

Lamar University

College of Arts and Sciences

Department of Mathematics

MATH 1350-02 - #11720

Fundamentals of Math for Elementary School Teachers (3 hour course)

Fall 2017 Syllabus

Tuesday/Thursday 5:30pm – 6:50 pm, L118

- Instructor:** Robbie Shipper
Office: Lucas Room 111
Email: rlshipper@lamar.edu; keshipper@sbcglobal.net
Phone: 409-880-2210
Office Hours: Tuesday & Thursday, 2:30-3:30, L111
Other times available by appointment
Text: Billstein, R. Libeskind, S., and Lott, J. (2016). A problem solving approach to mathematics for elementary teachers (12th ed.). Boston: Pearson Addison Wesley. (NOTE: Hard copy is optional. Student Access Code Kit may be purchased separately or online.)
Manipulatives: Hands-On Standards Ready to Teach Mathematics Toolkit, Elementary Grades, Item IN79616 (Required)
Prerequisite: Grade of C or better in MATH 1314 or equivalent preparation, Interdisciplinary Studies majors only
Course ID: MyMathLab on handout

Catalog Description: Concepts of sets, functions, numeration systems, number theory and properties of the natural numbers, integers, rational, and real number systems, with an emphasis on problem solving and critical thinking. Prerequisites: Grade of C or better in MATH 1314 or equivalent preparation. Prepares for: MATH 3313. Offered: Fall, Spring. Please note: Credit for this course will be granted only to INDS majors.

CONCEPTUAL FRAMEWORK: The Lamar University Educator Preparation Program prepares educators for a changing world by requiring pedagogical content knowledge, content proficiency, pedagogical knowledge, communication skills, values, and the analytical abilities necessary to respond to diverse needs of EC-12 students in myriad and changing settings. Lamar University educator preparation candidates embrace self-learning and life-long learning and develop the dispositions and habits of mind that will enable them to greet change with confidence.

STANDARDS FOR PREPROFESSIONAL TEACHERS: Care has been taken to ensure that the subject-matter of this course is authoritative and consonant with the Texas State Board of Educator Certification. The content of this course is specified in the form of standards that subsume objectives calling for knowledge, applications, and dispositions. You should become familiar with these standards. The following Mathematics Content Application Standards for Teachers are included in this course: 1.1s, 1.2s, 1.3s, 1.4s, 1.5s, 1.6s, 1.7s, 1.8s, 1.9s, 1.10s, 1.11s, 1.12s, 1.13s, 1.14s, 1.15s, 1.16s, 1.19s, 1.20s, 2.1s, 2.2s, 2.3s, 2.4s, 2.5s, 2.6s, 2.7s, 2.8s, 3.3s, 3.5s, 3.6s, 3.7s, 3.13s, 5.1s, 5.2s, 5.3s, 5.4s, 5.5s, 5.6s, 5.7s, 5.8s, 5.10s, 5.11s

This is a course in the mathematics that an EC-6 school teacher should know and be able to do. While it addresses pedagogical content knowledge, it does not represent elementary school curricula. It is not a methods course, however the delivery format will include concrete, semi-concrete, semi-abstract, and abstract concepts and activities.

Major Course Components: The class will be composed of lectures, class discussions, and demonstrations. All homework is to be completed online. Please see the attached list of text sections, topics, and problems.

Course Objectives: Upon completion of the course, students should be able to:

1. Use common manipulatives to demonstrate mathematical concepts appropriate for children.
2. Demonstrate understandings of mathematics through problem solving.
3. Clearly and accurately communicate mathematical concepts appropriate for children.
4. Demonstrate understandings of sets, numeration systems, number theory, proportional reasoning, computational algorithms, and functions as relationships and patterns.

Student Learning Outcomes:

Upon completion of the course, students will:

1. Solve problems using common manipulatives;
2. Demonstrate proficiency with operations involving counting numbers, whole numbers (including basic facts, integers, and fractions);
3. Clearly and accurately describe operations taught in elementary school, including addition and subtraction as inverse operations and multiplication and division as inverse operations;
4. Clearly and accurately define and describe sets, numeration systems, elementary number theory, proportional reasoning, computational algorithms, and functions as relationships and patterns;
5. Demonstrate proficiency in operations involving fractions as common fractions, decimal numbers, and percentages.

Lectures/Discussions/Classwork/Homework Topics: Please see the last page of this syllabus for a list of topics and text sections.

Core Curriculum Outcomes: Upon completion of this course, the student will demonstrate his or her abilities to think critically, communicate quantitative information, and apply mathematical concepts:

1. **Critical Thinking:** Develop a logical, consistent plan to solve a problem, recognize consequences of the solution, and articulate a reason for choosing solution method.
2. **Communication Skills:** Use and present quantitative information in connection with an argument or problem solution and explicate it in an effective format.
3. **Empirical and Quantitative:** Construct and present a detailed problem statement with evidence of relevant contextual factors and possible approaches for solving the problem, then implement a solution and review the results.

