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Jose N Contreras* (jncontrerasf@bsu.edu). *Developing Mathematical Knowledge for Teaching Geometry within Dynamic Geometry Environments.*

In this presentation, I will describe an inquiry-based geometry course that I developed to engage my prospective and practicing secondary mathematics teachers in searching for patterns and in posing and solving geometry problems within the support of Dynamic Geometry Software (DGS). The course is based mainly on three types of activities.

The first type of activities guides students to discover geometric patterns with the aid of DGS and then make and test conjectures. An example of this type of activities involves examining the Pythagorean configuration to discover additional patterns including relationship among areas of polygons.

The second type of activities includes problems that can be represented and modeled with DGS. An example of this type of activities involve investigating the treasure problem.

The third type of activities includes geometric problems whose attributes can be modified to pose additional interesting mathematical problems. An example of this type of activities involve the Varignon theorem. Students use DGS to formulate conjectures about the solutions to the problems posed.

Learning how to use DGS and crafting proofs are two pedagogical aspects of mathematical knowledge for teaching that my students further develop by completing the course. (Received September 15, 2020)