

MATH 212 SYLLABUS: WINTER 2006
FOUNDATIONS OF ELEMENTARY MATHEMATICS II

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CLASS MEETS

Mondays, Wednesdays, and Fridays 10-10:50 a.m. in AA 104

Tuesdays, 10-11:50 a.m. in AA 104

Dr. Fung's Winter 2008 Schedule

Time	Monday	Tuesday	Wednesday	Thursday	Friday
9-10	Prep	<i>Office Hour 9:30 to 10 a.m.</i>	Prep	Usually not on campus	Prep
10-11	Math 212	Math 212	Math 212		Math 212
11- 12	<i>Office Hour</i>		<i>Office Hour</i>		<i>Office Hour</i>
12 - 1	Math 341	Math 341	Math 341		Math 341
1 - 2	Lunch	Lunch	Lunch		<i>Office Hour</i>
2 - 3	<i>Office Hour</i>	Math 395	<i>Office Hour</i>		Math 395
3-4	Independent Study		Independent Study		

Please feel free to drop by my office during my office hours for help. You do not need to make an appointment to come to office hours. At times other than my listed office hours you are welcome and encouraged to call or email me with questions about the course. If you have direct scheduling conflicts with my office hours and would like further help, please let me know.

COURSE PREREQUISITE

- Math 212 with a grade of C- or better.

REQUIRED COURSE MATERIALS (for the 212, 212, 213 series)

- Textbook, *Mathematics for Elementary Teachers: A Conceptual Approach*, 6th Edition, Bennett and Nelson
- Activity book, *Mathematics for Elementary Teachers: An Activity Approach*, 6th Edition, Bennett and Nelson
- Manipulative Kit, *Mathematics for Elementary Teachers*, 6th Edition, Bennett and Nelson
- A scientific calculator is required for the 212-212-213 course series. A T. I. – 83 is highly recommended. Please see me if you are purchasing a new calculator. Cell phones MAY NOT be used for calculators during exams.
- A large 3 ring binder • At least six dividers that can be labeled

CLASS WEB PAGE

There will be a link for the Math 212 webpage (where many course items will be posted) on my home page: <http://www.wou.edu/~burtonl>

In particular, the class webpage: "Assignments & Activities" will be linked to your Math 212 webpage and will include the class schedule, homework assignments and due dates.

COURSE STRUCTURE

All classes will be a mix of an interactive lecture, hands-on activities and problem solving sessions.

- Please bring your text and your manipulative kit to class every day.
- Please bring your activity book to class as noted on the class schedule & assignments webpage.

COURSE GOALS, CONTENT & OUTCOMES

This course is designed for students planning to be elementary or middle school teachers. The work in this course will include learning and reviewing the mathematics you learned before and learning how students, particularly children, learn mathematics. For many activities and topics you will be exploring the material from the perspective of the students you will be later teaching. It is expected that you can do basic operations with numbers. Our goals for this class are that you should:

- Gain deeper and clearer understanding of basic mathematical concepts
- Gain deeper and clearer understanding of how children learn mathematics
- Experience problem solving and the use of the Oregon Scoring Guide
- Experience hands-on activities to facilitate the above goals
- Be expected to write about mathematics
- Be exposed to resources that help connect the concepts you are learning now to your future as teachers.

Please see the NCTM webpage about standards: <http://www.nctm.org/standards>

Specifically we will look at rational numbers and their representation and operations, and probability and statistics.

By the end of Mathematics 212, you should be proficient in each of the following TSPC (Teacher's Standards and Practices Commission) competencies recommended for elementary and middle school teachers.

Number and Operations

- Candidates understand concepts of rationals: what rationals (represented as fractions and decimals) are; a sense of their relative size; how operations on whole numbers extend to rational numbers; and the behavior of units under the operations.
- Candidates apply commutativity, associativity, distributivity, identities, and inverses as properties of operations on a given domain; seeing computation algorithms as applications of particular axioms; appreciating that a small set of rules governs all of arithmetic.

Data Analysis, Probability and Statistics

- Candidates design data investigations: understand the kinds of question that can be addressed by data, create data sets, move back and forth between the question (the purpose of the study) and its design.

