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Yating Liu* (liu.891@buckeyemail.osu.edu). *Enhancing the content knowledge of pre-service secondary mathematics teachers: Understanding connections.*

The Common Core Standards propose development of understanding regarding two aspects of mathematics learning: 1. How the content is connected to each other as components of the subject; and 2. How forms and representations of concepts evolve from informal to more formal levels. These two goals demand that the teachers possess a deep understanding of content trajectory, which is often missing from their own mathematics coursework. This gap motivated the development of a new graduate course at the Ohio State University. Using the NCTM Curriculum Focal Points, Crossroads in Mathematics Standards, and CCS as framing models for curriculum and instructional design, the course content is organized to engage participants in examinations of key ideas of Arithmetic, Algebra, Pre-calculus and Calculus, Number Theory, Linear Algebra, Abstract Algebra, Geometry, and Probability in K-16 in order to trace the trajectory of specific concepts. The participants study secondary curriculum materials and evaluate their utility for meeting the suggested standards. They design tasks that focus on identifying connections among various mathematical concepts and hence to create lessons that nurture conceptual understanding. We will share the course syllabus as well as illustrative examples of tasks. (Received September 21, 2011)