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A Computationally Integrated Undergraduate Physics Curriculum: What in the World? NORMAN CHONACKY, Yale Univ, PARTNERSHIP FOR INTEGRATION OF COMPUTATION INTO UNDERGRADUATE PHYSICS COLLABORATION — During the past decade or two, a fundamental change in methods has occurred in the practice of sciences and engineering. Numerical computational methods and products have assumed an equal place, with analytical theory and laboratory experimentation, in these practices. Unlike this revolution in professional practice, there have been relatively meager changes in undergraduate physics courses that might challenge the predominance of analytical theory and laboratory experiment. There are many possible reasons for this, as our research has shown. However, at the base of this lacuna lie barriers faculty face when confronted with the prospect of initiating inclusion of computation into the physics they teach. I will report on our research work and resulting projects designed to jump-start and support a broader process of computational integration into undergraduate physics courses. Briefly I review the background work by the Partnership for Integration on Computation into Undergraduate Physics (PICUP) in this area for over a decade. There are currently three national projects conducted by the PICUP, of which I will especially focus on one: "Fostering integration of computational practices in physics courses: A local communities approach."

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