

## Abstract for BEER

Title: A framework for the teaching of modeling for biologists

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Here we present a framework for teaching models and modeling to biologists. We examine disciplinary strengths in examining biological questions and encourage that differing disciplinary approaches are seen as part of a larger picture of this framework. We define model representations in the rule of five and modeling as the act of moving between representations. We provide examples to illustrate and acknowledge language can interfere with helping students make connections between and within disciplines. We then use this framework to inform instructional approaches for biology students. This work was conducted as part of “Unpacking the Black Box: Teaching Quantitative Biology” Working Group at the National Institute for Mathematical and Biological Synthesis (NIMBioS), sponsored by the National Science Foundation through NSF Award #DBI-1300426, with additional support from The University of Tennessee, Knoxville.