Simulating Antibiotic Resistance in the Computer Lab and Biology Lab: Ideas for Undergraduate Projects

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Antibiotic resistance is a capacious and global problem, considered to be one of the most important public health threats of the 21st century. In this talk, we aim to outline ideas for mathematics and computer science faculty to work in conjunction with biology faculty to provide a multidisciplinary approach to student learning. We will introduce both computer simulation and laboratory-based exercises, course modules, and independent research projects that work together to deepen student understanding of antibiotic resistance and its effect on planetary health. Prerequisite knowledge for the proposed projects and activities will range so that the biological concepts, epidemiological problems, and social justice issues of antibiotic resistance can be accessible to and pondered by all undergraduate students.