

PELLISSIPPI STATE COMMUNITY COLLEGE
MASTER SYLLABUS

**NUMBERS & OPERATIONS FOR TEACHERS
MATH 1410**

Class Hours: 3.0

Credit Hours: 3.0

Laboratory Hours: 0.0

Revised: Fall 2011

Catalog Course Description:

Topics include problem solving, numeration systems, integers, elementary number theory and rational numbers with an emphasis on mathematical understanding necessary to teach effectively.

Entry Level Standards:

Students must be able to read at the college level.

Prerequisites:

High school algebra I and algebra II and geometry and ACT math score of at least 19; or Transitional Studies math requirements or equivalent math placement score.

Textbook(s) and Other Reference Materials Basic to the Course:

Textbook: Bassarear, Tom. *Mathematics for Elementary School Teachers*. 5th Ed., Brooks/Cole Publishing, 2012.

Required Supplies:

Scientific calculator with fractional capabilities is required. A graphing calculator such as the TI-84 or TI-84 Plus is recommended.

I. Week/Unit/Topic Basis:

Week	Topic
1	Introduction, Problem Solving Strategies
2	Sets, Algebraic Thinking
3	Numeration Systems (including other bases), Review Test 1
4	Modeling Whole Number Operations of Addition and Subtraction in Multiple Bases
5	Modeling Whole Number Operations of Multiplication and Division in Multiple Bases
6	Algorithms, Mental Math, and Estimation for Whole Number Operations
7	Algorithms in Other Bases, Review, Test 2
8	Primes, Composites, and Tests for Divisibility
9	Number Theory, Factors, Multiples

- 10 Fractions and Rational Numbers, Algorithms, Estimation
- 11 Fractions and Decimals: Addition and Subtraction
- 12 Fractions and Decimals: Multiplication and Division
- 13 Ratios, Proportions and Percents
- 14 Review, Test 3, Review for Final
- 15 Comprehensive Final Exam

II. Course Objectives*:

- A. Build skills to master critical thinking. VI.2
- B. Build the skills to construct, manipulate, and discuss mathematical systems. VI.1, 4
- C. Enhance the student's knowledge of the real number system. VI.1, 3, 4
- D. Enhance effective use of mathematical reasoning in order to read, comprehend, and construct mathematical arguments. VI.1, 2

*Roman numerals after course objectives reference goals of the Mathematics program (Career Program Goals and General Education Goals are listed

http://www.pstcc.edu/departments/curriculum_and_instruction/syllabi/)

III. Expectations for Student Performance*:

The student should be able to:

- 1. Utilize both inductive and deductive reasoning. A, D
- 2. Utilize and manipulate the real number system. B, C, D
- 3. Master and explain various problem-solving strategies. A, B, D
- 4. Explain and model algorithms with different base numerals. C
- 5. Demonstrate knowledge of commutative, associative, and distributive laws. A, B, D
- 6. Define natural numbers, whole numbers, rational numbers, irrational numbers, and real numbers. A, B, C, D
- 7. Demonstrate knowledge of division algorithm and divisibility tests. B, C, D
- 8. Define prime numbers, composite numbers, greatest common divisor, and least common multiple. B, C
- 9. Compute prime factorization of a number and use in applications. C
- 10. Apply modeling tools to demonstrate mathematical ideas and processes. A, B
- 11. Demonstrate a greater understanding and appreciation of mathematics and its applications to other disciplines. A

*Letters after performance expectations reference the course objectives listed above.

IV. Evaluation:

A. Testing Procedures:

Students are evaluated primarily on the basis of tests, quizzes, homework, portfolio, projects, and/or a comprehensive final exam. A minimum of three major tests (in addition to the final) is recommended.

B. Laboratory Expectations:

0% of grade or instructor discretion

C. Field Work:

N/A

D. Other Evaluation Methods:

Excessive absences may lower the final grade.

E. Grading Scale:

93 - 100 A
88 - 92 B+
83 - 87 B
78 - 82 C+
70 - 77 C
60 - 69 D
Below 60 F

V. Policies:

A. Attendance Policy:

Pellissippi State expects students to attend all scheduled instructional activities. As a minimum, students in all courses (excluding distance learning courses) must be present for at least 75 percent of their scheduled class and laboratory meetings in order to receive credit for the course. Individual departments/programs/disciplines, with the approval of the vice president of the Learning Division, may have requirements that are more stringent. In very specific circumstances, an appeal of the policy may be addressed to the head of the department in which the course was taken. If further action is warranted, the appeal may be addressed to the vice president of the Learning Division.

B. Academic Dishonesty:

Academic misconduct committed either directly or indirectly by an individual or group is subject to disciplinary action. Prohibited activities include but are not limited to the following practices:

- Cheating, including but not limited to unauthorized assistance from material, people, or devices when taking a test, quiz, or examination; writing papers or reports; solving problems; or completing academic assignments.
- Plagiarism, including but not limited to paraphrasing, summarizing, or directly quoting published or unpublished work of another person, including online or computerized services, without proper documentation of the original source.
- Purchasing or otherwise obtaining prewritten essays, research papers, or materials prepared by another person or agency that sells term papers or other academic materials to be presented

as one's own work.

- Taking an exam for another student.
- Providing others with information and/or answers regarding exams, quizzes, homework or other classroom assignments unless explicitly authorized by the instructor.
- Any of the above occurring within the Web or distance learning environment.

C. Accommodations for Disabilities:

Students who need accommodations because of a disability, have emergency medical information to share, or need special arrangements in case the building must be evacuated should inform the instructor immediately, privately after class or in her or his office. Students must present a current accommodation plan from a staff member in Services for Students with Disabilities (SSWD) in order to receive accommodations in this course. Services for Students with Disabilities may be contacted by going to Goins 127, 132, 134, 135, 131 or by phone: 539-7153 or TTY 694-6429. More information is available at www.pstcc.edu/departments/swd/.

D. Other Policies:

Make-up work: Instructor discretion about make-up tests and/or assignments.

Cell phones: Cell phones are to be either turned off or put in vibration mode while in class. Instructor discretion as to penalty.