

# The Sciences Teaching Club at Carnegie Mellon University

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## Introduction



The Founders and Officers of the Sciences Teaching Club

Graduate students in the Department of Biological Sciences at Carnegie Mellon University have recognized the need to gain both teaching experience and pedagogical understanding for success in future academic careers. We have formed the Sciences Teaching Club, which has expanded to include graduate students and postdoctoral fellows in Chemistry, Physics, Math and Biomedical Engineering, to provide an avenue for individuals interested in teaching to gain pedagogical and experiential insight into teaching.

### Goals

- Enhance the skills of graduate students in preparing for a future career involving teaching.
- Learn pedagogy through workshops and seminars.
- Encourage students to seek out teaching experience.
- Provide members with documentation of teaching experience upon completion of Eberly Center training and seminars.

## Collaborating with the Eberly Center for Teaching Excellence

Club members are encouraged to attend a monthly seminar series at the Eberly Center for Teaching Excellence. By doing so, interested students enrich their teaching knowledge and also obtain documentation of their teaching endeavors to include in applications to tenure-track positions.

### Pedagogical Seminars Topics

- Course and Syllabus Design.
- Conducting Productive and Engaging Discussions.
- Supporting Student Learning through Good Assessment Practices.
- Planning and Delivering Effective Lectures.
- Responding to Student Diversity.

### Microteaching Workshops

These sessions provide the opportunity for graduate students to teach a small sample lesson and receive both peer and expert feedback. Eberly professionals meet with the Sciences Teaching Club for microteaching workshops approximately once a semester.

Eberly Center for Teaching Excellence

Teaching Seminars  
for Graduate Students

## Seminars

Initial club meetings featured departmental faculty members who met to discuss letters of recommendation, tenure-track position hiring and application processes. Our meetings have expanded to include invited speakers from both liberal arts colleges and larger universities. We plan to have more focused seminars on pedagogy and teaching millennials this fall.

In April of this year, Dr. Karen Grief, Professor at Bryn Mawr College, came and spoke to the teaching club about careers at Liberal Arts Colleges. Topics included:

- Liberal arts and 4-year colleges: what are their features?
- Preparing for a career in a liberal arts college.
- What search committees look for.
- The interview.
- Funding your research: special opportunities.
- Life at a liberal arts college.



Dr. Karen Grief, Bryn Mawr College  
*Small Science? Facts and Myths about Science Careers in Liberal Arts Colleges*



In a meeting with Dr. Manuel Ares, Professor at UC Santa Cruz, we discussed instructional strategies for laboratory work with both undergraduate and graduate students. Dr. Ares is an HHMI professor who used The Hughes Undergraduate Research Laboratory (HURL) as a crucible to learn the challenges of remodeling university education in the biological sciences. His idea was to run an interdisciplinary research laboratory comprised primarily of undergraduates studying for a variety of majors, working on important questions whose solutions require interdisciplinary collaboration. Ares led an informal discussion about this work and his role as an advisor to the undergraduate students involved with this experiment. He also discussed many of the challenges that came with this approach and offered advice to those wishing to follow similar paths.



Dr. Manuel Ares, Jr., U.C. Santa Cruz  
*HHMI Professorship Discussion*



## Outreach

The Sciences Teaching Club recognizes the need to encourage young students to enter careers in the sciences. By creating and taking advantage of outreach opportunities, we can interact with students in both formal and informal settings. This increases our exposure to teaching, enables us to develop our teaching styles and philosophies, and provides us with opportunities to serve as positive role models to young students..

### Science Fair Judging

The Sciences Teaching Club is also committed to serving the student body of Carnegie Mellon and the greater Pittsburgh community. Members of the club have participate as judges at several science fairs including Meeting of the Minds, a celebration of Carnegie Mellon undergraduate student research, featuring amazing projects from all across the university, and the Pittsburgh Regional Science and Engineering Fair (PRSEF), an open competition of science research for students in grades 6-12 in 23 Pennsylvania counties.



Members of the Sciences Teaching Club at the  
Pittsburgh Regional Science and Engineering Fair



Member of the Sciences Teaching Club  
Meeting of the Minds

### Tutoring Program

Through the actions of one of our founding members and a Chemistry faculty member, we have begun an outreach tutoring program with a local high school. Graduate students involved in this program meet weekly with high school students to help them with the current week's biology homework or test preparation. Three of us have been doing this since the Fall of 2007. We plan to expand on this opportunity to include more graduate students from more disciplines.

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