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The authors created curriculum modules designed to provide the opportunity for students to make connections between the mathematical content areas of transformational geometry, linear algebra and abstract algebra, while emphasizing connections between pre-college and undergraduate mathematics and between content and pedagogy. This integrative approach was applied in a junior-level undergraduate geometry course required of prospective mathematics teachers, providing a unique opportunity to investigate the question, "What are the characteristics of a prospective teacher's mathematical understandings in the context of an integrative approach to the teaching of transformational geometry?" We will discuss our experiences in implementing these materials and share results of our research efforts. (Received September 26, 2006)