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Fully On-line Introductory Physics with a Lab

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We describe the development and implementation of a college-level introductory physics (mechanics) course and laboratory that is suited for both on-campus and on-line environments. The course emphasizes a Your World is Your Lab approach whereby students first examine and capture on video (using cellphones) motion in their immediate surroundings, and then use free, open-source software both to extract data from the video and to apply physics principles to build models that describe, predict, and visualize the observations. Each student reports findings by creating a video lab report and posting it online; these video lab reports are then distributed to the rest of the class for peer review. In this talk, we will discuss the student and instructor experiences in courses offered to three distinct audiences in different venues: (1) a Massively Open On-line Course (MOOC) for off-campus participants, (2) a flipped/blended course for on-campus students, and, most recently, (3) a fully-online course for off-campus students.