Mentoring undergraduate students in research is both rewarding and challenging. In this talk we present how we established a summer REU and a year long undergraduate research program at MSU. We outline strategies for recruitment, problem selection, matching undergraduate researchers with projects, finding financial resources, and developing environments that cultivate interest and independence in doing research. Using the SURIEM/REM experience from 2010-2014, examples of challenges and solutions will be presented. (Received September 06, 2014)