

Abstract Submitted
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Understanding student use of mathematics in IPLS with the Math Epistemic Games Survey¹ MARK EICHENLAUB, Department of Physics, University of Maryland College Park, DEBORAH HEMINGWAY, Biophysics Program, University of Maryland College Park, EDWARD F. REDISH, Department of Physics, University of Maryland College Park — We present the Math Epistemic Games Survey (MEGS), a new concept inventory on the use of mathematics in introductory physics for the life sciences. The survey asks questions that are often best-answered via techniques commonly-valued in physics instruction, including dimensional analysis, checking special or extreme cases, understanding scaling relationships, interpreting graphical representations, estimation, and mapping symbols onto physical meaning. MEGS questions are often rooted in quantitative biology. We present preliminary data on the validation and administration of the MEGS in a large, introductory physics for the life sciences course at the University of Maryland, as well as preliminary results on the clustering of questions and responses as a guide to student resource activation in problem solving.

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