1014-L1-1075 **James Morrow***, Mount Holyoke College, 50 College Street, South Hadley, MA 01075. *Towards a Geometry Course that Focuses on Mathematical Ways of Reasoning and Knowing.* Preliminary report.

I will describe the progress made towards developing a course, Explorations in Geometry, to meet liberal arts objectives. My goals are to provide an experience of mathematics as a distinctive way of knowing, perspectives on mathematical reasoning, and a comparison to ways of reasoning and knowing in other disciplines. I also try to develop students' ability to ask questions and make discoveries.

The course is "below" calculus and is intended for people whose curiosity about mathematics can be aroused, but aren't interested in the calculus sequence.

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 observation and category formation), constructions by paper folding, Euclidean constructions, and hyperbolic geometry constructions. Geometry software and the text Journey into Geometries are used.

Students do construction work in labs and have discussions about such concepts as mathematical systems, undefined terms, axioms, and 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 September 27, 2005)