Geoscience Academic & Employer Workshop
Improving Geoscience Graduate Student Preparedness for the Future Workforce
August 18-10, 2022

Location: Ruth Wattis Mitchell Building (397 Panama Mall; Stanford, CA 94305); School of Earth, Energy and Environmental Sciences, Stanford University.

Thursday, August 18th

8:00 a.m. Welcome & Introduction

- Goals of project and workshop; past events
- Logistics and expected outcomes of workshop

Part 1. What skills and competencies should be part of graduate geoscience education for Ph.D. & M.S. students in Earth, Ocean, & Atmospheric Sciences so they can be successful in future careers?

8:20 am Status of Geoscience Employment and Graduate Outcomes – Chris Keane

8:50 am Outcomes of 2018 Geoscience Employers Workshop & recent employer updates

9:20 am Breakout Session #1: Skills and competencies needed for future geoscience workforce.

- What skills and competencies make PhD and MS graduates successful today in a wide variety of geoscience careers? Does it differ for MS and PhD graduates, or differ in level of competency?
- What from the 2018 Geoscience Employers Workshop needs updating or more specifics? (i.e. what changes have occurred in the workplace and what wasn't covered or stressed sufficiently). How has the pandemic changed needed skills or the development of these skills in graduate programs?
- What changes do you see in your field and organization over the next ten years that will require different competencies? What new or improved skills do you predict graduates will need in the future?
- How can we prepare our students to be leaders, innovators and creators?

11:00 am Break

11:15 am Breakout group presentations & discussion.

12:30 pm Lunch (provided) & informal discussions

Part 2. What are the best ways of developing these skills/competencies and mentoring students during their graduate career?

1:15 pm Outcomes of 2019 Heads/Chairs/Graduate Program Directors Summit & implementation successes

1:35 pm Breakout Session #2: Ways of developing skills and mentoring

- What skills and competencies can graduate students develop while doing research that are important for a variety of future careers?

- What graduate coursework will develop the skills that students need for the future workforce? If no courses are required for the degree program, how do you incentivize faculty to offer and students to take them?
- What other professional experiences or external opportunities should graduate students have? Does this vary with MS and PhD students?
- What are effective ways to mentor students and insure they develop the skills they need for their career path? Who should be involved in the mentoring?

3:15 pm Break

3:30 pm Breakout group presentations & discussion

4:45 pm Wrap up & plan for tomorrow

Friday, August 19th

Part 3. What successes or roadblocks have academic leaders had in implementing development of these skills and competencies in graduate geoscience programs and how can employers help?

8:00 am Summary of 2019 Heads/Chairs/Graduate Program Director Action Plan Reports

8:20 am Breakout Session #3: Creating change to graduate education programs

- What will convince faculty and upper administration of the importance of improving skills for graduate students and mentorship?
- How do you change culture – e.g. preparing PhD's only for academia/replicating self? Student focused education instead of advisor centric education and control?
- How do you overcome resistance to change through incentives and rewards?
- Are there defined learning outcomes graduate programs could use to document skills and competencies beyond just coursework taken by students?
- How can employers assist, during formal education, co-curricular opportunities, professional development activities, or other means? What training should be a responsibility for the employer post-graduation?

9:50 am Break

10:10 am Breakout group presentations & discussion

11:30 am Lunch (provided)

Part 4. What balance should graduate programs have between developing technical skill sets, research and broader educational goals?

12:15 pm Breakout Session #4: Importance of field specific skills and research experiences

- What balance is needed between the specific skills development process and the fundamentals of learning to and conducting research within a graduate program?
- How do employers value specific skills versus experience conducting research?

- How do these translate to needed current and future job skills for PhD and MS graduates? What level of competency is needed? How does the relative weighting vary with employers? Does it vary between MS and PhDs?
- Overall, which skills have most current graduates have acquired and which do they generally lack? What challenges are employers and academics finding now in terms of specific strength in skills or social challenges?

1:45 pm Breakout group presentations & discussion

2:30 pm Group discussion: What can we do to ensure graduate students develop a portfolio of skills and competencies that they need for employment in a variety of future careers?

2:50 pm Meeting Summary

3:00 pm Meeting adjourned