Math 3803  
Algebra for Teachers  
Spring Semester 2009  
Monday & Wednesday Classes

Instructor: Dr. Joy Black  
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Office Location: 318 Boyd Building  
Office Phone: 678-839-4128

Office Hours: Monday & Wednesdays – 7:15 a.m. – 8:30 a.m.; 9:45 a.m. – 12:30 p.m.; 3:30 p.m. – 4:30 p.m.; or by appointment  
(Office hours are subject to change)

Course Objectives
After completion of the course, the student will demonstrate

- An understanding of standard vocabulary and symbols associated with algebra;
- A better understanding of fundamental concepts of algebra, including linear and quadratic equations in one and two variables, linear inequalities, functions, polynomials, exponents, and radicals;
- The ability to recognize and correct “common errors” made by algebra students;
- A better understanding of appropriate strategies for teaching algebra;
- A better understanding of the uses of a variety of manipulatives, technology, and other materials for teaching algebra P-8; and
- An ability to relate algebra topics studied in this course to the mathematics taught in grades P-8.

Text (Optional)

Additional Required Supplies
Math 3803 course packet of handouts which is available at the university bookstore
Four children’s books related to mathematics
Two Pocket Folder
Three Ring Binder

Course Evaluation

<table>
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<th>Assignments</th>
<th>Points</th>
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<tr>
<td>Test - 2 @ 200 points</td>
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<tr>
<td>Portfolio</td>
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<td>In-class group work &amp; presentations</td>
<td>160</td>
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<tr>
<td>20 days @ 8 points per day</td>
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<td>Comprehensive Final Exam</td>
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<td>Total</td>
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Final course grades will be assigned as follows: A (990-1100 points); B (880-989 points); C (770-879 points); D (660-769 points); F (0-659 points).

Test
Math 3803 will consist of two regular exams and a comprehensive final exam. The instructor reserves the right to alter the exam schedule/format as conditions may warrant.

Test 1 – Patterns, The Equal Sign, Relational Thinking, Hands-On Equations, Systems of Equations, Inequalities
Test 2 – Linear Equations in Two Variables, Functions, Exponents, Polynomial Addition, Subtraction, and Multiplication, Factoring, Classes of Functions

Final Exam – Comprehensive Final

Test Dates
February 25th – Test 1
April 27th – Test 2
May 1st – 8:30 Class – Final 8:00 a.m. – 10:00 a.m.
May 4th – 12:30 Class – Final 11:00 a.m. – 1:00 p.m.

Any assignment that is turned in a week after it is due will not be graded! All late assignments will be assessed a two point per day penalty.

Math Portfolio
Portfolio
Each student will create an algebra portfolio that will contain six sections. The final portfolio is due on or before April 13th. Any portfolio turned in after the due date will be assessed a late penalty of twenty points. Parts of the portfolio will be turned in on different dates during the semester. Each section is expected to be neat and well organized, incorporating correct spelling and grammar.

Section 1 – Algebra and Me
(10 points)
Chapter 1

You are to write a paper titled “Algebra and Me”. In this paper, you should describe your algebraic history at each of the grade levels (elementary, middle school, high school, and college). Describe both positive and negative memories. Be descriptive in relaying how you feel about algebra and why you believe you have those feelings.

This paper should be 1 ½ to 2 pages long – typed (due January 12th). This assignment has an assigned point value of five points of the portfolio’s final grade.
Chapter 2

You are to write a paper titled “Algebra and Me – Chapter 2”. In this paper, you should write a thoughtful reflection about your experiences in this class. Be sure to address the following:

- What have you learned?
- How have your views about algebra changed, if at all?
- What role will algebra play in your future classroom?

This paper should also be 1 ½ to 2 pages long – typed. This assignment has an assigned point value of five points of the portfolio’s final grade and will be turned in with the final portfolio.

Section 2 – Journal
(60 points)

This semester you will create a journal. Note the following:

- Journal entries will be written either during class sessions or outside of class.
- Journal entries should be brought with you to class each day.
- If you are absent, you are still expected to complete the assigned journal entry. It is your responsibility to complete this missed entry. It is important to keep current in your writing and not fall behind.
- Journal entries should be written in complete sentences with correct spelling, grammar, and punctuation.
- Neatness is important!
- Please do not place your journal entries in plastic, protective coverings.
- Journal entries will be collected for grading purposes and to provide feedback on the specified dates (see below).
- Once a journal entry has been graded, it will not be regraded.

Journal entries will be scored according to the following:

- 0 = The entry is missing OR only the journal prompt is included OR no meaningful response is given.
- 1 = A meaningful attempt to respond to the journal prompt was made but it was either incomplete or it fell far short of providing an accurate solution/response.
- 2 = A complete but inaccurate response was given OR a correct response was provided without a clear explanation. For example, an inappropriate strategy led to an incorrect answer OR some condition of the problem was ignored OR work leading up to the correct response is omitted.
- 3 = A thorough, accurate, clear response is provided.
The journal counts for 60 points of the total portfolio’s final grade.

**Math 3803**

**Journal Entries**

There should be daily entries in your journal except for the first day of class, review days, and test days. See attached course outline for specific journal prompts.

