

University of West Georgia

MATH 3803: Algebra for P-8 Teachers I

Summer 2015

Course Syllabus

Instructor: Dr. Christopher Jett

Office: 322 Boyd Building

Class Location: 307 Boyd Building

Office Hours: Before class, after class,
or by appointment

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Phone: (678) 839-4130

Class Meeting: T/R 2:00 p.m.–4:30 p.m.

Catalog Description:

This course has a special emphasis for teachers of grades P-8. It broadens understanding of the fundamental concepts of algebra with particular attention to specific methods and materials of instruction.

University Policy:

Please carefully read and review the important information at the following link: http://www.westga.edu/assetsDept/vpaa/Common_Language_for_Course_Syllabi.pdf. This link contains material pertaining to your rights and responsibilities as a student in this class. Because these statements are updated as federal, state, university, and accreditation standards change, please carefully review the information each semester.

Required Textbook:

Billstein, R., Libeskind, S., & Lott, J. (2012). *A problem solving approach to mathematics for elementary school teachers*, (11th ed.). Boston, MA: Pearson Addison-Wesley.

Children's Literature Books:

Adler, D. (2011). *Fractions, decimals, & percents*. New York, NY: Holiday House.

Murphy, S. (1996). *Ready, set, hop*. New York, NY: HarperCollins.

Rockwell, A. (2004). *100 school days*. New York, NY: HarperCollins.

Student Learning Outcomes:

PreK–8 teacher candidates should be able to do the following:

- Strengthen their understanding of algebraic vocabulary, notation and symbols.
- Deepen their understanding of fundamental concepts of algebra including linear equations, inequalities, ratios, proportions, functions, polynomials, exponents, and radicals.
- Recognize and correct “common errors” in mathematics.
- Use algebra to problem solve in multiple contexts.
- Communicate algebraic ideas and concepts effectively and successfully.
- Infuse literature to promote algebraic thinking.
- Become familiar with the National Council for Teachers of Mathematics via the organization, website, journals, and other resources.
- Establish personalized reform-based visions for promoting algebraic thinking aligned with the Common Core State Standards for Mathematics.

Attendance Policy:

It is my expectation that students will attend every class session and be punctual. Class participation entails being an active participant to your respective learning community. In the event of an absence, students are expected to get the materials and information relevant to the missed class from their peers. There are only 3 unexcused and excused absences allowed during the summer semester. If students exceed 3 absences, they will fail the course. Please note that is your responsibility to sign the attendance sheet during each class period.

Students with Disabilities:

Students who wish to request accommodation for a disability may do so by registering with the Office of Disability Services. Students may only be accommodated upon issuance by the Office of Disability Services of a signed Accommodation Plan and are responsible for providing a copy of that plan to instructors of all classes in which an accommodation is sought.

Instructional Methods and Activities:

During class sessions, a variety of pedagogical strategies will be employed to engage students in the mathematics teaching and learning dynamic and to foster an atmosphere for algebraic thinking and reasoning to flourish. Added to that, literature will be incorporated into various class sessions. Students are expected to be professional and active participants in class activities, algebraic tasks, learning designs, and other pedagogical frameworks.

Evaluation Techniques:

Test 1: 150 Points

Test 2: 150 Points

Homework: 75 Points (3 @ 75 Points Each)

Quizzes: 100 Points (5 @ 20 Points Each)

Response Papers: 50 Points (2 @ 25 Points Each)

Total – 1000 Points

Book Guide: 50 Points

Algebra Article Review: 50 Points

Algebra Activities & Tasks: 75 Points

Microteaching: 50 Points

Final Exam: 250 Points

Information about Course Assignments:Homework

Each student will print off the homework and submit completed homework in a folder on scheduled test dates. Points will be deducted for incomplete homework assignments, so please plan and manage your time accordingly. Also, no late homework will be accepted.

Response Papers

For this assignment, please respond to two of the articles posted on CourseDen. Your response paper should be at least a full double-spaced page, but it should not be longer than three pages.

Book Guide

Please prepare and submit a book guide to accompany your selected children's literature book. Book study group members should work on their book guide collectively; however, only one book guide should be submitted to CourseDen on behalf of the entire group.

Article Review

For this assignment, please choose an article adhering to the specifics outlined on the rubric. Please look for practical ideas and suggestions that might be useful for future elementary teachers. Prepare a one page review about what you learned, what quotes resonated with you,

how the article relates to the theme of this course, what you want other prospective teachers to take away from the article, etc.

Algebra Activities & Tasks

Activities are individual or collaborative experiences that promote algebraic thinking while tasks are problems that are designed to promote deep thinking. Each student will submit a collection of algebraic activities and tasks along with a cover letter. A rubric concerning this assignment will be forthcoming.

Microteaching

In small groups, pre-service teachers will present an activity to the class. You will present the activity to the class community as if you were implementing the activity in a classroom setting with elementary mathematics learners. On your scheduled presentation date, one hard copy of your lesson plan must be submitted on behalf of your entire group.

Algebraic Concepts Final Examination

The final examination will consist of a cumulative assessment of the algebraic concepts covered throughout the entire summer semester. Although a review will be provided, a comprehensive review of all of the problem sets will serve as an exceptional review guide.

