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Brittany Bannish* (bbannish@uco.edu) and **Sean Lavery** (slavery@uco.edu). *Exploring modeling by programming: a technique for involving undergraduates in mathematical biology research.*

Undergraduate research projects can be incredibly rewarding for both the students and the faculty mentors. A challenge encountered by faculty hoping to work with students is finding someone with the appropriate prerequisite knowledge, who is not graduating too soon. In this talk, we present a few tips for getting students of almost any mathematical background started in research, and a few examples of successful projects. We emphasize the use of technology early on, building up from smaller, simpler problems to the question of interest. This helps students gain intuition about the appropriate mathematical topics and details of their particular system, think critically about what results mean biologically, and consider possible model modifications or directions for more rigorous mathematical analysis. Using specific examples like parasite transmission in cats, the role of protein regulation in establishing circadian rhythms, and the cost of treatment in an influenza outbreak, we show how we approach undergraduate research, from picking a project topic, to learning to program, to analyzing the model, to making biological hypotheses based on model results. (Received August 13, 2019)