**Section 2** – Journals will be taken up on these dates and should include any entries from the following dates.

- February 11th – Journal Entries from January 12th through February 4th (21 points)
- March 11th – Journal Entries from February 11th through March 9th (18 points)
- April 13th – Journal Entries from March 11th through April 8th (21 points) – Will be included in the portfolio

**Section 3 – Algebra in Teaching**

(80 points)

This section deals with classroom scenarios or assignments involving algebraic ideas. Each of the four assignments is worth 20 points for a total of 80 points. Due dates for the assignments are listed below

- Assignment 1 – March 23rd
- Assignment 2 – April 1st
- Assignment 3 – March 4th
- Assignment 4 – April 13th (In Portfolio)

**Section 4 – Article Reflections**

(20 points)

Throughout the semester you will read a variety of journal articles and be required to write reflections about them. Your reflection should follow the format and guidelines contained in this document. Reflections should be between 1 ½ to 2 pages in length and should be typed, double spaced. These are due at the beginning of the class on the specified date. **Article reflections which are turned in after the start of class or emailed after class has started on the due date will be assessed a two point late penalty.** Each article reflection is worth five points. Students in Elementary Education should reflect on the first article listed and students in Middle School Education should reflect on the second article listed.

- Reflection 1 – January 14th – Children’s Understanding of Equality: A Foundation for Algebra
- Reflection 2 – January 26th – Algebraic Problem Solving in the Primary Grades
  OR
  Some “Big Ideas” of Algebra in the Middle Grades
Reflection 3 – February 18th – Functions From Kindergarten through Sixth Grade
OR
Transition Toward Algebra
Reflection 4 – March 2nd – Developing Elementary Teachers’ “Algebra Eyes and Ears”
OR
Creating Connections: Promoting Algebraic Thinking with Concrete Models

Reflection section is worth 20 points of the portfolio’s final grade.

Section 5 – Performance Task
(25 points)

This section consists of a performance-based task that is created using the GRASPS model. This model is recommended as part of the mathematics GPS. You will begin work on the task in class in your groups. You will finish the task individually. This performance task is due at the beginning of class on March 25th. Only the paper reflecting the grade will be included in the portfolio.

This section of the portfolio is worth 25 points.

Section 6 – Children’s Literature Related to Mathematics
(80 points)

Students will select four children’s books related to mathematics and prepare an activity along with relative questions pertaining to the book. The book along with information about the book, activity, materials need to complete the activity, and questions should be placed in the two pocket folder and turned in on the due date. Do not include items such as food, scissors, tape, glue, and crayons in your folder.

Children’s Literature Assignment 1 – January 28th
Children’s Literature Assignment 2 – February 16th
Children’s Literature Assignment 3 – March 9th
Children’s Literature Assignment 4 – March 25th

The children’s literature section is worth 80 points.

Summary of Portfolio Points

Section 1 – 10 points
Section 2 – 60 points
Section 3 – 80 points
Section 4 – 20 points
Section 5 – 25 points
Section 6 – 80 points
Neatness, correct binder, all material included, etc – 15 points

Total – 290 points

Suggested Textbook Problems

The following problems have been suggested for you to work related to each chapter. These problems will not be turned in but you are responsible for working through the list. Related problems could appear on the chapter test and/or your comprehensive final.

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In-class Group Work & Presentations
Students will be participating in group work in class. It is the responsibility of the group to make sure that each member of the group is prepared to present their solutions to the remainder of the class. Students must be in class and actively participating in the group work to receive these points.

Attendance Policy
Students are expected to attend all classes. This term a student may withdraw with a grade of W through March 2nd, regardless of grades, absences, etc. This deadline has
been established by the University. After this deadline, if a student accumulated more than five absences throughout the semester, he/she will normally receive a grade of WF. (A grade of WF counts as an F.) The five absences should be saved for sickness and other emergencies. **Late arrivals and early exits count one-half of an absence.** If a student is absent for a test and has an excuse from someone in authority, then the final exam grade will be used for the missed test in the calculation of the final course grade. No make-ups will be given. Students who maintain a perfect attendance record (i.e. no excused or unexcused absences) will have 10 points added to their Total Points at the end of the semester. Students should understand that **NO EXTRA CREDIT WILL BE GIVEN FOR ANY REASON!**

**Conferences**
Conferences can be beneficial and are encouraged. All conferences should occur during the instructor’s office hours, whenever possible. If these hours conflict with a student’s schedule, then appointments should be made. The conference time is not to be used for duplication of lectures that were missed; it is the student’s responsibility to obtain and review lecture notes before consulting with the instructor. The instructor is very concerned about the student’s achievement and well-being and encourages anyone having difficulties with the course to come by the office for extra help. **Grades will be based on coursework, not on Hope Grant needs, financial aid, GPA, or any other factors outside the realm of coursework.**

**Individual Accommodations**
Students requiring individual educational accommodations should discuss their needs with the instructor within the first week of class.

**Conduct and Academic Integrity**
It is expected that students be familiar with the Student Conduct Code, Disciplinary Procedures and Disciplinary Sanctions in the Student Handbook. Cheating and/or any conduct that disturbs the classroom, the instructor, or the students WILL NOT be tolerated!! Any evidence that may show otherwise will be reported; appropriate actions will be taken; and consequences will result. If you are caught cheating on the reflections, journal entries, performance task, Algebra in Teaching assignments, children’s literature assignments, tests, or final exam, you will receive an F for the course.

**Pagers and Cell Phones**
Students are not allowed to carry pagers and cell phones in the classroom unless they are set to an inaudible setting.