



Biology Seminar

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Small changes, meaningful outcomes: Improving mental health among undergraduate and graduate students in the sciences

Monday February 12, 2024 | 11:30AM PST | GNOM S060



There is a mental health crisis among undergraduate and graduate students in the sciences, owing to the extraordinary percentages of students who report anxiety and depression. These conditions disproportionately affect students who the scientific community is trying to recruit and retain, including women, students from low socioeconomic backgrounds, LGBTQ+ students, and students with disabilities. Coupled with the negative impact that anxiety and depression can have on

performance and persistence, these disparities have resulted in calls to create inclusive science environments for students who struggle with mental health. However, few studies have examined how students' anxiety and depression impact their cognitive and affective learning and in turn, how academic science environments affect their mental health.

To address these gaps, my lab has conducted national sequential mixed-methods studies, interviewing hundreds and surveying thousands of undergraduate and graduate students with anxiety and depression, probing their experiences in active learning classrooms, online courses, teaching opportunities, and research experiences. We identified key aspects of science learning environments, including structure, failure, social interactions, and feedback that impact students' mental health. Currently, we are building on this foundation by collaborating with clinical psychologists to develop and test interventions to lessen student mental health challenges and enhance engagement, learning, and retention. Thus far, we have created single-session interventions (SSIs) ranging from 1 minute to 30 minutes that address these goals. Given the ubiquity of mental health conditions among students, our work has demonstrated that small changes in science learning environments have the potential to make a sizeable and lasting impact on who engages and is retained in science.

Seminar Speaker Host: Berry Brosi

