

Meeting: 1003, Atlanta, Georgia, MAA CP G1, MAA Session on Drawing on Our Students' Thinking to Improve the Mathematical Education of Teachers, I

1003-G1-1228 **Paul E Kehle*** (pkehle@indiana.edu), Mathematics Department, Rawles Hall, Indiana University, Bloomington, IN 47405, **Daniel P Maki** (maki@indiana.edu), Mathematics Department, Rawles Hall, Indiana University, Bloomington, IN 47405, **Andy Norton** (annorton@indiana.edu), School of Education, Indiana University, Bloomington, IN 47405, and **Dale Nowlin** (nowlind@bcsc.k12.in.us), Mathematics Department, Columbus North High School, Columbus, IN 47201. *Design and Implementation of Linking Courses: Connecting College Mathematics with High School Mathematics for Pre-service Teachers.*

A collaborative effort among the Indiana University (IU) mathematics department, the IU School of Education, and local high school mathematics teachers resulted in the design of four one-credit courses that undergraduates take in conjunction with courses in calculus, abstract algebra, mathematical modeling, and probability & statistics. The primary objective of these linking courses is to help undergraduate pre-service mathematics teachers make connections among the content of their undergraduate mathematics courses, the content and pedagogy of the grades 6-12 mathematics curriculum, and standards for K-12 mathematics education. We seek to cultivate a fuller, more relevant understanding of the deeper mathematical ideas contained in the undergraduate courses. Examination of the undergraduates' thinking about the concepts encountered in these courses leads to both content and pedagogical gains. This paper addresses the challenges, solutions, and pros and cons entailed in this approach to improving the quality of future mathematics teachers. (Received October 04, 2004)