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Rethinking Physics for Biologists: A design-based research approach[1]

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Biology majors at the University of Maryland are required to take courses in biology, chemistry, and physics – but they often see these courses as disconnected. Over the past three years the NEXUS/Physics course has been working to develop an interdisciplinary learning environment that bridges the disciplinary domains of biology and physics. Across the three years we have gone from teaching in a small class with one instructor to teaching in a large lecture hall with multiple instructors. We have used a design-based research approach to support critical reflection of the course at multiple-time scales. In this presentation I will detail our process of collecting systematic data, listening to and valuing students' reasoning, and bridging diverse perspectives led. I will demonstrate how this process led to improved curricular design, refined assessment objectives, and new design heuristics.

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