1035-H1-122 **Philip Wagreich*** (wagreich@uic.edu), Dept of Math, Statistics, and Comp Sci, UIC, 322 SEO, m/c 249, 851 S. Morgan Street, Chicago, IL 60607-7045. *A Course for Preservice Middle School Mathematics Teachers That Integrates Mathematics and Science.*

Teaching Mathematics with Science was designed based on the hypothesis that, for most students and teachers, mathematics is best learned in a meaningful, real-world context and that scientific investigations provide a wide variety of engaging, intellectually stimulating contexts. Three central ideas guided the content of the course:

1. the concept of a variable — with a focus on the fundamental variables of science: length, area, volume, mass, time and number (counting things)

2. the concept of function and its representations

3. the scientific method

Students conduct a variety of experiments, generally involving two variables, that display relationships of increasing complexity; starting with proportional, then linear, quadratic, cubic, etc. Particular attention is paid to experimental error, precision, controlling extraneous variables.

Investigations conducted by the students include Spreading Out (the relation between the number of drops of water dropped on a paper towel and the area of the spot created by the water), a classic experiment of Galileo, and a rigorous study of why objects sink or float.

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