

University of West Georgia

MATH 3803: Algebra for P-8 Teachers I

Fall 2015

Course Syllabus

Instructor: Dr. Christopher Jett

Office: 322 Boyd Building

Class Location: 307 Boyd Building

Office Hours: M/W/F 10-12; M/W 2-3:30

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Class Meeting: M/W/F 1:00 – 1:52 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.

Textbook:

Selby, P. H., & Slavin, S. (1991). *Practical algebra: A self-teaching guide*, (2nd ed.). New York, NY: John Wiley & Sons, Inc.

Children's Literature Books:

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.

Murphy, S. (1997). *Divide and ride*. New York, NY: HarperCollins.

Neuschwander, C. (2013). *Sir cumference and the off-the-chart desserts*. Watertown, MA: Charlesbridge Publishing.

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

Shaskan, T. S. (2008). *If you were a fraction*. North Mankato, MN: Picture Window Books.

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 algebra.
- 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 5 unexcused and excused absences allowed in this course during this fall semester. If you exceed 5 absences, then you will fail the course. Please note that it is your responsibility to sign the attendance sheet during each class period.

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:

Homework: 75 Points (3 @ 25 Points Each)

Test 1: 125 Points

Test 2: 125 Points

Test 3: 125 Points

Quizzes: 125 Points (5 @ 25 Points Each)

Children's Literature Book Flyer: 50 Points

Microteaching Presentation: 50 Points

Algebra Activities & Tasks: 75 Points

Final Exam: 250 Points

Total – 1000 Points

Information about Course Assignments:Homework

Each student will print off the homework and submit completed homework in a folder on scheduled test dates. There will also be a written component responding to the reading with each homework folder submission. Points will be deducted for incomplete homework assignments, so please plan and manage your time accordingly.

Children's Literature Book Flyer

Each student will prepare a book flyer for one of the required literature books on the first page of this syllabus. Specific information concerning the book flyer will be posted in CourseDen.

Microteaching Presentation

Children's literature books related to mathematics are included on the first page of this course syllabus. Each group will submit a lesson plan and prepare an innovative 25 minute presentation concerning their selected book. Please be sure to link the mathematics concepts in the book to the standards and emphasize the connections to the course's theme of algebraic thinking in the elementary grades. Finally, please remember to express how the text could be used as a mathematics teaching tool for future elementary teachers.

Algebra Activities & Tasks

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

Algebraic Concepts Final Examination

The final examination will consist of a **cumulative** assessment of the algebraic concepts covered throughout the entire 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:

Exams are scheduled for Friday, September 18th, Friday, October 30th, and Friday, November 20th. The children's literature book flyer is due on Friday, September 25th. The Algebra Activities and Tasks project is due on Monday, November 30th. The final examination is scheduled for Wednesday, December 9th from 11:00 a.m.–1:30 p.m.

Please note that there will be no class on Friday, August 28th because of the COE Practicum Meeting and Monday, September 7th in observance of Labor Day. There will also be no class on Friday, October 16th and Friday, November 6th as the professor will be away at a conference. Also, Friday, October 2nd is a group meeting/planning day.

Other Course 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.

Class Policies and Procedures:

1. Homework will be uploaded to CourseDen each week.
2. There will be no make up for quizzes under any circumstances.
3. There will be no make up for 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. Please note that only one assignment can be submitted late. Other late submissions above the allotted one will result in a grade of zero. Also, please note that homework cannot be submitted late.
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 examinations; 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. Office hours will not be kept during final exam week. If a meeting is necessary during the final exam week, then please schedule an appointment.
11. Please note that the weekly schedule is tentative. Changes might be made based on students' needs, inclement weather changes, etc.
12. Grades cannot be sent via e-mail to students. Students are expected to keep accurate records of their grades and ascertain where they stand in the course.

Weekly Schedule

Week	Topic	Week	Topic
Week 1	Number Properties	Week 2	Number Relations
Week 3	Expressions & Equations	Week 4	Inequalities
Week 5	Graphs	Week 6	Slope Concepts
Week 7	Literature Circle Presentations	Week 8	Systems of Equations
Week 9	Exponents & Polynomials	Week 10	Ratios & Proportions
Week 11	Factoring & Quadratic Equations	Week 12	Square Roots & Radicals
Week 13	Algebraic Problem Solving	Week 14	Thanksgiving Break
Week 15	Algebra Activities/Review	Week 16	Final Examination

Professional Resources

- Adler, D. (2009). *Working with fractions*. New York, NY: Holiday House.
- Adler, D. (2011). *Fractions, decimals, & percents*. New York, NY: Holiday House.
- Clements, A. (2007). *Lunch money*. New York, NY: Atheneum Books.
- DeGross, M. (2007). *Donovan's double trouble*. New York, NY: Amistad.
- Duffey, B. (1997). *The math whiz*. New York, NY: Penguin Group.
- Franco, B. (2006). *Math poetry: Linking math and literature in a fresh way*. Culver City, CA: Good Year 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.
- Leedy, L. (1996). *Fraction action*. New York, NY: Holiday House.
- 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.
- Mills, C. (2012). *Fractions = Trouble!* New York, NY: Square Fish.
- Mills, C. (2004). *7 x 9 = Trouble!* New York, NY: Square Fish.
- Murphy, S. (1996). *Ready, set, hop!* New York, NY: HarperCollins.
- Murphy, S. (2003). *Less than zero*. New York, NY: HarperCollins.
- 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.
- Souders, T. (2010). *Whole-y cow!: Fractions are fun*. Ann Arbor, MI: Sleeping Bear Press.
- Tang, G. (2005). *Math for all seasons*. New York, NY: Scholastic.
- Tucker, B. (2005). *The journey of al and gebra to the land of algebra*. Highlands, TX: Aha!