

The schedule below accounts for 36 periods, leaving 8 periods for exams, etc.

Chapter 1: An Introduction to Problem Solving – 4 periods

Chapter 2: Introduction to Logic and Sets – 3 periods

Chapter 3: Numeration Systems and Whole Number Operations -5 periods

Chapter 4: Number Theory – 4 periods

Chapter 5: Integers – 2 periods

Chapter 6: Rational Numbers and Proportional Reasoning – 4 periods

Chapter 7: Rational Numbers as Decimals and Percents – 4 periods

Chapter 8: Real Numbers and Algebraic Thinking (Section 1 only) – 1 period

Chapter 9: Probability – 4 periods

Chapter 10: Data Analysis/Statistics: An Introduction – 5 periods