1067-X1-812   **Aaron Luttman*** (`aluttman@clarkson.edu`), Box 5815, Clarkson University, Potsdam, NY 13699. *Mathematics, Biology, and Imaging: Engaging Undergraduates in Research on the Fringe of Mathematical Biology.*

There is a great deal of active research that mixes mathematics, biology, and imaging, but almost all such projects lie within the field of "medical imaging." There are, in fact, great applications of imaging science – and its mathematical components, in particular – to the study of a wide range of biological applications that lie way outside the medical regime. In this presentation we will introduce and describe three undergraduate research projects at an unusual interface between mathematics, biology, and imaging. The first project involved using the same imaging techniques based on partial differential equations to analyze both leaf transpiration and the flow of oceanic plankton blooms. The second project centered on image-based methods for analyzing periodicities in tree ring growth, and the third incoporated methods from computer vision to classify cryptic species of southeast Asian lizards. The students' research results will be described, with a focus on how to engage students in such "fringe" projects, how to fund them, and how to find the appropriate collaborators from the biological sciences to work with. (Received September 15, 2010)