MATH 213
Structure of Mathematics II: Probability and Geometry

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Office Hours at CCSU
Tuesday and Thursday
4:30—6:30
Wednesday 1:45 to 3:45

Class: Mon – Thurs 5:45 – 8:00
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860-833-6393 Cellular—this is the best phone to call on
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READ THIS SYLLABUS CAREFULLY. YOU ARE RESPONSIBLE FOR KNOWING THIS INFORMATION! THIS SYLLABUS MODELS THE REQUIREMENTS OF THE NATIONAL COUNCIL FOR ACCREDITATION OF TEACHER EDUCATION.

REQUIRED PRE-REQUISITES: MATH 113

This course is intended for students planning to be certified in Elementary Education.

Topics to be considered in this course will come from this list.

1. Inductive Reasoning
2. Deductive Reasoning
3. Comparison between inductive and deductive reasoning
4. Plane Figures
5. Angle Measures of Polygons
6. Three Dimensional Geometry
7. Spatial Perception
8. Congruence and Rigid Motions
9. Constructions and Congruence
10. Symmetry
11. Similarity and Size Changes (ratio and proportion)
12. Metric Measure
13. Perimeter and Area
14. Areas of Quadrilaterals
15. Pythagorean Theorem
16. Surface Area and Volume
17. Statistical Graphs and Tables
18. Statistical Deceptions
19. Averages
20. Measuring Spread
21. Basic Probability
22. Experimental and Theoretical Probability
23. Counting
24. Expected Value
25. Odds
26. Independent and Dependent Events
27. Words, Algebra, Tables, and Graphs
28. Solving Problems with Formulas, Tables and Graphs
29. Relations and Functions
30. Graphing Functions

**Purpose of the Course:**
This course will provide you with the experience of exploring various of the above topics through a problem solving context. You will be able to see what NCTM (National Council of Teachers of Mathematics) calls connections. You will connect the mathematics that you learn to arithmetic, algebra, and geometry. This will allow you to see the various “courses” in mathematics as a unified whole.

**Assessment:**
Over the past several years, I have been experimenting with various forms of assessment for students. I now believe that I have found a most comprehensive, authentic, and valuable—for the student—form of assessment. This form of assessment tells whoever is interested, just what the CCSU student has learned. The assessment is in the form of a Reflective Cognitive Journal—which I call a textbook. This title says it all. The journal must be reflective, not just a formal writing up of your class notes. You need to reflect—that is, you need to be able to use what you have learned in class to develop examples that you will have in your journal/textbook. This is the cognitive part of your journal/textbook. Sometimes people write journals and they describe how they feel. This is called an affective journal. I am not interested in an affective journal. Thirdly, write the journal as though you were writing a textbook. Here’s why. You are preparing to be a teacher. The writing of your “textbook” reflects your best ability to develop the meaning of the mathematics for your students who will read your textbook. Write it such that you could not do any better. This is how you come to develop the best possible lesson plans—even though the “textbook” is not a lesson plan. I have attached a copy of
what I consider a good journal/textbook entry. Don’t simply copy this students style, develop a style of your own. You’ll be happier for it. 

After each class add to your textbook, don’t send a separate document. In this way your textbook expands, and both you and I get to see it as a work in progress—ever growing and expanding. **You can change, modify, and improve your entries as often as you wish.** My goal for you is for you to be able to leave the class on the last day knowing EVERYTHING that we have discussed. Would you want to be taught by a teacher who had received a “C” in the course, or by one who received an “A+” in the class? I know the answer—it had better be the one with the “A+”.

I will react to your document very often. Notice that I didn’t say every week. That is because as the semester moves on and your textbook begins to have some heft to it, it takes me longer and longer to read them. However, I will check to see that you have sent me an entry. I will send you a note telling you I have received it—or not. Send your entry **after every class, even if I didn’t react to it during the past week.** Don’t put off writing your journal/textbook entry. Things go cold very fast. If you wait until the next week, you will almost certainly leave out some very important things. How do I know this? I’m old! I have been doing this for a number of years and I have NEVER seen a student who has put off the writing of the journal/textbook entry do a good job. They are always weak. Conversely, more often than not, students who write the journal/textbook entry the very next day seem to have a fully developed, accurate, and beautiful entry. So, in this sense, you can determine your own grade.

Now, here’s how I grade it. I hate grading! It puts the professor in a very powerful position in your life. The grade you receive in any class will follow you all of your life. My grading is based upon the rubric that is part of this syllabus. While it is subjective, I hope you will see that it is well thought out and fair. **Please consider this rubric each time you write your entry.** If you feel that you meet level 5 of this rubric, then you should be in pretty good shape for an A.
Rubric for Scoring Journal/Textbook Entries

1. Shows little understanding of what mathematics was developed in class. There are no, or very few, examples from the class. There are no outside citations concerning the mathematics learned in the class.

2. Shows some understanding of the mathematics developed in this class, but the entry is very superficial; there are no, or very few, examples from the class. There are no outside citations concerning the mathematics learned in the class.

3. Shows understanding of the mathematics developed in the class, but the entry is superficial; there are no, or very few, examples from the class. There are no, or very few, outside citations concerning the mathematics learned in the class.

4. Shows good understanding of the mathematics in the class, the entry is complete, and there are examples from the class. There are no, or very few, outside citations concerning the mathematics.

5. Shows good understanding of the mathematics in the class, the entry is complete, and in addition to classroom examples, the student has developed additional examples. There are no, or very few, outside citations concerning the mathematics.

6. Shows good understanding of the mathematics in the class, the entry is complete, and in addition to classroom examples, the student has developed additional examples. There are outside citations concerning the mathematics.

The first time you turn your journal in to me please tell me what word processor software you are using, and whether you are working with a Macintosh or a PC. With this information, I will be sure to respond to you in a format that your computer can read. Also, include the following information on the attachment: Your name, Course Number, Date, and the e-mail address which you generally use. If any of those are missing it will cause a slow down in getting your work back to you. The From Line and Subject Line should look like the following:

FROM LINE: Your name
SUBJECT LINE: MATH 213 9-30-10 ABC
The FROM line is self-explanatory. The SUBJECT line has math 213, so that I know which course you are in. The date lets me know the order in which you have sent things to me, and the ABC are your initials. NOTE: As a CCSU student you have been given an e-mail address. It often is your last name and your first initial. If you have a real common name, like Jim Smith, it will be different. Set up your CCSU e-mail address to automatically forward any e-mail that is sent there to your preferred e-mail address. In that way, I can send to the class on the CCSU site, and you will all receive it.

Now you can see why it is essential that your attendance be virtually perfect. How could one possibly write this journal/textbook if the attendance was not perfect? It makes no difference what number I assign after each class, the only entry that is important is the last one. If the last entry is a 5, then you have an “A”!

As you might be able to tell from all of this, there are no “tests”, there is no “homework”, yet the “tests” are really what you are turning in after each class, and the “homework” is the development of what you are turning in after each class.

Here is some other important information from the university.

University Policies:

1. You must take the final examination at the time specified in the course selection book.

2. If you need course adaptations or accommodations because of a disability, if you have emergency medical information to share with me, or if you need special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible. My telephone numbers and office hours are given above.

3. In the event of a weather emergency which requires curtailment or cancellation of classes, listen to WTIC (1080 AM) or call (860) 832-3333 for the “general snow message.” The best thing to do is to complete the university’s emergency contact form. They will call you on your cell phone in case of any emergency.

Resources Available:

1. If you need help, take advantage of my office hours, or call me up.

Good luck,