

Mathematical Structure
Math 3603
Fall, 2014

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E-Mails. All e-mails MUST include, **on the subject line, your first and last name and when the class meets (i.e., Jane Doe, MWF 8:30).** Grades will not be discussed in emails. You must come to my office to discuss your grades or visit with me before or after class, if time and circumstances permit. In addition, emails asking questions that are answered in the syllabus will not get a response.

OSU Catalog Description. Prerequisite(s): 1583, 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 include some individual and/or group work and lecture. Together with Math 3403, it prepares students for CIED 3153 and 4153 and/or HDFA 3223.

Some Initial Comments. 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 to 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 in the college of education, NOT in this course.

Cell Phones. Turn cell phones off during class. Cell phones are **not allowed out at any time** during class except under unusual circumstances and only when cleared in advance by the instructor. Use of cell phones may result in an absence for the class period.

Critical Dates, Resources, Services. It is important that each student be familiar with all critical dates for dropping, adding, withdrawing from the university, etc. This information can be obtained from the class site on D2L. In addition, each student is encouraged to take full advantage of the resources and services available through the university.

Course Prerequisites and Objectives. Math 1513, College Algebra, (or Math 1483, Functions) is the official prerequisite for the course. The course covers foundations of numbers (set theory, numeration, and real number system), number theory, algebraic systems, functions, plus applications and probability.

Textbook. *Mathematics For Elementary School Teachers with Activities* by Beckmann

Course Format. Each class period may 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. Note: ALL WORK MUST BE SHOWN on all problems unless impossible. If you “think it,” you should show it.

Examinations: There will be three (3) fifty-minute exams with a maximum possible score of 100 points each and a 100 point comprehensive final exam which will be recorded **TWICE**. There will be

NO MAKE-UP EXAMS in this course. If one exam is missed, the score on the final will replace the missed exam score **only if** you request and obtain approval (when possible) in **advance** of the exam and only for very **serious and unavoidable** conflicts that are documented (see Math Department Policy at the end of this syllabus). If this condition is not satisfied, a grade of zero will be recorded for the missed exam. If a second exam is missed, it will receive an automatic 0.

The exams are scheduled as follows:

- Exam 1**, Thursday, September 11
- Exam 2**, Thursday, October 9
- Exam 3**, Tuesday, November 11
- Final Exam** for TR 10:30 is **Thursday, Dec 11 at 10AM**
for TR 3:30 is **Tuesday, Dec 9 at 2PM**

Quizzes: There will be twelve announced or unannounced quizzes in class. Each quiz will cover material over the homework. These are intended to be homework checks, but may also be over material similar to the homework or required readings. Each quiz will be worth 10 points. (Bring **all** materials to class from exam to exam.) At the end of the semester, the lowest two quizzes will be dropped. Because 2 quizzes are dropped, there are **NO Make-Ups for quizzes**.

Class Attendance: (50 points, see replacing an exam below) Attendance will be taken during each class session. As a future teacher, professionalism is expected; therefore, attendance in this course is important. Entering the classroom more than five minutes late will result in an absence. You must be awake (not dozing), not using a cell phone, not reading a paper (etc.) and not disruptive to the instructor or the students around you in order to be counted as present.

Your attendance score is determined by your total days absent from class. The rules governing the attendance score are shown below.

1. You must be present for the entire class session in order to be counted as present. If you come in more than five minutes late or leave early, you may be counted absent.
2. You must sign the roll to be considered present. This is YOUR responsibility. Failure to sign the roll will result in an absence and cannot be disputed at a later date.
3. Because these points are for extra credit only, there are **no “excused” absences** for any reason, including university-sponsored activities and illnesses. Please do not bring notes or letters to excuse your absence.
4. 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, etc.) you may be counted as absent.
5. The **attendance 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. However, from experience, it is not uncommon for students to regret an absence at the end of the semester, so I **STRONGLY** suggest that you avoid ANY absences.
6. You will be given 50 attendance 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 4 points deducted from your attendance points.
7. If a person has no absences at all, four additional bonus points will be added to the 50 points for class attendance.

Replacing an Exam: You may replace the lowest of the first three exam scores OR one of the two final exam scores (if it your lowest score), provided it improves your letter grade, with points awarded to you as follows:

Half of your lowest exam score + your attendance points = Grade to replace your lowest exam

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

Half of John’s lowest score	30 (half of 59 is 29.5, rounded up to 30)
Attendance points	46 (first absence is “free,” so 50-1(4) = 46)
Total Replacement Grade	76

John’s lowest exam score of 59 will be replaced with a score of 76.

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

Letter grades will be assigned as follows:

Exam 1	100 pts.	540 – 600 points	A
Exam 2	100 pts.	480 – 539 points	B
Exam 3	100 pts.	420 – 479 points	C
Quizzes (10)	100 pts.	360 – 419 points	D
Final	100 pts.	Below 360	F
Final	<u>100 pts.</u>		
Total:	600 pts.		