Grading Policies: Students are expected to be in class on time and to stay for the entire class period. Students are warned that excessive absences are not conducive to achievement. There will be four tests worth 100 points each and four outside assignments, each activity worth 10 points, which will make up 90% of your grade. Tests will be announced one week in advance. Homework completed using MyMathLab will provide 10% of the final grade. Homework will be announced on the MyMathLab site. Final grades: A-90%, B-80%, C-70%, F-below 70% MyMathLab will close each assignment at the time and date indicated for each assignment and none will be reopened for late submission. Makeup tests will be allowed, but must be scheduled in advance and completed within one week of the original testing date. The Final exam is optional. It will be comprehensive and will replace one of the previous test scores.

FAILURE TO TURN IN ALL FOUR OF THE OUTSIDE ASSIGNMENTS WILL RESULT IN FAILURE OF THE COURSE.

Late work (outside assignment), if submitted within seven days of the due date, may earn a maximum of 80% of the available points. If you must hand in your work when I am not available, ask a member of the staff in the Mathematics Department office to mark it for date/time and place it in my mailbox or the grader's shelf.

IMPORTANT NOTE: There are no optional assignments in this course. A single grade of zero for any component will result in a failing grade for the course.

Final Exam: Thursday, December 7, 5pm-7pm, L118

GENERAL INFORMATION/CAUTIONS

1. Please make an appointment to see me, call me, or email me if you have any questions, comments, or complaints regarding any aspects of this course. If you need to discuss this course with someone other than me, you should contact my Department Chairperson in Lucas 200. You will have an opportunity to evaluate all aspect of this course in a formal process to be completed near the end of the term.
2. Punctuality and tenacity are important teacher characteristics. You are expected to be on time for each class meeting and to stay for the entire class period. If you miss more than one-half of a class, it will be counted as an absence.
3. You may not use work completed by former students or others to satisfy course requirements. Presenting prior work, others' work, or commercially available work will be considered unprofessional/cheating and will result in an automatic course grade of F.
4. You may not misrepresent actual work completed by you or others. Giving false information about work completed will be considered unprofessional behavior/cheating and will result in an automatic course grade of F.
5. Discrimination against or harassment of individuals is inconsistent with the purpose of the university and will not be tolerated.
6. Students with disabilities, who need reasonable modifications to complete assignments successfully, are encouraged to meet with me as early in the term as possible to identify and plan specific accommodations. Students will be asked to supply a letter from the Office of Student Disability Services.
7. A grade of "Incomplete" may be recorded in the case of a medical emergency documented prior to the final assessment. Any request for a grade of "Incomplete" must be presented in writing, explain the plan for completion, and include a stamped, self-addressed envelope.

While I have made a sincere effort to ensure the correctness of this course syllabus, changes may be required. I will announce any substantive changes during regularly scheduled class periods.

Important Information for Students

Lamar University expressly prohibits intimidation and harassment of students, faculty, staff, or applicants. <http://students.lamar.edu/academic-support/code-of-conduct.html>

Drop Policy: Please make note of the three dates indicated in this drop policy. Any drop will be your responsibility; I will not drop a student from the course.

September 13, 2017: (Census Date-Six Drop Rule does not apply) A student may drop or withdraw without consulting with the instructor. The Six Drop Rule does not apply to a drop before 5:00 PM.

September 29, 2017: (Six Drop Rule applies) A student may drop or withdraw from the course without academic penalty and receive a Q, however, the Six Drop Rule applies. The student will consult with the instructor and the Records Office to initiate a drop.

November 3, 2017: (Six Drop Rule applies) Last day to drop or withdraw with academic penalty; the student must be passing the course at the time of the requested drop in order to receive a Q. The drop form, including all required signatures, must arrive in the Records Office by no later than 4:00 PM. No drop is allowed after this date except in extreme extenuating circumstances. Any "late drop" must be approved by the instructor, department chair, college dean, and provost.

Academic Integrity: Students are expected to maintain complete honesty and integrity in their academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. Students are specifically warned against all forms of cheating and plagiarism. The *Lamar University Student Handbook* clearly reads: "Any student found guilty of academic dishonesty in any phase of academic work will be subjected to disciplinary action. Punishable offenses include, but are not limited to, cheating on an examination or academic work which is to be submitted, plagiarism, collusion, and the abuse of source materials." One aspect of the *Handbook's* definition of cheating includes "purchasing or otherwise acquiring and submitting as one's own work any research paper or other writing assignment prepared by an individual or firm." Plagiarism is defined as "the appropriation and the unacknowledged incorporation of another's work or ideas into one's own and submitted for credit." Faculty members in the College of arts and Sciences investigate all cases of suspected plagiarism. Any student who is found cheating in this course will receive a course grade of F. <http://students.lamar.edu/student-handbook.html>

Accommodations through the Disability Resource Center: Lamar University is committed to providing equitable access to learning opportunities for all students. The Disability Resource Center (DRC) is located in the Communications building room 105. Office staff collaborate with students who have disabilities to provide and/or arrange reasonable accommodations. If you have, or think you may have, a disability (e.g., mental health, attentional, learning, chronic health, sensory, or physical), please contact the DRC at [409-880-8347](tel:409-880-8347) or drc@lamar.edu to arrange a confidential appointment with the Director of the DRC to explore possible options regarding equitable access and reasonable accommodations. If you are registered with DRC and have a current letter requesting reasonable accommodations, we encourage you to contact your instructor early in the semester to review how the accommodations will be applied in the course.

