# University of West Georgia

MATH 3803: Algebra for P–8 Teachers I
Spring 2016
Course Syllabus

**Instructor:** Dr. Christopher Jett
**Office:** 322 Boyd Building
**Class Location:** 307 Boyd Building
**Office Hours:** M/W/F 10–12; M/W 2:00–3:30

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**Class Meeting:** M/W/F 9:00–9:52 a.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. (2010). *Money madness.* New York, NY: Holiday House.
Dodds, D. A. (2009). *Full house: An invitation to fractions*. Somerville, MA: Candlewick.
Hutchins, P. (1989). *The doorbell rang.* New York, NY: Greenwillow.
Kroll, V. (2005). *Equal shmequal*. Watertown, MA: Charlesbridge.
Leedy, L. (2006). *The great graph contest*. New York, NY: Holiday House.
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 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 semester. If you exceed 5 absences, then you will fail the course. Please note that is your responsibility to sign the attendance sheet during each class period.

**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 Project: 75 Points
Final Exam: 250 Points
**Total – 1000 Points**

**Information about Course Assignments:**
*Homework*
Each student will print off the weekly problem sets 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. Your written response should be at least a full, double-spaced page to receive full credit. 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*
Each group will submit a lesson plan and prepare an innovative 25 minute presentation concerning their selected children's 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 Project*
Activities are individual or collaborative experiences that promote algebraic thinking. You will submit a collection of algebraic activities along with a cover letter. A rubric concerning this project will be posted in CourseDen.

*Algebraic Concepts Final Examination*
The final examination will consist of a **cumulative** assessment of the algebraic concepts covered throughout the entire semester.

**Grading Scale:**

A: 1000–900 Points
B: 899–800 Points
C: 799–700 Points
D: 699–600 Points
F: Below 600 Points

**Important Dates:**

Exams are scheduled for Friday, February 5th, Friday, March 11th, and Friday, April 15th. The children's literature book flyer is due on Friday, March 4th. The Algebra Activities project is due on Monday, April 18th. The final examination is scheduled for Monday, April 25th from 8:00 a.m.–10:30 a.m.

Please note that there will be no class on Monday, January 18th in observance of the Dr. Martin Luther King, Jr. Holiday. There will be no class on Friday, February 26th, Friday, March 4th, and Friday, April 8th as the professor will be away at a conference.

**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 & 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. If a student must miss the final examination, then the student will receive a zero for the final.
7. Calculators can be used during examinations; however, cell phones may not be used (even as calculators).
8. Please be sure that cellular phones are placed on vibrate or silent during class time.
9. 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.
10. Conferences can be beneficial and are encouraged. All conferences should occur during office hours.
11. 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.
12. Please note that the weekly schedule is tentative. Changes might be made based on students' needs, inclement weather changes, etc.
13. 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 | Systems of Equations | Week 8 | Exponents & Polynomials |
| Week 9 | Ratios & Proportions | Week 10 | Spring Break: No Classes |
| Week 11 | Microteaching | Week 12 | Factoring & Quadratic Equations |
| Week 13 | Square Roots & Radicals | Week 14 | Algebraic Problem Solving |
| Week 15 | Algebra Activities/Review | Week 16 | Final Examination |

**Algebraic Resources for Teachers**


Adler, D. (2009). *Working with fractions*. New York, NY: Holiday House.

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

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.

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 Books.

Holub, J. (2008). *Zero the hero.* New York, NY: KO Kids Books.

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.

Miller, C. D., Heeren, V. E., & Hornsby, J. (2012). *Mathematical Ideas* (12th ed.). Boston, MA: Pearson.

Mills, C. (2004). *7 x 9 = Trouble!* New York, NY: Square Fish.

Mills, C. (2012). *Fractions = 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.

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

Otoshi, K. (2008). *One.* New York, NY: Greenwillow Books.

Overholt, J. (2010). *Math wise!* Hoboken, NJ: Jossey-Bass.

Scieszka, J. (1995). *Math curse*. New York, NY: Viking Juvenile.

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

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!

Van de Walle, J., Karp, K., & Bay-Williams, J. M. (2012). *Elementary and middle school mathematics: Teaching Developmentally,* (8th ed.). Boston, MA: Pearson.