Summary of recommendations related to

Pedagogy

The Problem: Bottlenecks in women's participation in STEM careers often occur at key transition points–from undergraduate to graduate study, and from graduate study to academic positions–with the proportion of women in physics decreasing at each successive stage. There is broad evidence that instructor-student and mentor-mentee relationships are critical for retention in science, and that the quality and nature of pedagogical practices significantly affect outcomes. Incorporating inclusive practices in both formal teaching contexts (e.g., the classroom) and informal teaching contexts (e.g., research mentorship) can substantially improve persistence and participation in the field.

Recommendations:

- **Foster belonging.** A sense of belonging is key to resiliency. Instructors can help students build peer support networks through active learning strategies such as peer-led activities. They can also model inclusion by highlighting contributions of underrepresented scientists, directing students to university and professional society resources (including affinity groups), and promoting open information sharing so that scholarships and internships are not limited to informal networks.
- **Increase transparency and flexibility.** Clear, transparent rubrics help ensure objectivity in grading. At the same time, allowing some flexibility in assignments, while remaining aligned with learning goals, can increase accessibility.
- **Use fair and meaningful feedback mechanisms.** Instructors may wish to collect and respond to student feedback during the term rather than relying solely on anonymous end-of-term evaluations. Because women receive harsher and more personal teaching evaluations even when courses and instruction are identical, it may also be useful to invite an external observer (e.g., from a university's center for teaching and learning) to provide insight into classroom dynamics and pedagogy.
- **Invest in pre-professional development.** Departments should expand opportunities for pre-professional development, including in early research engagement and providing structured training for graduate students starting as teaching assistants.
- **Recognize and reward excellent teaching.** Championing strong teaching, by both faculty and graduate students, through awards or other incentives signals that quality pedagogy is a department (or discipline) priority. This, in turn, can help make teaching and service burdens more equitable, as women are often socialized to take on disproportionate instruction and outreach work.

Picture an Astronomer: Best Practices for Retaining Talent in Astrophysics
https://arxiv.org/abs/2512.24465
https://pictureanastronomer.github.io/whitepaper