

1035-H1-877

Maria G. Fung* (fungm@wou.edu), Mathematics Department, 345 N.. Monmouth Ave., Western Oregon University, Monmouth, OR 97361, **Tevian Dray** (tevian@math.oregonstate.edu), Department of Mathematics, Oregon State University, Corvallis, OR 97331, and **David Damcke, Lyn Riverstone** and **Dianne Hart**. *Exploring Concepts of Euclidean Geometry Through Comparison with Spherical and Taxicab Geometries.*

We describe a set of course materials developed for the improvement of geometry content knowledge in K–12 teachers, yet suitable for use with pre-service middle school teachers. These materials include separate units on spherical and taxicab geometries, and a list of student group projects. We present several mathematically rich tasks that have been explored by the students in our course, and share our techniques for comparing Euclidean geometry to both spherical and taxicab geometries. We also briefly discuss some of the pedagogical tools that we have used such as the use of manipulatives (Lénárt spheres, Etch-a-Sketch), cooperative learning (e.g. well-defined group roles, jig-saw puzzle, interest/ability differentiated activities), and selection and sequencing of students' results for vibrant classroom discourse. The confrontation with unfamiliar subject matter within a cooperative, risk-free learning environment provides both content knowledge and insight into the teaching of mathematical thinking. (Received September 17, 2007)