Grades will not be curved.

Drop and Withdrawal Policy (General University Policy). “Dropping” means withdrawing from a specific course while “withdrawal” means withdrawing from all courses and leaving the University for the balance of the term. It is your responsibility to know and comply with all deadlines. Reasons similar to those listed below will not result in approval for dropping a course after the university deadline (OSU policy).

- a. Student’s lack of knowledge or misunderstanding of the deadline.
- b. Student waited to get the results of an exam or other assignment.
- c. Student’s grades have declined since the deadline.
- d. Student doesn’t need the course for graduation.
- e. Different deadlines existed at a previous school.

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. The conditions, including appropriate time limits for the removal of the “I,” are indicated on the official form signed by the instructor. A condition that the students must repeat the course in order to remove the “I” is not permitted. The maximum time allowed for a student to remove an “I” is one calendar year, but the student and instructor may determine that it should be less than this one year.

Academic Dishonesty/Misconduct. The university has explicit rules governing academic dishonest and academic misconduct. The policies are detailed in the document “Student Rights and Responsibilities Governing Student Behavior.” It is available from the Deans’ Office, 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.

Special Accommodations for Students. If any member of this class feels that he has a disability and needs special accommodations of any nature whatsoever, the instructor will work with you and the Office of Disabled Student Services, 326 Student Union, to provide reasonable accommodations to ensure that you have a fair opportunity to perform in the class. Please advise the instructor of such a disability and the desired accommodations at some point before, during, or immediately after the first scheduled class period.

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

Partial Schedule by Chapter/Sections

<i>Section</i>	<i>Problems</i>
Course Intro	Communicating Mathematics, Reasoning Mathematically (Handout)
	Reasoning Mathematically continued (Handout)
2.1	Problem Solving (Handout)
	Set Theory (Handout)
1.1	(Handout)
	Number History, Other number systems (handout)
	Other Bases (Handout)
1.2	1,2abd,4,5,7,8abf,9,11-13,14abc
1.3	3b,4-9,10a,11,13,14b,16,17
1.4	1-6
8.1	3,4,6,8(no properties necessary) add using prime factorization, how many factors (96, 240)
8.2	2,3,5-10
8.3	1ac,2,4,5,8cd,11a,13,14,15a
8.4	1,3,5
8.5	2,4,8,10,12a,13a,16,18,20 (JUST LCM or GCF),22, additional problems
2.2	2-4,6-10,5a,7ab,10ab,12ac,15,17,18,20
2.3	2,5,6,8,9,12,14,15,19a,21a,33a
2.4	1,5-8,11,12,14,15,17,18ab,19abc
2.5	1,2,4,8abc,9abd,11,12,14,16,18,20ab
3.1	1-3,5abc,7
3.2	2,3a,5,7,8,9,10a,12,13
3.3	2-4,6-10,11ab,12ab,14,15ab,additional problems
3.4	2,4,5ab,6,8,9,10,12,20,22,23,26
3.5	1-3
4.1	1ac,2,3,5,7
4.2	2,4
4.3	2,7,9,10,11,15,24,25
4.4	1,2a,3-5,8(no array),10,11ab,13a,16
4.5	1,4-7,9,11,12,14,17a
4.6	2(no description),4,6,12ab,additional problems
5.1	2ab,3,5abd,7,12,15a,19
5.2	3,4,8,10
5.3	1bc,2,3
5.4	4,5,9a
6.1	1adf,3,4a,6,8ab
6.2	5,6,8a,11,12
6.3	2ab,4ab,6,8a,9,11,13,19a,20,22abc
6.4	1,2,5-7,12ab,14ab
6.5	2,4,5,7,9,11
6.6	1,3ab,5,12a,13a,15
7.1	3,4,7,8
7.2	2,3,4,5,9,11,16
7.3	2,5,7,8
7.5	5-7,9,10,12,14,16,19

MATHEMATICS DEPARTMENT POLICY ON MISSED WORK

(A) A student shall be offered reasonable accommodation in the event that he or she misses a major assessment activity for a valid and documented reason.

(B) Appropriate documentation shall be provided by the student in a timely fashion to support his or her request for accommodation.

(C) Major assessment activities are those such that a zero on that activity could reasonably be foreseen to impact the student's grade substantially (i.e. an exam).

(D) Valid reasons include official University activities, activities associated with military service, documented illness, documented family emergencies, mandatory court appearances, and any other documented events of comparable gravity.

(E) Reasonable accommodation means that the student will be given the opportunity to earn a grade on the assessment activity that is based on criteria as similar as possible to those used to grade his or her classmates. This opportunity should normally be made available in a timely fashion.