MATH 492/592 SYLLABUS  
ABSTRACT ALGEBRA FOR MIDDLE SCHOOL TEACHERS  
WINTER TERM 2010

Professor: Dr. Cheryl Beaver  
Office: MNB 123  
Phone: 503-838-8404  
Email: beaverc@wou.edu  
CLASS MEETS: 5:00 – 6:50 p.m. MW, MNB 103

C. Beaver's Schedule

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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.

REQUIRED COURSE MATERIALS
- Winter 2010 Course Pack, Math 492/592 (WOU bookstore)
- Large 3-ring binder & 3-ring section dividers that can be labeled
- Set of colored pencils

COURSE PREREQUISITES
Mth 396 with a grade of C- or better. Please see me if you have not taken this course. Students without the correct prerequisite courses may be dropped from the course.

COURSE STRUCTURE
Class will be a mix of an interactive lecture, activities and problem solving sessions. Your attendance and participation in class is crucial and required in this course. We will regularly explore new ideas during class and it will be difficult to make this work up on your own.

COURSE PURPOSE & OUTLINE
This class is designed for students planning to be middle school teachers. In this class we will explore some of the fundamental and beginning “abstract” ideas of mathematics. In particular we will look at:

- Topic One: Whole Number Properties
- Topic Two: Number Sets & Structures
- Topic Three: Beginning Group Theory, in application
- Topic Four: Beginning Modular Arithmetic, in application
- Topic Five: Math Art Posters
- Topic Six: Cryptology (secret codes)
Topics 1, 2, 3 and 4 directly address the following adopted TSPC competencies recommended for elementary and middle school teachers. Topics 5 and 6 are fun applications of these competencies applicable to the middle school classroom. By the end of the term, students in Math 492/592 should be successful in all of the following:

**TSPC competencies**

♦ 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.

♦ Candidates understand concepts of integers and rationals: what integers and rationals (represented as fractions and decimals) are; a sense of their relative size; how operations on whole numbers extend to integers and rational numbers; and the behavior of units under the operations.

♦ Candidates demonstrate conceptual understanding of real (particularly rationals and integers) and complex numbers; ways of representing number; relationships among number and number systems; and the meaning of operations.

**CLASS WEB PAGE**

There will be a link for the Math 492/592 web page on my home page:

http://www.wou.edu/~beaverc

Your class schedule and links to the HW assignments will be posted on this page.

**HOMEWORK**

♦ See the document “MATH 492/592 HOMEWORK POLICIES” for homework assessment guidelines.

♦ All homework is due at the beginning of class on the due date.

♦ 592 Students may have additional homework.

**CLASSWORK**

**Working in Groups**

♦ As a future teacher, working effectively and helpfully with others is an important skill to master. Regardless of the size of your group or the time spent in the group, while you are working in a group, the group is your team. You should work together on the tasks assigned to the group.

♦ Working at the pace of your group is required, you should neither race ahead of your group nor go so slow that your group is constantly waiting for you.

♦ If someone in your group needs help, try to lead them to an understanding of the topic. Don’t just give out answers -- this is not an effective teaching technique (telling) and it is not an effective learning technique (just listening).

♦ If you need help, be sure to ask for help within your group and from the Instructor.

**Working with the Class**

♦ Volunteering and sharing ideas (generally at the document camera) is required. You will be asked to come forward in a variety of settings, this is a fun and useful part of this course. As a future teacher, the more practice you have explaining ideas in front of a class, the better!

♦ When someone is speaking or working in front of the class, be attentive and use your best manners. Disruptive behavior such as talking, whispering, paper shuffling and moving about the room is extremely rude to the speaker and will not be tolerated.

**Taking Notes**

♦ Your notes are your resource for this course—there is no textbook.

♦ Be attentive and take good notes during all class activities and write out all of the details on class worksheets. You will need good notes to succeed in this course.
DAILY HOMEWORK QUIZZES
♦ Unless otherwise announced, every day will start with a short homework quiz—all topics on previously assigned homework are “fair game” for a quiz question.
♦ The goal of the homework quizzes is to encourage you to adopt a prompt study program and after each class, review your course materials and start working on your assigned homework.

Quiz Procedure
♦ Quizzes start promptly at the beginning of the hour. If you are late, you miss the quiz.
♦ You will have approximately 5 minutes to write out your answers.
♦ Homework Quizzes will be peer assessed; peer assessment will rotate so that for every quiz you have a different peer assessor.
♦ I will discuss the correct answers/solutions and peer assessors will use the following assessment scale to score your quiz response.

Quiz Assessment Scale
♦ Peers assess solutions using the following 3-point scale:

3 points
♦ Solution is completely accurate.
2 points
♦ Solution is close to accurate but has minor flaws.
1 point
♦ Solution shows some idea of the topic but is inaccurate.
0 points
♦ Solution shows no idea of the topic or solution is missing.

Missed Homework Quizzes
Missed homework quizzes may not be made up. You may drop your lowest quiz grade.

BOOK REPORT
Per student, once per term for students enrolled in Math 492, twice for students enrolled in Math 592. You will be given more information later.

FINAL PROJECT
♦ There will be an extensive written final project in Math 492/592.
♦ The details of the final project are described in the document “MATH 492/592 FINAL PROJECT” in your course pack.

IN CLASS EXAMS
There will be two hour-long exams and a final exam, see your course schedule for exam dates:
♦ Math 592 Students will have additional questions on their exam.

♦ 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.

FINAL EXAM
The final exam will be Monday, March 15, 2010 at our usual class time (5-6:50pm). The final will be cumulative, but will emphasize the material in Topic 6.
COURSE GRADE
Peer Quizzes  10%
Exams I & II (15% each) 30%
Course Homework 30%
Final Exam 15%
Course Final Project 15%

TOTAL 100%

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.

NON ACADEMIC ELECTRONIC ITEMS (INCLUDING CELL PHONES)
Cell phones and non-academic electronic items will be referred to as “electronic items.” The university classroom is an electronic item free area. Using any electronic device for text messaging, receiving or sending a message or listening to any recording during a university class is completely inappropriate classroom behavior.¹ Electronic items should remain turned completely off and should remain completely out of sight at all times throughout all of your classes. “Quiet” or “vibrate” settings are not turned completely off. Electronic items may not be used for any reason during class or during exams and quizzes. Electronic item use during exams or quizzes will be treated as cheating and you will receive a zero score on that exam or quiz.

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.

STANDARD GRADING FOR THIS COURSE
Your grade for this course will be based on the following with A-, B+, B-, C+, C- given as is appropriate: A—90%, B—80%, C—70%, D—60%, F—below 60%

¹ If you are in an emergency situation in which you need to have your cell phone on quiet; please speak to me about it before class.