

Meeting: 1003, Atlanta, Georgia, MAA CP C1, MAA Session on Courses Below Calculus: A New Focus, I

1003-C1-1242 **Helen Burn*** (hburn@umich.edu), 2117 SEB, 610 E. University Avenue, Ann Arbor, MI 48109.
*What do they Assume? An Exploration of the Assumptions about Student Learning Contained in
Calls for Reform of Introductory College Mathematics Courses.*

This paper addresses the following questions: What assumptions about student learning are explicit or implicit in calls for reform of introductory college mathematics courses (non-remedial courses below the level of calculus), and to what extent are these assumptions grounded in the literature on student learning in mathematics? I begin by comparing and contrasting the different ways that mathematical expectations (also called goals, objectives, or outcomes) for introductory college mathematics courses are articulated in several calls for reform of undergraduate mathematics: Crossroads in Mathematics (AMATYC, 1995), Curriculum Guide 2004 (MAA, 2004), and Transforming Undergraduate Education in Science, Mathematics, Engineering and Technology (NRC, 1999). I include a draft of the new Crossroads in the analysis. Next, I point out the authors' major assumptions, and then focus in on those assumptions having to do with student learning and critique those in terms of the extent to which they are grounded in the literature in undergraduate mathematics education and educational psychology. I conclude by examining the strengths and weaknesses or gaps in the literature with respect to assumptions about student learning in mathematics and by discussing implications for future research. (Received October 04, 2004)