- Candidates describe data: understand shape, spread, and center; use different forms of representation; compare two sets of data.
- Candidates draw conclusions: choose among representations and summary statistics to communicate conclusions, understand variability, understand the difficulties that arise in sampling and inference.
- Candidates use concepts of probability: make judgments under conditions of uncertainty, measure likelihood, understand randomness, apply experimental and theoretical probabilities to predict outcomes and test predictions

Problem Solving

- Candidates engage in mathematical inquiry through understanding a problem, exploring, conjecturing, experimenting, and justifying.

Communication

- Candidates organize and consolidate their mathematical thinking through communication.
- Candidates communicate coherently and use the language of mathematics (symbols and terminology) to express ideas precisely.

Representation

- Candidates use multiple forms of representation including concrete models, pictures, diagrams, tables, and graphs.
- Candidates use invented and conventional terms and symbols to communicate reasoning and solve problems.

Connections

- Candidates understand how mathematical ideas interconnect and build on one another to produce a coherent whole.

Technology

- Candidates understand that technology is an integral part of teaching and learning mathematics both influencing what is taught and enhancing how it is learned.
- Candidates demonstrate effective and appropriate use of technology.

ATTENDANCE & VOLUNTEERING

Daily attendance is required for your success in this course. If you miss class it is your responsibility to ask a classmate for notes on the material that you have missed. Volunteers will be asked to share with the class; your willing participation is part of your attendance & volunteering grade.

READING THE TEXT

You will be expected to carefully and completely read each (assigned) section in your textbook. It is a good idea to briefly read the assigned section before class and then to carefully read the section before you start your homework. Most students find it very helpful to write out the examples in the text as well as to just read the examples. If you carefully write out the examples and work out all of the steps you will find that you have a deeper understanding of the material. Writing out the examples is also a successful technique for pinpointing exactly where you become confused on a problem that you do not understand. I encourage you to ask questions about the examples presented in the book. You may ask questions about the text both in class and during office hours.

HOMEWORK

There will be a variety of homework assignments given in this course. Assignments will be posted on your class assignments webpage. These assignments will include but not be limited to the following.

<u>Assignment Source</u>	<u>Assessment Method</u>
B/N Online Learning Center Applets	Direct grading
Textbook questions	Weekly Homework Quizzes
Activity book questions	Weekly Homework Quizzes
	Direct grading (TI questions)
Problems of the Week	Direct grading
Scavenger Hunt	Direct grading

MATH 212 HOMEWORK & HOMEWORK QUIZZES

Online Homework Questions

The Bennett/Nelson Online Learning Center will be linked to your Math 212 webpage. Each chapter in the book has a corresponding interactive mathematics applet in the Online Learning Center. At appropriate times during the term, you will be asked to explore the applets for Chapters 5, 6, 7 and 8 and write a brief summary of your experience. Due dates will be posted on your 212 schedule and assignments webpage.

Recommended Homework Questions

These will generally be odd-numbered textbook questions with short answers available in the back of the book and possibly activity book questions. You are expected to work through these questions in an informal fashion and check that you are obtaining the correct answers. You are not required to neatly write up the solutions to these questions.

Required Homework Questions

These will generally be even-numbered textbook and activity book questions. You are expected to formally write up these questions and carefully write up the solutions to these questions. Some activity book questions will be turned in for direct grading. These will be listed as (TI) on your class schedule and assignments webpage. TI questions from the week are due the following Tuesday unless otherwise noted. Notation: §1.1.1 (section 1.1, assignment #1), §1.1.2 (section 1.1, assignment #2) and §1.1 (all section 1.1 assignments)

Required Homework Quiz

Every Tuesday, weeks 2, 3, 5, 6, 8 and 9, during ten minutes of class there will be a short homework quiz.

These six quizzes will proceed as follows:

- Each quiz will list 2-5 questions from your recently assigned **REQUIRED** homework. The homework sections covered on the quiz will be listed on your 212 assignments and activities webpage.

Homework Quiz Procedures

- Using your COURSE NOTEBOOK you will be asked to write down what you have written in your homework for those questions.
- Work must be shown for credit. If you don't have something written out in your notebook, you will not have something to write on the quiz.
- You MAY NOT use any of the following during your homework quizzes:
 - Your textbook or your activity book
 - Your calculator, your manipulative kit or a cell phone.

Completing your homework in a timely fashion will be integral to your success in this course. I suggest you set up a homework and reading schedule for yourself and follow it carefully. You will find that if you do not do all of your homework you will not succeed in learning the material covered in this course.

