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Energy as a Unifying Theme for a Models Approach to Instruction STEPHEN TSUI, CLARISA GUELMAN, CHARLES DE LEONE, California State University San Marcos — Biological science students who are accustomed to transmission-based modes of instruction are often challenged by the model-based problem solving that is unique to physics. To address this challenge, California State University San Marcos (CSUSM) adapted a UC Davis originated models-based curriculum for the introductory physics course for life-science majors. In this approach, the course content sequence was recast, such that energy and thermal physics is studied first, as opposed to kinematics. Throughout the sequence, unifying ideas of energy models and model-based problem solving are explicitly emphasized. We will present a brief description of this course and discuss how the models-based approach has been realized at CSUSM, along with presenting evidence of associated student outcomes from our 12-year experience with this course.

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