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A cross disciplinary research program that engages undergraduate students in real research was started at Youngstown State University. The program in Mathematical Biology and Undergraduate Research (MBUR) teamed a biology and mathematics student to conduct genuine research under the mentorship of faculty members in mathematics and in biology. Four such teams were selected and conducted separate research projects over the course of one year. The program used a combination of courses, intensive summer research and sustained involvement to educate and motivate the students. Students presented their findings at local, regional and national meetings. A regional conference in Mathematical Biology was initiated and an interdisciplinary minor in biomathematics was developed. Existing courses were modified and new courses were developed. Student research projects included (1) the role of intracellular calcium on arrhythmias in long QT syndrome, (2) the mechanisms of senktide induced depolarization of pyramidal cells in the prefrontal cortex, (3) selenium metabolism in *Stenotrophomonas maltophilia*, and (4) modeling of selenite resistance in *Enterobacter sp.* The program was funded by NSF grant DBI-0827205. (Received September 22, 2009)