Problems of the Week

As you begin your path as teachers, you will begin to focus on problem solving skills. Approximately every other week, you will be assigned special problems to help you focus on your problem solving skills. Detailed instructions will be provided.

Scavenger Hunt

Each student will be responsible for one Scavenger Hunt topic; see the handout “Scavenger Hunt Directions.”

TIME SPENT ON MATH 212 OUTSIDE OF CLASS

It is a standard academic rule of thumb to spend two to three hours out of class for every hour in class while studying mathematics or science. This is a 200 level mathematics course and the expectation is that you will spend 8 to 12 hours per week outside of class studying and working on the content of Math 212. Set up a regular schedule for yourself and stick with it. Success in mathematics is often directly linked to effort and regular practice.

COURSE NOTEBOOK

File all of your course materials in your course notebook. For your notebook please use a large 3 ring binder divided into at least the following, clearly labeled, sections. You will need a well-organized notebook for your weekly homework quizzes and while studying for class exams.

1. Course Paperwork (syllabus, schedule notes, etc.)
2. Class Notes and Activities
3. Homework (you may wish to divide this in several sections)
4. Problems of the Week
5. Homework Quizzes and Exams

EXAMS AND THE FINAL EXAM

There will be three “midterm” exams and final exam in this course. The midterm exams will be cumulative but will emphasize the recently covered material. The final exam will be cumulative.

The final exam will be offered at a group time on Monday of finals week. See your course webpage and the official final exam schedule for the exact date and time.

Makeup exams will only be available in the case of documented emergency or a documented university sanctioned absence from class (examples: student teaching in the education program, university representation in a music presentation, etc.). Prior notification and my agreement are required. My voice mail and email are always on; there is no excuse for not contacting me prior to missing an exam.

LATE POLICY

25% deduction per class day (MTWF). All work is due by 4:30 p.m. Work turned in after 4:30 p.m. = the next calendar day. No notification is required to turn work in late. It is reasonable to expect that each of us may turn in one or two items a term one or two class days late. This should not have a large impact on your overall course grade. Excessively turning in work late will have a very strong impact on your overall course grade.

EXCUSED LATE WORK

Excused late work will only be accepted in the case of documented emergency or a documented university sanctioned absence from class (examples: student teaching in the education program, university representation in a music presentation, etc.). Prior notification and my agreement are required. Ordinary illness of one or two class days does not count as a documented emergency, even if you have a note from a doctor.

COURSE GRADING

<u>CLASS ITEM</u>	<u>COURSE PERCENT</u>
Daily Attendance & Volunteering	5%
Homework Quizzes	10%
Graded HW & POWs	35%
Three 10% Midterm Exams	30%
Final Exam	20%
TOTAL PERCENT	100%

STANDARD GRADING SCALE FOR THIS COURSE

% Range	Grade	% Range	Grade	% Range	Grade
93 – 100	A	80 – 82	B-	60 – 69	D
90 – 92	A-	77 – 79	C+	Below 60	F
87 – 89	B+	73 – 76	C		
83 – 86	B	70 – 72	C-		

APPROPRIATE CLASSROOM BEHAVIOR

You are ultimately responsible for your own attendance and performance. Disruptive classroom behavior of any kind, such as talking during lecture or consistently coming to class late etc., is not appropriate. Proscribed Conduct for all students is described in the University Catalog. In particular for this course any student found cheating on an exam or copying from another student's exam paper will receive a zero score on that exam.

CELL PHONE POLICY

Cell phones are **NOT** permitted during class. You need to turn your cell phone completely off and keep it off and out of sight during the whole class period. You may **NOT** use cell phones as calculators. If you have an emergency situation, you can contact me for a special permission to keep your cell phone on quiet (“vibrate”) setting.

LEARNING DISABILITIES

If you have a documented learning disability, please talk to me during the first few days of class, I will be more than happy to accommodate you in any way that I can. If you have a documented disability which requires any academic accommodations, you must go to the Office of Disability Services (ODS) for appropriate coordination of your accommodations. You can drop by APSC 405 or contact ODS at (503) 838-8250 (V,TTY) to schedule an appointment.

INCOMPLETE POLICY

An Incomplete can only be granted for a student who is passing a class and has a documented emergency that prevents them from completing the course.