

UCLA Department of Physics & Astronomy

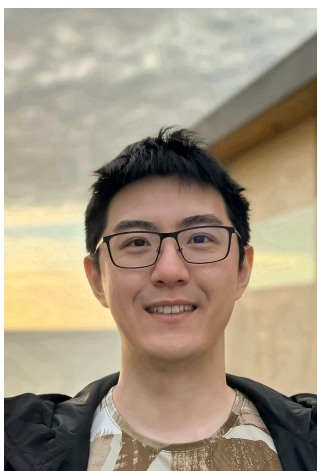
COLLOQUIUM

Thursday, October 30 at 4 p.m.

1-434 PAB

AI & Mathematical Skills (AIMS) to support student success: from research to implementation in STEM courses at UCLA

**Yifan Lu, Shanna Shaked, K. Supriya
(UCLA)**



How can we support students in reviewing or learning the necessary math to succeed in college STEM courses, such as introductory physics? We will review some relatively simple promising interventions and our education research study supporting their effectiveness. Inequities in student access to trigonometry and calculus are often associated with racial and socioeconomic privilege, and often influence introductory physics course performance. To mitigate these disparities in student preparedness, we developed a two-pronged intervention consisting of (1) incentivized supplemental math assignments and (2) AI-generated learning support tools in the form of optional hints embedded in the physics homework assignments. For the supplemental math assignments, the extra credit was scaled to make it worth more points for students with lower exam scores, thereby creating even greater value for students who might benefit most from the assignments. AI-generated hints were integrated into the homework assignments, thereby reducing or eliminating the cost to the student, in terms of time, energy, and social barriers or fear of judgment. Our findings indicate that both these interventions are associated with increased exam scores; in particular, the scaled extra credit reduced disparities in completion of supplemental math assignments. These interventions are therefore very promising for creating more equitable undergraduate quantitative courses. Thanks to funding from UCLA's Teaching and Learning Center, we will then discuss our vision for implementing these interventions in STEM undergraduate courses at UCLA more broadly.

Shaked + Supriya (UCLA Center for Education Innovation and Learning in the Sciences) and Lu (UCLA Physics & Astronomy Dept.)

Refreshments at 3:30 p.m. on the PAB Patio. Undergraduates Welcome!