

University of West Georgia

MATH 3803: Algebra for P–8 Teachers I

Fall 2018

Course Syllabus

Instructor: Dr. Christopher Jett

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Office Location: 322 Boyd Building

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Class Location: 307 Boyd Building

Class Meeting: M/W 9:30–10:45 a.m.

Office Hours: M/W 11–12; 1–3:30; By appt.

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:

For important policy information, i.e., the UWG Honor Code, Email, and Credit Hour policies, as well as information on Academic Support and Online Courses, please review the information found in the Common Language for Course Syllabi documentation at

<http://www.westga.edu/UWGSyllabusPolicies/>.

Textbook:

Miller, C. D., Heeren, V. E., & Hornsby, J. (2015). *Mathematical Ideas* (13th ed.). Boston, MA: Pearson.

Children's Literature Books:

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

Calvert, P. (2006). *Multiplying menace: The revenge of Rumpelstiltskin*. Watertown, MA: Charlesbridge.

Dobbs, D. (1999). *The great divide*. Somerville, MA: Candlewick Press.

Dodds, D. A. (2009). *Full house: An invitation to fractions*. Somerville, MA: Candlewick.

Leedy, L. (2006). *The great graph contest*. New York, NY: Holiday House.

Wing, N. (2005). *The night before the 100th day of school*. New York, NY: Grosset & Dunlap.

Resource for Children's Mathematics Stories:

<http://www.mathsthroughstories.org/recommendations.html>

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.
- Establish personalized reform-based visions for teaching aligned with the Common Core State Standards for Mathematics and the National Council for Teachers of Mathematics.

Attendance Policy:

It is my expectation that you 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, you are expected to get the materials and information relevant to the missed class from your peers. There are only 4 unexcused and excused absences allowed in this course during this semester. If you exceed 4 absences, then you will fail the course. Please note that it is your responsibility to sign the attendance sheet during each class period.

Evaluation Techniques:

Homework: 75 Points (3 @ 25 Points Each)

Test 1: 150 Points

Test 2: 150 Points

Test 3: 150 Points

Quizzes: 125 Points (5 @ 25 Points Each)

Children's Literature Book Brochure: 50 Points

Microteaching Presentation: 50 Points

Final Exam: 250 Points

Total – 1000 Points

Information about Course Assignments:Homework

Please print the weekly problem sets and submit completed problem sets in a homework 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 as well as papers that are not at least a full, double-spaced page in length, so please plan and manage your time accordingly.

Children's Literature Book Brochure

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

Microteaching Presentation

Each microteaching 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. Also, please remember to express how the text could be used as a mathematics teaching tool for future elementary teachers. Please adhere to the assignment details posted in CourseDen as points will be deducted for not following the established guidelines.

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 Wednesday, September 12th; Monday, October 22nd; and Wednesday, November, 14th. The final examination is scheduled for Wednesday, December 12th from 8:00 a.m.–10:00 a.m.

The children's literature book brochure is due on Monday, October 8th. The microteaching presentations are scheduled for Monday, November 26th and Monday, December 3rd.

Please note that there will be no class on Monday, September 3rd in observance of Labor Day. Also, Wednesday, November 28th is designated as a study day as the professor will be away at a conference.

Other Course Readings:

- Bryan, N. & Jett, C. C. (2018). "Playing school": Creating possibilities to inspire Black male teachers through culturally relevant play. *Journal for Multicultural Education*, 12(2), Retrieved from <https://www.emeraldinsight.com/doi/abs/10.1108/JME-04-2017-0024>.
- Esquith, R. (2007). *Teach like your hair's on fire* (pp. 3–12; 62–72). New York, NY: Viking Adult.
- Ladson-Billings, G. (2009). *The dreamkeepers: Successful teachers of African American children* (2nd ed.) (pp. 33–58). San Francisco, CA: Jossey-Bass.

Class Policies and Procedures:

1. Please exhibit professionalism in all email communication.
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. Also, coming to class late on your scheduled microteaching date will result in a 50% penalty.
4. Late work is accepted with a 50% penalty for one late assignment; 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 you must miss a test and have excused documentation, then the final examination will be used for the missed test in the calculation of your final course grade.
6. If you must miss the final examination, then you will receive a zero for the final.
7. Calculators can be used during examinations; however, cellular 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 you are caught cheating, then you will receive a zero for the test or assignment and will be reported for academic dishonesty.
10. Conferences can be beneficial and are encouraged.
11. Office hours will not be kept during final examination week. If a meeting is necessary during final examination week, then please schedule an appointment.
12. Grades cannot be sent via e-mail. You are expected to keep accurate records of your grades and ascertain where you stand in the course.
13. Please note that the weekly schedule is tentative. Changes might be made based on students' needs, inclement weather changes, etc.

Sequential Outline of Course Topics

Topic	Topic
Number Properties	Number Relations
Expressions & Equations	Inequalities
Graphs	Slope Concepts
Systems of Equations	Exponents & Polynomials
Ratios & Proportions	GCF/LCM
Factoring & Quadratic Equations	Square Roots & Radicals
Algebraic Problem Solving	Algebraic Thinking

Resources to Promote Algebraic Thinking

- Adler, D. (2009). *Working with fractions*. New York, NY: Holiday House.
- Adler, D. (2010). *Money madness*. 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.
- 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.
- Hutchins, P. (1989). *The doorbell rang*. New York, NY: Greenwillow.
- Kroll, V. (2005). *Equal shmequal*. Watertown, MA: Charlesbridge.
- 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. (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. (1997). *Divide and ride*. New York, NY: HarperCollins.
- Murphy, S. (2003). *Less than zero*. New York, NY: HarperCollins.
- Neuschwander, C. (2013). *Sir circumference 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.
- Princzes, E. (1993). *100 hungry ants*. Boston, MA: Houghton Mifflin Company.
- Scieszka, J. (1995). *Math curse*. New York, NY: Viking Juvenile.
- Selby, P. H., & Slavin, S. (1991). *Practical algebra: A self-teaching guide*, (2nd ed.). New York, NY: John Wiley & Sons, Inc.
- 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.