COURSE LEARNING OUTCOMES

DEPARTMENT: MATHEMATICS

....

COURSE #: 18500 **COURSE TITLE: Basic Ideas in Mathematics** CATEGORY: Required for prospective elementary education majors TERM OFFERED: every term PRE-REQUISITES: Math 18000 PRE/CO-REQUISITES: HOURS/CREDITS: 4hrs. /wk., 3 credits DATE EFFECTIVE: January 17, 2007 COURSE COORDINATOR: Rochelle Ring	**CATALOG DESCRIPTION** Problem solving, sets, operations on sets, functions, numerical systems with different bases, topics in number theory, probability and geometry. Course involves writing exercises and collaborative work. This course is for potential education majors only.

COURSE LEARNING OUTCOMES

Please describe below all learning outcomes of the course, and indicate the letter(s) of the corresponding Departmental Learning Outcome(s) (see list at bottom) in the column at right.

After taking this course the student should be able to:

	Contributes to Departmental Learning Outcome(s):
1. apply a number of different strategies(Including simple algebra) to solve a variety of problems.	a, b, c
2. use set theoretic concepts to reason and to describe relationships among various categories of objects and numbers.	a, c, e1
3. solve problems using the concept of functions as rules, ordered pairs and graphs.	a, b, c
4. develop a fluency with and an appreciation of our whole number numeration system, 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 learned in Math 180.	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 a calculator; in particular, their occurrence in geometry.	a, c, d, e1
9. demonstrate a knowledge of the relationship, as well as the distinction, between theoretical and empirical probability.	a, c, e1
10. analyze games, compute probabilities of complementary and compound events and solve simple counting problems.	a, b, c, d, e1
11. interpret statistical graphs and numerical data as well as calculate and use measures of central tendency and variation.	a, b, c, d
12. explain orally or in written form the meaning of mathematical terms, operations and theorems as well as solutions to problems that they will present in the future in their own classroom.	a, e1,

Note: DLO d (use of technology) is limited to the use of the calculator

DEPARTMENTAL LEARNING OUTCOMES *(to be filled out by departmental mentor)*

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.*