**Texts:** 1) Billstein, Libeskind, Lott: A Problem Solving Approach to Mathematics for Elementary School Teachers (Pearson Publ.) 13th ed.

2) Supplemental sheets provided by instructor.

**Course Supervisor:** Thea Pignataro, **email**: thea@ccny.cuny.edu

Sections in Billstein with number of class hours to cover material

1-1, 1-2, 4 class hours

2-1, 2-2, 2-3, 8 class hours

3-1, 3-2, 3-3, 3-4, 3-5, 8 class hours

4-1, 4-2, 4-3, 6 class hours

5-1, 5-2, 4 class hours

6-1, 6-2, 6-3, 6-4, 8 class hours

7-1, 7-2, 7-3, 7-4, 7-5 10 class hours

Total Number of hours 48 hours (there are 56 in the semester)

**Math 180 - Course Learning Outcomes (CLO)**

After taking this course the student should be able to:

 Contributes to

 Departmental Learning

 Outcome(s):

1. apply a number of different strategies (Including visual and numerical) to solve a variety of problems,

and explore patterns and sequences. . a, b, c

2. use set theoretic concepts to reason and to describe relationships among various categories of
objects and numbers, and use set operations and understand their properties. a, c, e1

3. solve problems using the concept of ordered pairs. a, c

4. develop a fluency with, and an appreciation of, our whole number numeration system and operations

through a study of historical numeration systems and bases other than ten. a

5. use simple number-theoretic concepts (e.g., primes, divisibility) to solve problems to deepen the
understanding of fraction and decimal operations. a, e1

6. apply the concepts of least common multiple and greatest common divisor of two integers to
operations on fractions. a, e1

7. model and solve real world problems involving fractions and decimals using set and number
theoretic concepts. a, c, d

8. demonstrate a knowledge of the concept of irrational numbers and their approximations using both

algebra and a scientific calculator. a, c, d, e1

9. estimate results of calculations given the numbers or given only partial information about the numbers. a, d

10. understand rational numbers as decimals and percents, solve problems with percents. a, c, d

11. explain orally and in written form the meaning of mathematical terms, operations and theorems,
as well as solutions to problems. a, e1, e2

**Note: use of technology is limited to the use of a scientific calculator**

**DEPARTMENTAL LEARNING OUTCOMES**

***The mathematics department, in its varied courses, aims to teach students to***

*a. perform numeric and symbolic computations
b. construct and apply symbolic and graphical representations of functions
c. model real-life problems mathematically
d. use technology appropriately to analyze mathematical problems
e. state (e1) and apply (e2) mathematical definitions and theorems
f. prove fundamental theorems*

*g. construct and present (generally in writing, but, occasionally, orally) a rigorous mathematical argument.*