Grading Scale:

A: 1000–900 Points

D: 699–600 Points

B: 899–800 Points

F: Below 600 Points

C: 799–700 Points

Important Dates:

Response papers are due on June 9th (Wilburne & Napoli, 2008), June 23rd (Ladson-Billings, 2009), July 7th (Lemons-Smith, 2013), and July 21st (Esquith, 2007). The article review is due on June 18th. The book guide is due on June 30th. The algebra activities and tasks project is due on July 14th.

Exams are scheduled for June 16th and July 7th. The final examination is scheduled for Thursday, July 23rd from 3:00 p.m.–5:00 p.m.

Response Readings:

Esquith, R. (2007). *Teach like your hair's on fire* (pp. 3–12; 62–72) New York: Viking Adult.

Ladson-Billings, G. (2009). *The dreamkeepers: Successful teachers of African American children* (2nd ed.) (pp. 33–58). San Francisco, CA: Jossey-Bass.

Lemons-Smith, S. (2013). Tapping into the intellectual capital of Black children in mathematics: Examining the practices of pre-service elementary teachers. In J. Leonard and D. B. Martin (Eds.), *The brilliance of Black children in mathematics Beyond the numbers and toward new discourse* (pp. 323-339). Charlotte, NC: Information Age Publishing.

Wilburne, J., & Napoli, M. (2008, September). Connecting mathematics and literature: An analysis of preservice elementary teachers' changing beliefs and knowledge. *Issues in the Undergraduate Mathematics Preparation of School Teachers (IUMPST): The Journal 2 (Pedagogy)*. <http://www.k-12prep.math.ttu.edu>

Class Policies and Procedures:

1. Homework via problem sets will be uploaded to CourseDen following each class session.
2. There is no make up for quizzes under any circumstances.

3. There is no make up for either the book presentation or the microteaching presentation. Failure to present on your scheduled date will result in a grade of zero.
4. Late work is accepted with a 50% penalty for one late assignment with the exception of homework. Please note that only one assignment can be submitted late. Other late submissions above the allotted one will result in a grade of zero.
5. If a student must miss a test and has excused documentation, then the final examination will be used for the missed test in the calculation of the final course grade.
6. Calculators can be used during the final exam; however, cell phones may not be used (even as calculators).
7. Please be sure that cellular phones are placed on vibrate or silent during class time.
8. Cheating is not tolerated. If a student is caught cheating, then the student will receive a zero for the test or assignment and will be reported for academic dishonesty.
9. Conferences can be beneficial and are encouraged. All conferences should occur during the instructor's office hours.
10. Please note that the daily schedule is tentative. Changes might be made based on students' needs, inclement weather changes, etc.
11. Grades cannot be sent via e-mail to students. Students are expected to keep accurate records and ascertain where they stand in the course.

Suggested Children's Books and Professional Resources that Promote Algebraic Thinking

- Adler, D. (2012). *Mystery math: A first book of algebra*. New York, NY: Holiday House.
- Calvert, P. (2006). *Multiplying menace: The revenge of Rumpelstiltskin*. Watertown, MA: Charlesbridge.
- Carpenter, T. P., Franke, M. L., & Levi, L. (2003). *Thinking mathematically: Integrating arithmetic and algebra in elementary school*. Portsmouth, NH: Heinemann.
- Clements, A. (2007). *Lunch money*. New York, NY: Atheneum Books.
- Giganti, P. (1999). *Each orange had 8 slices*. New York, NY: Greenwillow.
- Holub, J. (2008). *Zero the hero*. New York, NY: KO Kids Books.
- Hutchins, P. (1989). *The doorbell rang*. New York, NY: Greenwillow.
- Lichtman, W. (2008a). *Secrets, lies, and algebra*. New York, NY: Greenwillow Books.
- Lichtman, W. (2008b). *The writing on the wall*. New York, NY: Greenwillow Books.
- McKellar, D. (2009). *Kiss my math*. New York, NY: Plume.
- Merrill, J. (2006). *The toothpaste millionaire*. Boston, MA: Houghton Mifflin Co.
- Otoshi, K. (2008). *One*. New York, NY: Greenwillow.
- Overholt, J. (2010). *Math wise!* Hoboken, NJ: Jossey-Bass.
- Scieszka, J. (1995). *Math curse*. New York, NY: Viking Juvenile.
- Tang, G. (2005). *Math for all seasons*. New York, NY: Scholastic.

Daily Schedule

Date	Topic	Date	Topic
June 2 nd	Number Properties	June 4 th	Number Relations
June 9 th	Expressions & Equations	June 11 th	Inequalities
June 16 th	Test 1/Graphs	June 18 th	Article Review/Standards
June 23 rd	Slope	June 25 th	Systems of Equations
June 30 th	Exponents & Polynomials	July 2 nd	Ratios & Proportions
July 7 th	Test 2/Group Planning	July 9 th	Factoring
July 14 th	Square Roots & Radicals	July 16 th	Microteaching/Problem Solving
July 21 st	Review for Final Exam	July 23 rd	Final Examination