

## Math 113

Structure of Mathematics I: Number Systems

Fall 2010

**READ THIS SYLLABUS CAREFULLY. YOU ARE RESPONSIBLE FOR KNOWING THIS INFORMATION!**

**Instructor:** Phil Pomposi

**Email:** [ppomposi@cox.net](mailto:ppomposi@cox.net) or [pomposip@ccsu.edu](mailto:pomposip@ccsu.edu)

**Office:** MS 219

**Office Hours:** Monday, Wednesday; 4:45-5:15 and 6:30-7:30 P.M.

**Class Meeting Times:** Monday and Wednesday 3:30-4:45; MS 212;  
Monday and Wednesday 5:15-6:30; NC 20102;

**Prerequisite:** Math 101 (C- or higher) or appropriate score on the placement exam

**Course Description:** Problem solving approach to inductive reasoning, sets, number theory, integer properties and operations, rational number properties, and numeration.

**Students for Whom the Course is Intended:** Students planning to be certified in Early Childhood, Elementary, or Middle Level education only.

**Textbooks:** Bassarear, Tom. Mathematics for Elementary School Teachers, 4<sup>th</sup> edition. Boston, New York: Houghton Mifflin, 2008.

Bassarear, Tom. Mathematics for Elementary School Teachers (Explorations), 4th edition. Boston, New York: Houghton Mifflin, 2008. These books will also be used for Math 213 which is the next course to be taken for those seeking the above listed certifications in education.

**Recommended Readings:** Principles and Standards for Mathematics. National Council of Teachers of Mathematics, 2000.

**Supplemental Resources:** NCTM web site: [www.NCTM.org](http://www.NCTM.org)

**Overview:** This course enables students to examine topics in elementary mathematics. Course content will be presented using practices and materials that are aligned with the standards adopted by the National Council of Teachers of Mathematics.

**Course Requirements:** You are expected to attend and participate in all class sessions and activities, complete homework assignments, maintain a portfolio of your work, and take tests and the final examination as scheduled. A general rule for any college course is that you are expected to put in at least 2 hours of work outside of class for every hour in

class. **For this course, the expectation is at least 6 hours per week outside of class.** Please bring your textbook and requested supplies to each class. Homework should be completed prior to coming to class, and students should be prepared to discuss and present homework assignments. If an emergency occurs and you will not be able to attend class, please notify me by sending an email or leaving a message at my home.

**Calculator Use:** You will be expected to use a calculator on homework, tests, and work done in class. Although any type of calculator may be used, the Texas Instruments “**Math Explorer**” is strongly recommended.

**Cell Phones and Other Communication Devices:** Must be turned off at all times during class.

**University Policies:**

1. You must take the final examination at the time specified in the course selection book. For these classes the final will be on Monday, December 13th from 5:00-7:00 PM (5:15 section) and Wednesday, December 15<sup>th</sup> from 4:00-6:00 PM (3:30 section).

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 office hours are given above. Any student who feels s/he may need an accommodation based on the impact of a disability should contact me privately to discuss your specific needs. I will need a copy of the accommodation letter from Student Disability Services in order to arrange your class accommodations. Contact Student Disability Services, Copernicus Hall room 241, if you are not already registered with them. Student Disability Services maintains the confidential documentation of your disability and assists you in coordinating reasonable accommodations with your faculty.

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.”

4. The last day to withdraw from a course is Monday, October 25th. From September 8 through October 25, students may withdraw from the course by completing a withdrawal form, available at the Enrollment Center in Willard Hall. During this period approvals for withdrawal are not required; however, it is strongly recommended that students consult with their academic advisors prior to deciding to withdraw. Cessation of attendance, notice to the instructor, or telephone calls to the Enrollment Center are not considered official notice of a student’s intention to withdraw from the course. After October 25 withdrawals are allowed only under extenuating circumstances and require approval of the course instructor, department chair and dean of the School of Arts and Sciences.

5. You are responsible for understanding and abiding by the University's policy on academic integrity. Information on the policy may be found at <http://www.ccsu.edu/AcademicIntegrity/>. This policy is rigorously enforced by the Department of Mathematical Sciences.

**Resources Available:**

1. If you need help, take advantage of your instructor's office hours. Do not wait until just before the first test to do so.
2. The Learning Center is located in Room 241, Copernicus. Free tutoring is available in Room 242, Copernicus, and at other locations on campus. A schedule for hours the Center is open will be posted soon after the beginning of the semester.
3. Form a study group with other students in your section. Explaining solutions to homework problems to each other is a good way to learn.
4. A list of private tutors for hire is available in the math department office, Room 107 Marcus White, 832-2835.

**Evaluation:**

Minimum averages have been established for each of these grades:

A 93% A- 90% B+ 87% B 83% B- 80% C+ 77% C 73% C- 70% D+ 67% D 63% D- 60%

Your grade for the course will be determined in the following manner:

1. Tests

Three tests will be given. Each test will cover approximately one-third of the course syllabus. The two best scores will be weighted twice as much as the lowest score, so the three tests will count for 16%, 16% and 8% of the final grade. You are required to take all three tests. Make-up tests will be given in extenuating circumstances only and must be completed by the next scheduled class meeting. In the event you are unable to complete the test within the time specified, documentation will be required in order to take the test. If a test is not taken it will count as your lowest grade and be weighted accordingly.

