Spring 2013
Mathematics for Middle School Teachers - 82058 - MATH 3180 - A
Mathematics for Middle School Teachers - 82064 - MATH 5180 - A
Class 5:00 pm - 6:15 pm MW
Nevins Hall 01207

Instructor: Dr. Arsalan Wares
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Office Hours: MW: 2:30 pm-3:30 pm, TR: 11:30 am- 12:30 pm
(call, e-mail, stop by during office hours, or make an appointment)

Course Description
This course has two components essentially. The first component involves problem solving, the second component is about how we can help our students learn mathematics better.

Math 3180 GENERAL STUDENT LEARNING OUTCOMES
By the time you finish this course, you should know (understand) and be able to do the following:

1) understand, model, and appreciate the role of informal and formal mathematical reasoning skills and processes within the context of teaching and learning mathematics.
2) a) solve a variety of routine and non-routine problems;
   b) select and apply appropriate problem-solving strategies, and describe all aspects of the problem-solving process;
   c) approach unfamiliar problems with confidence in your ability to find solutions.
3) a) extend number system knowledge from the whole number system to integers, rational numbers, and real numbers;
   b) model and apply fundamental number theory concepts.
4) develop and apply a variety of geometric and measurement computations;
5) describe and utilize appropriately the content and process standards contained within the NCTM Standards 2000 and the Georgia Performance Standards (GPS).

Catalog Description of course Math 3180:
Prerequisite: Grade of "C" or higher in either MATH 1101 or MATH 1111. Concepts and processes that provide the foundation for the middle-grades mathematics curriculum (5-8). Includes an in-depth study of the real number system with emphasis on the rational number system and axiomatic differences among number systems. Other topics include relations and functions, geometry (including coordinate geometry and graphing), measurement, and elementary probability and statistics.

Required Textbook
A *Problem Solving Approach to Mathematics for Elementary School Teachers*, by Rick Billstein, Shlomo Libeskind, Johnny Lott (11th Edition)

ADA Statement
Students requiring classroom accommodations or modifications because of a documented disability should discuss this need with me at the beginning of the semester.

Regarding Withdrawal
Beginning in Fall 2010, undergraduate students are limited to 5 withdrawals over the course of their undergraduate academic career.

Attendance
You are expected to attend class and participate in the class activities; thus a lack of engagement during class will count as an absence. If you miss class, **you** are responsible for keeping up with the material and assignments covered.
VSU Policy: A student who misses more than 20% of the scheduled classes of a course will be subject to receiving a failing grade in the course. **Exams, Grades and the Philosophy of the Course**
Exams, Grades and the Philosophy of the Course

Your grade on the course will be based on four exams, a final, and a project.

The exams will be comprised of mostly open-ended questions. In this course we will work extensively on non-routine word problems. Problem solving will be a major theme of this course. We may read a few journal articles (depending on our need). The exams and the final will be used to assess your ability to solve non-routine word problems. **About 30% of the exam questions will be unseen problems from the topics covered in class**. In order to prepare for these unseen problems you should work on the non-routine word problems assigned in class on your own or with a partner. Moreover, you should have a deep understanding of the underlying concepts of the problems and the ideas introduced in the class. **Understanding ideas superficially, or learning to follow a sequence of steps without really understanding why those steps unfold the way they do, will quite likely affect your overall performance in this class negatively**. Take responsibility for your own learning and be an active learner. Don't wait for that illusive "clear explanation." It might never happen because clear explanation depends greatly on the listener. That is, a relatively clear explanation may seem vague to a certain listener because he or she may not have the prior knowledge to appreciate and understand what has been said. When I explain things in class, I often expect you to know certain things, especially materials from the courses that are the prerequisites to this course; I don't assume that your mind is a *blank slate*. Moreover, it is beyond the scope of this course to address the materials from the courses that are the prerequisites to this course. If you feel like you have gaps in your prior knowledge, please go to the tutoring lab or come and see me during my office hours. I will be happy to help you.

I try to assess what you are capable of doing on your own! My exams will not assess your ability to *regurgitate* what you have already seen in the class! The exams will assess how you can use and apply these ideas in slightly different scenarios. It is important because if you cannot transfer what you have learned in this class to slightly different scenarios, then your knowledge is essentially useless for all practical purposes. I put a lot of emphasis on *understanding*, and I try to put less emphasis on memorization.

I also expect my students to be *critical thinkers*. The role of critical thinking cannot be overemphasized in a mathematics class. To be successful in this class you have to do a lot of quality work, not just hours spent. That is, you need to *understand* the materials and topics addressed in class. A cursory knowledge of the materials and topics addressed in class will not help you. It is a good idea to form a study group with your peers from this class, and meet with them regularly to work on topics and problems addressed/assigned in the class.

No make up exams will be given. If for some reason you miss an exam, your final exam grade will replace the grade on your missed exam. However, I will encourage you not to miss any of the exams because the final will be more challenging than any of the exams you will be taking for this course. If you miss more than one exam, the final exam grade will replace only the grade of one of the missed exams; your grade on the remaining missed exam or exams will be a zero. If you do not miss any of the exams, and if your lowest exam grade is lower than the final exam grade, then the final exam grade will replace your lowest exam grade. Also note no make up final exam will be given. **All exams will take place according to the schedule unless the university cancels classes on that day. The exams end when the class ends officially. That is the duration of each exam is same as the length of the class. For the final you will be given two hours. No additional time will be given for the exams or the final. Late exams or the final will not be graded. No assignments will be accepted after the due date. Hard copies of the assignments must be turned in. Emailed assignments will not be accepted.**

Unprofessional behavior will not be tolerated. The following are some examples of unprofessional behaviors: coming to class late, leaving class before the class is dismissed, being disruptive in class in any shape or form, allowing your cell phone to ring, beep or make any kind of noise during class or exams. Please note unprofessional behavior is not limited to the above examples. Since unprofessional behavior depends on the context of the situation, and the history of the individual involved, each case will be addressed separately.

