

Math 125 A Topics in Mathematics for Teaching Spring 2011

Class Meeting: MWF 1:10 - 2:20 PPHAC Room 232

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Office Location: PPHAC 219

Office Hours: Tuesday 1:30 - 2:30, Thursday 8:30 - 10:30, and Friday 10:30 - 11:30 (other times by appointment)

Text: *Mathematics for Elementary Teachers*, Musser, Burger and Peterson, 2008, Eighth Edition, Wiley Publishing.

Course Goals: The primary goals of this course are to provide a deeper understanding of mathematical concepts, methods of reasoning, and techniques of calculation necessary for teaching. Specifically, a successful student will be able to

- use the mathematical content of this course to model and solve realistic problems;
- use mathematical reasoning to find patterns, make and test conjectures, and create simple proofs of find counterexamples to prove or disprove these conjectures;
- communicate results and conjectures using words, tables, symbols, and graphs;
- make connections between mathematical topics and other areas of mathematics, other disciplines, or situations in daily life;
- use technology as a tool to help solve problems;
- use visual and tactile aids (manipulatives) to make mathematical concepts more concrete;
- work well as part of a team to define, solve, and report on projects.

Course Topics: The purpose of this course is to provide the mathematical background necessary for teaching with confidence and imagination the basic concepts of mathematics as well as techniques of problem-solving. Topics will include; sets, whole numbers, properties of numbers, fractions, decimals, numerical operations, decimals, ratios, proportions, percent, integers, real numbers, and geometry. These topics are covered in chapters 1 through 9 and chapters 12 through 14 in the text. Throughout, the emphasis will be on basic ideas, problem-solving, and the larger historical and cultural contexts of mathematics.

Assignments/Assessment:

- Homework: As you know math is not a spectator sport. You need to practice what you learn. Homework problems and reading will be assigned for each section. You

will turn in two specific problems from each section. These two problems should be completed on opposite sides of one sheet of paper. Please be sure to write your name at the top of the page. You are expected to complete ALL of the assigned problems for the next class meeting. Homework assignments will prepare you for the in class tests. **You must be present in class to turn in any homework problems.** If you have a valid excuse, you must turn your homework in prior to the start of class time. Homework will be due at the beginning of class and no late homework will be accepted. I understand that there will be days that you can not turn in your homework on time, so the lowest 2 homework grades will be dropped when computing your final grade.

- Group assignments: Some assignments will be group work done both in and out of class. Each group member will turn in an individual assignment. When grading these assignments, I may choose one from each group and every member of the group receives the same grade. Group assignments may or may not be collected. You must be present on the day a group assignment is assigned in order to receive credit. If you know you will be missing a class, you may complete the group assignment individually, however you must inform the instructor of your absence prior to the class.
- Presentation: Each group will be required to do two presentation of a mathematical topic. The first round of presentations will be March 2 and 4. You will have one week to prepare for your presentation. The second round of presentations will be April 27 and 29. The presentations should be approximately 30 minutes in length. More details on the presentations will follow.
- Quizzes: You may have announced or unannounced quizzes at any time of the day throughout the semester. Quizzes are often where attendance can be a large factor in the students grade. No quizzes can be made up. The lowest quiz grade will be dropped in calculating your final grade.
- Culture Points: Every other Friday, a one page reflection will be collected based on a topic related to mathematics and education. For each topic you will need to find an appropriate resource (identified by the instructor) and write a one page reflection on the topics (including appropriate references). Topics can include standardized testing, gender difference in mathematics, competitive math assignments, teaching techniques, international differences etc. Each assignment will be graded out of 5 points. A total of 25 points are possible. Any points accumulated over 25 will be added to your tests score as 'extra credit'. This is the only form of 'extra credit' possible.
- Tests: You will have 3 tests and a cumulative final exam. These tests can not be made up except under extreme circumstances with appropriate documentation, for example an accident report. If a student is going to miss an exam for an extenuating circumstance, they must notify the instructor at least one week before the exam date. If a make up exam is approved an individual exam will be made, differently

from the class exam, and administered on the next available day. The three tests are tentatively scheduled for Friday, February 11, Friday, March 18, and Friday, April 15. The final exam is Wednesday, May 4, 1:30 - 4:30. College policy states that no make up final exams may be given.

Grading: You are responsible to keep track of your own grade. As a future teacher, you should be able to calculate your grade. Periodic quizzes may be given testing your ability to calculate your grade. Grades will be computed as follows:

Homework, Quiz,	20%
Group Assignments	15%
Culture Points	5%
Presentation	10%
Tests	10% each
Final Exam	20%

Class Structure: Class will consist of lecture, group work, individual work, and problem sessions. Please come to class prepared with you text, notes, and calculator everyday. Please be prepared to participate in class. Class will start promptly at the start time, and class will not end early. Please turn off your cell phones prior to the start of class.

Attendance: Attendance will be taken everyday. There is a very strong correlation between attendance and grades. In order to understand the material, you need to be present in class. Group work also requires every ones participation. I understand that there are circumstances that you must miss class. Any student missing more than three class will lose two percentage points off their final grade for each additional absence. Remember that no late homework or quizzes are accepted and you must be present on the day group assignments are assigned to receive credit.

Academic Honesty: For graded homework assignments and projects, you may use your class notes and any books or library sources except a solutions manual. Any resources you use must be documented at the top of the homework assignment. As an example if you get help from the Tutor Center for problem 4 only, please write "Help with problem 4 from Tutor Center". No points will be deducted for honestly acknowledging help. However if you do not document any appropriate resource this is considered cheating.

The College academic honesty policy appears in your Student Handbook; you are expected to be familiar with it. The Academic Honesty Policy Guidelines specific to mathematics classes are reiterated at the end of the syllabus. They apply to work done outside of class as well as to in-class quizzes and tests. Please read them carefully. If you are unsure about the propriety of a particular procedure or approach, please consult with your instructor before continuing with the assignment.

Special Accommodations: Students with disabilities who believe that they may need accommodations in their class are encouraged to contact the Learning Services Office as soon as possible to enhance the likelihood that such accommodations are implemented in a timely fashion.

Academic Honesty Policy Guidelines Mathematics Courses

The Department of Mathematics and Computer Science supports and is governed by the Academic Honesty Policy of Moravian College as stated in the Moravian College Students Handbook. The following statements will help clarify the policies of members of the Mathematics faculty.

In all homework assignments which are to be graded, you may use your class notes and any books or library sources. When you use the ideas or thought of others, however, you must acknowledge the source. For graded homework assignments, you may not use a solution manual or the help, orally or in written form, of an individual other than your instructor. If you receive help from anyone other than your instructor or if you fail to reference your sources you will be violating the Academic Honesty Policy of Moravian College. For homework which is not to be graded, if you choose, you may work with your fellow students. You are responsible for understanding and being able to explain the solution of all assigned problems, both graded and ungraded.

All in-class or take home tests and quizzes are to be completed by you alone without the aid of books, study sheets or formula sheets unless specifically allowed by your instructor for a particular test.