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James Morrow* (jmorrow@mholyoke.edu), Mathematics Department, Mount Holyoke College, 50 College Street, South Hadley, MA 01075. *Mathematical ways of reasoning and knowing through geometry.*

I will describe a course by which students meet liberal arts objectives by investigating geometry. My goals for the course are to provide an experience of mathematics as a distinctive way of knowing, give perspectives on mathematical reasoning, and compare ways of reasoning and knowing in mathematics to ways in other disciplines. I also try to develop students' ability to ask questions, make discoveries, and take a creative approach to solving problems.

Students begin each topic by doing mathematics. They carry out investigations, create categories, form conjectures, and ask questions. The major investigations are: a geometry walk (an exercise in observing geometry in the environment and forming categories), constructions by paper folding, ruler and compass constructions, and hyperbolic geometry constructions using geometry software. I assign readings in the book *Journey into Geometries*.

Students do construction work in labs and discuss mathematical systems, undefined terms, axioms, theorems, and consistency in a system of axioms. They compare mathematical systems to methods and standards of argument in the natural and social sciences, arts, and humanities. (Received August 11, 2009)