THE OHIO STATE UNIVERSITY

Catalog Description:
Continuation of 1125: Math 1126 involves geometry, measurement, number theory, algebraic thinking, counting techniques, probability, a mathematical reasoning for prospective elementary school teachers.

Prerequisite:
A grade of C- or above in 1125; and enrollment in Early Childhood or Special Education major, or in Middle Childhood major or pre-major with area of concentration different than Math.

Exclusions:
Not open to students with credit for 107.

Purpose of Course:
To develop an appreciation of, and basic competency in, the use of analytical thought in the development of a cohesive body of useful mathematical knowledge, with special emphasis on topics encountered in elementary and middle school mathematics programs. Math 1126 addresses basic geometric concepts and measurement, symmetry and rigid motions, congruence, similarity and scaling, coordinate geometry, algebraic thinking, linear functions, counting techniques and probability. *Appropriate for those preparing to become early childhood educators and for those preparing to teach subjects other than math in middle school.*

Text:
Mathematics for Elementary Teachers, with Activity Manual, 4rd Edition, by Sybilla Beckmann, Pearson, ISBN for the package is 9780321836715 (loose-leaf) and Student Packet.

Topics List:
1. Spatial visualization and basic geometric concepts: angles, 2- and 3-D shapes and their properties.
2. Measurement: meaning of length, area, volume, measurement techniques, unit conversion, actions preserving area/volume, and scaling.
3. Transformations: symmetry, congruence, similarity.
4. Geometric constructions with various tools (compass, paper folding).
5. Algebraic thinking: expressions, measurement formulas, scaling, functions, use of formulas, graphs, and tables, sequences, and coordinate geometry.
6. Counting: inclusion/exclusion, fundamental counting principle, tree diagrams, permutations and combinations, Pascal's triangle.
7. Basic ideas of probability: Law of Large Numbers, sample and event spaces, use of tree diagrams, simulations, and discussion of common misconceptions.
8. Problem solving and justifications at multiple levels are themes of the course.

*Currently taught in either lecture/recitation or workshop format.