Handheld electronic devises (e.g. cell phones, palm pilot devises, etc.) should be stowed away and they should not be out or used any time during the class. You can only use standard or graphing calculators in the class. Cell phone calculators are not allowed in the class or during the exams. Please use standard or graphing calculators during the exam. Students are also not allowed to share calculators during the exam. If you are caught using the cell phone during class you will asked to leave. If you are caught using the cell phone or other handheld electronic devices during an exam or the final you will receive a zero on that exam or the final. Any form of cheating on an exam or

the final will earn you a zero on that exam or the final. Any form of plagiarism on any assignment will earn you a zero on that assignment as well.

Please note the classroom door will be locked, once the class starts at the scheduled time. Please do not send me email stating that you will be late on a certain day, I will not be able to keep the door open for you. No exceptions will be made. However, I will not lock the door on the days the exams and the final are given. You can walk in whenever you please. However, if you are late on the day of the exams or the final, no additional time will be given. It is a requirement that you come to class on time. No exams or the final will be accepted after the time is up. You are not allowed to leave the classroom during the exams or the final. If you leave the classroom before you are finished with your exam or the final, your exam or the final will be collected as if it is turned in. Please don't wear baseball caps or anything that hides your face while you are taking the exams or the final. I will assign your seats on the days the exams and final will be given. . **Coming late to class or leaving the class early disrupts class. Every time you are late to class or you leave the class early, you will lose 2% from your final letter grade for this course grade.**

Group Work Protocol
Work in your group quietly. Keep your voice down because others are working too!
Make sure the group size small (at most 2-3 persons/group).
If your group is finished with the work early, please don't socialize in class.
Do not carry on with your group work when "whole class discussion" is taking place.

Score Distribution	
Exam 1	16%
Exam 2	16%
Exam 3	16%
Exam 4	16%
Final	31%
Project	05%

Grading Scale	
A	[90%, 100%]
B	[80%, 90%)
C	[70%, 80%)
D	[60%, 70%)
F	[00%, 60%)

Extra Credit

You can get up to 2 percent points added to your class average by volunteering to present in class. The following rules hold.

- You need to present 10 times during the semester to get 2 percent points as extra credit.
- These points are prorated.
- Your presented work has to be correct and complete in order to get credit for presentation.
- If multiple people volunteer, the person with the fewest presentation points will get the chance to present. If there is a tie, we can either roll a die or the people involved in the tie can decide who will go.
- If a person has already presented once on a particular day, other people will have priority over her/him on that day. However, if no one volunteers to present, the same person can present multiple times on the same day.
- If you know how to do a problem significantly differently, and you would like to share with the class; I may let you come to the board to present. You can earn points by presenting in this manner as well.
- I cannot guarantee that everyone in class will get 2 percent points as extra credit.

Additional Requirements Graduate Students

Graduate students receive a collection for 6 articles in a specific area of mathematics education and write a paper on the articles. The directions on how to write the paper are given below.

For each article write a reflection. Your reflection is not a summary of the article; it is your commentary on the article. Please include the following in your reflection:
the main focus of the article,
the strengths of the article,
the weak points of the article (if any),
what are some of the ideas that can be applied in your classroom, and
connect what you have read to your experiences as an elementary school student (how were things different from or similar to the ideas presented in the article) .

You may add other topics (besides the bullets shown above) in your reflection. Your paper should be typed, double-spaced with 1-inch margin around. It should be about 2 pages long. **Please turn in the article with your reflection (paper) on the day you take your final for this course. Make sure the article is stapled to the paper and the paper has your name on it. Feel free to write on your article.**

Calendar

Math 3180 A

Mon	8/12/2013	First day of class
Wed	8/14/2013	
Mon	8/19/2013	
Wed	8/21/2013	
Mon	8/26/2013	
Wed	8/28/2013	
Mon	9/2/2013	Labor day holiday
Wed	9/4/2013	
Mon	9/9/2013	Exam 01
Wed	9/11/2013	
Mon	9/16/2013	
Wed	9/18/2013	
Mon	9/23/2013	
Wed	9/25/2013	Exam 02
Mon	9/30/2013	
Wed	10/2/2013	Midterm (no exam)
Mon	10/7/2013	
Wed	10/9/2013	
Mon	10/14/2013	
Wed	10/16/2013	
Mon	10/21/2013	Exam 03
Wed	10/23/2013	
Mon	10/28/2013	
Wed	10/30/2013	
Mon	11/4/2013	
Wed	11/6/2013	
Mon	11/11/2013	
Wed	11/13/2013	
Mon	11/18/2013	
Wed	11/20/2013	Exam 04
Mon	11/25/2013	Thanksgiving holiday
Wed	11/27/2013	Thanksgiving holiday
Mon	12/2/2013	Last day of class
Fri	12/6/2013	Final 7:15-9:15pm (Nevins Hall 01207)