40%

2. Final Examination

The final exam will cover material from the entire course and must be taken at the time designated during the final exam week.

20%

### 3. Quizzes

Four quizzes will be given from homework assignments and class work throughout the semester. These quizzes may be given without notice. **There will be no make-up for absences**, however the lowest quiz grade will be dropped (including zeros) before averaging the final grade.

20%

### 4. Portfolio

Students are required to maintain a portfolio of specific class assignments. The portfolios will be collected twice during the semester for review; once in the middle of the semester and once at the end. Portfolio assignments will average two per week. Legibility and organizational clarity is expected. The work should reflect your best effort and be presented in a professional manner. Neatness will be a factor in your grade. It is the student's responsibility to keep track of the portfolio assignments given in class.

One specific assignment will require you to set up and make a visit to an elementary or middle school to observe a math lesson, and possibly tutoring a student or students. The observation must be done during the current semester. A report of your experiences will be included in the portfolio. The completed classroom observation form, including teacher signature, and the write-up of your visit will count as a portfolio assignment. Specific instructions will be given during the semester.

20%

### **Schedule of Important Dates**

All test dates (excluding the final exam) and portfolio due dates are tentative and subject to change. Please refer to the Tentative Block plan for Semester for detailed list of topics to be covered.

Portfolio due dates: October 20 and December 1.

Exam 1: September 29

Exam 2: October 27

Exam 3: November 22

**Final Exam: December 13 or 15**

MATH 113 STRUCTURE OF MATHEMATICS I: NUMBER SYSTEMS  
Tentative Block Plan for Semester

Foundations for Learning Mathematics/ Fundamental Concepts

- 1.1/1.2 Getting Comfortable with Mathematics/Problem-Solving
- 1.2 Problem-Solving
- 1.3/1.4 Patterns/Representation
- 1.5/1.6 Reasoning and Proof/Communication
- 1.7/2.1 Connections/ Sets
- 2.2 Algebraic Thinking
- 2.2/2.3 Algebraic Thinking/Numeration
- 2.3 Numeration/ Review

9/29 TEST 1

Fundamental Operations of Arithmetic/Number Theory

- 3.1 Understanding Addition
- 3.2 Understanding Subtraction
- 3.3 Understanding Multiplication
- 3.4 Understanding Division
- 4.1 Divisibility and Related Concepts
- 4.2 Prime and Composite Numbers
- 4.3 Greatest Common Factor and Least Common Multiple
- 4.3 GCF and LCM/Review

10/27 TEST 2

Extending the Number System

- 5.1/5.2 Integers/Fractions and Rational Numbers
- 5.2 Fractions and Rational Numbers
- 5.2/5.3 Fractions and Rational Numbers/Operations with Fractions
- 5.3 Operations with Fractions
- 5/3/5.4 Operations with Fractions/Beyond Integers and Fractions
- 5.4 Beyond Integers and Fractions/Review

11/22 TEST 3

Proportional Reasoning

- 6.1 Ratio and Proportion
- 6.1 Ratio and Proportion
- 6.2 Percents
- 6.2 Percents
- Review for Final: Cumulative Exam

12/13 or 12/15 FINAL EXAM

Portfolio due dates: 10/20 and 12/1

Last day to withdraw: October 25



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1615 Stanley Street P.O. Box 4010 New Britain, CT 06050 - 4010 [www.ccsu.edu](http://www.ccsu.edu)

Dear Classroom Teacher,

\_\_\_\_\_ is a student at Central Connecticut State University, currently enrolled in Structures of Mathematics I : Number Systems (Math 113). As part of the course requirements, students have been asked to visit an elementary school to observe first-hand how the course content and materials are being implemented in an elementary classroom. After observing a math lesson (preferably one that incorporates the use of math manipulatives), students are encouraged to work with a child or a small group of children, to help reinforce the same concept that was just presented.

You should know this course is the first math course of three that elementary education majors are required to take for certification. Topics covered in this course include: problem solving; number theory; place value; sets; addition, subtraction, multiplication, and division of whole numbers and rational numbers; ratios; proportions; and percents. Students have been introduced to a variety of manipulatives that can be used in the development of these concepts. However, due to the fact that this course is usually taken in the beginning of the students' college career, they may not have a great deal of experience in lesson design or learning theory as of yet.

In visiting your classroom, my students will extend their knowledge by having an opportunity to observe and apply what they have learned in a "real-world" setting. This will be a valuable and meaningful experience. I appreciate your support and thank you for being a vital link in the development of future educators.

Please do not hesitate to contact me if you have any questions or concerns. I may be reached at (860) 628- 3290 during school hours.

Sincerely,

Phil Pomposi  
Department of Mathematical Sciences



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## Math 113 Classroom Observation Form

**Name:** \_\_\_\_\_

**School Visited:** \_\_\_\_\_

**Grade Level:** \_\_\_\_\_

**Date of Observation:** \_\_\_\_\_

**Lesson Objective:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Comments on student's interaction with child or group of children: (Optional)**

**Classroom Teacher's Signature:**  
\_\_\_\_\_