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> Abstract for an Invited Paper for the TSS17 Meeting of the American Physical Society

Plenary: The Modern Professor's Teaching Toolkit

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University professors start each new year with increasingly diverse groups of undergraduate students populating their introductory science survey courses. By and large, the current cadre of faculty teachers fully understand the value and importance of having a wide diversity of students who understand and contribute to the scientific enterprise; yet, few professors have had the opportunity to learn how to best teach the quickly broadening range of contemporary student audiences in multi-cultural classrooms. Successfully teaching an ever-increasing diversity of students requires professors to have a flexible toolkit of various teaching strategies. Today's professors need to be able to do far more than deliver information accurately with illustrations to their students. Instead, professors need to be able to also manage two-way interactions with students through real-time questioning and providing multiple, alternate representations of ideas. Strategies based on students voting on question choices and completing collaborative group activities during class is one approach. Another approach is to use in-class time for students to do research projects while allocating outside of class time to reading and listening to Internet-delivered lectures. Today's professors need wide variety of strategies at the ready to be able to help all students learn.