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Research Experiences for Undergraduates (REU's) are NSF sponsored programs that provide the opportunity for select undergraduates in all fields of science to engage in research during the summer. The directors of these REU's come from various academic backgrounds and experiences but all share a commitment to the development of the undergraduate researcher. The structure of each REU is a blend of the vision of its director and the students that it intends to serve. This work will focus on how rigorous collaborative learning, intensive mentoring, and community building contribute to successful mathematical research and individual growth in the Applied Mathematical Sciences Summer Institute (AMSSI), a program that focuses its efforts on women and underrepresented minorities. AMSSI is unique in that the co-founder and co-director was involved in a similar REU as a student (in 1996), teaching assistant (1998-2002), and faculty (2003) and drew upon these collective experiences to define AMSSI's structure. (Received September 28, 2005)