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**Penny H. Dunham\*** (pdunham@muhlenberg.edu), Muhlenberg College, Dept. of Math & CS, 2400 W. Chew St., Allentown, PA 18104. *Symmetry and Design Portfolios Showcase Mathematics for Liberal Arts Students.*

"Symmetry and Shape" is a 100-level course that examines geometric concepts in art and nature. Its primary audience is students from the humanities. Two portfolio projects in S&S showcase mathematics found in art and everyday objects. In the first, students collect "real world" examples of symmetry using images from publications, personal photographs, the Internet, and other media. They organize the collection by symmetry type with a brief description of each item. The focus is on variety (in both symmetry types and sources) as well as correct classification. The second portfolio is a collection of original student art to illustrate mathematical concepts studied throughout the semester. Design assignments flow from work with geometric topics such as compass and straight-edge constructions, the golden ratio, Fibonacci and Pythagorean spirals, frieze and wallpaper patterns, and perspective. Students submit a short paper explaining underlying mathematical principles in each design and making a case for meeting the course goals. Finally, they display their designs in the annual campus Art Week. In this talk, I'll show examples of student work and provide grading rubrics. (Received September 03, 2009)