<http://www.lamar.edu/disability-resource-center/>

Incomplete Grades: The grade of "I" may be given when any requirement of the course, including the final examination, is not completed. Arrangements to complete deficiencies in a course should be made with the instructor prior to the end of the semester or term. Incomplete work must be finished during the next long semester or the Records Office will change the "I" to the grade of "F." While the extension may be granted by the instructor with the approval of his/her Department Chair and Academic Dean, once the "I" is changed to an "F" it cannot be changed back to an "I." In this case, either a "change of grade" procedure must be initiated or the course must then be repeated if credit is desired. The instructor may record the grade of "F" for a student who is absent from the final examinations and is not passing the course.

Campus Closure: In the event of an announced campus closure in excess of four days due to a hurricane or other disaster, students are expected to login to Lamar University's website's homepage for instructions about continuing courses remotely. <http://lamar.edu>

Emergency Procedures: Many types of emergencies can occur on campus; instructions for severe weather or violence/active shooter, fire, or chemical release can be found at:

<http://www.lamar.edu/about-lu/administration/risk-management/index.html>

Following are procedures for the first two:

Severe Weather:

- Follow the directions of the instructor or emergency personnel.
- Seek shelter in an interior room or hallway on the lowest floor, putting as many walls as possible between you and the outside.
- If you are in a multi-story building, and you cannot get to the lowest floor, pick a hallway in the center of the building.
- Stay in the center of the room, away from exterior walls, windows, and doors.

Violence/Active Shooter:

- **CALL** - 8-3-1-1 from a campus phone (880-8311 from a cell phone). Note: Calling 9-1-1 from either a campus phone or cell phone will contact Beaumont City Police Dispatch rather than University Police.
- **AVOID**- If possible, self-evacuate to a safe area outside the building. Follow directions of police officers.
- **DENY**- Barricade the door with desks, chairs, bookcases or any other items. Move to a place inside the room where you are not visible. Turn off the lights and remain quiet. Remain there until told by police it is safe.
- **DEFEND**- Use chairs, desks, cell phones or whatever is immediately available to distract and/or defend yourself and others from attack.

Course Evaluations: You will have an opportunity to evaluate all aspects of this course in a formal process to be completed online near the end of the term. You will receive an email reminder through your LU account.

MATH 1350 – Fundamentals of Math for Elementary School Teachers

Text: A problem solving approach to mathematics for elementary school teachers, Billstein, Libeskind, Lott (12th ed.)

The following Mathematics Content Application Standards for Teachers are included in this course:

1.1s, 1.2s, 1.3s, 1.4s, 1.5s, 1.6s, 1.7s, 1.8s, 1.9s, 1.10s, 1.11s, 1.12s, 1.13s, 1.14s, 1.15s, 1.16s, 1.19s, 1.20s, 2.1s, 2.2s, 2.3s, 2.4s, 2.5s, 2.6s, 2.7s, 2.8s, 3.3s, 3.5s, 3.6s, 3.7s, 3.13s, 5.1s, 5.2s, 5.3s, 5.4s, 5.5s, 5.6s, 5.7s, 5.8s, 5.10s, 5.11s, 5.14s

Section	Topic	Note: All text book assignments will be completed in MyMathLab
1.1	Mathematics and problem solving	
1.2	Explorations with patterns	
2.2	Describing sets	
2.3	Other Set operations and their properties	
	Test 1	
3.1	Numeration Systems	
3.2	Addition and subtraction of whole numbers	
3.3	Multiplication and division of whole numbers	
3.4	Addition and Subtraction Algorithms, Mental Computation, and Estimation	
3.5	Multiplication and Division Algorithms, Mental Computation, and Estimation	
4.1	Divisibility	
4.2	Prime and composite numbers	
4.3	Greatest common divisor and least common multiple	
	Test 2	
5.1	Integers and the operations of addition and subtraction	
5.2	Multiplication and division of integers	
6.1	The set of rational numbers	
6.2	Addition, subtraction, and estimation with rational numbers	
6.3	Multiplication and division of rational numbers	
6.4	Proportional Reasoning	
	Test 3	
7.1	Introduction to Finite Decimals	
7.2	Operations on Decimals	
7.3	Repeating Decimals	
8.1	Real Numbers	
8.3	Equations	
8.4	Functions	
14.1	Linear measure	
	Test 4	

NOTES

Final Exam – comprehensive – replaces lowest test grade

Outside Assignments

#1 – Spatial Relations & Patterns – due September 19

#2 – Area & Perimeter, Measurement – due October 10

#3 – Fractions – due October 31

#4 – Patterns, etc – due November 21