Summary of 2019 Heads/Chairs/Graduate Program Director Action Plan Reports

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53 institution action plans

30% progress reports; 15% two progress reports

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Departmental Action Plan Results

Most success:

- New classes/additions to classes

- IDPs and improved mentoring

Programmatic changes

- Defined learning objectives and outcomes for graduate program
- Updating program goals and student learning outcomes
- Curricular revision using backwards design and matching employer priorities
- Proposed Innovations in Graduate Education grants
- Multiple responses – faculty discussed Summit outcomes, Webinars & best ways to promote grad student development

Professional development

- Lunch-time professional development series
- Grad student orientations – discuss need for developing non-traditional skills
- Identified and publicized workshops/courses around campus and online (prof. societies too).
- Faculty PIs given contract verbiage to include professional development as a requirement for RA's
- Assembled list of on campus resources for grad students

Communication

- More opportunities for students to present their science, at conferences (internal travel competition, $4K/year), workshops, and within the Dept. (seminar series)
- Facilitated improvements in graduate student communication training
- Science Communication – wrote proposal to develop course

Alumni Engagement

- Engage alumni – reinvigorated alumni board for career advice mentoring, source of internships
- Surveyed recent grads on what skills we provided well, and what skills they needed but didn't get through professional meetings, alumni visits to campus, e-mails
- Invited alumni to speak about career experiences and opportunities; students becoming more aware of professional opportunities outside academia.
- Began outreach to our alumni to create an advisory board

Grad student engagement

- **Two students now attend faculty meetings**
- **Added a "Ask a grad student webpage" providing advice from 5 current students from representative fields**

DEI Efforts

- **Many DEI efforts within department and/or with other STEM fields**
- **Developed semester-long course offering training in developing Broader Impacts**
- **Holistic admissions**
- **AGU Bridge Program**
- **Restart summer REU program**
- **Created Diversity and Recruitment committee**
- **Dropped GRE requirement**

Roadblocks

Faculty

- Total lack of buy-in – faculty only interested in own research and resistant to change; No progress due to reluctance of colleagues; upper administration not supportive of MS degrees
- Roadblocks at all levels; dean and faculty decided no course requirements; dean said was arrogant to suggest anyone but students faculty advisor would know what was best for their students; students will learn all from lab
- Resistant faculty; faculty apathy, shouldn't address issues in systematic way; Faculty reluctant to change ways have done things until problem impacts them
- Absolutely no positive response and no interest from others mix of resistance to change, fear of new things, and unwillingness to put effort into something new and extremely worthwhile
- Poor faculty morale; Workloads too high to do more; Student committee meetings take too much time
- Hard to enlist alumni - lack of department bandwidth; New dean and new directives took precedent

Department has no course requirements

Main obstacle is securing funds; funding; budgets impacted by COVID

COVID, COVID, COVID, COVID ……

Students

- Students struggled with self assessment and needed mentoring; Limited samples of IDPs
- Student mental health after COVID
- Reluctance on part of students to take required college-wide thesis course
- Concerns over privacy issues because Graduate school wanted to keep student self assessments (IDPs) on file

Future plans

- Revise grad curriculum – target teaching relevant skills/competencies
- Have retreat
- Pilot IDPs; Implement IDPs
- Increase alumni and industry involvement
- Add introduction to professional geoscience course – adjunct in collaboration with local alums
- Expand existing semester ethics/research integrity course to include nontechnical skills
- Develop intra-university Big Data/Machine Learning training
- Update webpages to include post career links and options
- Survey recent grads on what skills we provided well and what they needed but didn't get

Advice

- Increase open debate and discussion to improve awareness of the need to adapt in the geosciences or be left behind

- Engage the entire faculty within departments in coming up with the final version of the action plan. Have them realize that the success of students is part of the faculty legacy

- Have all the examples/samples of what you are proposing collected as early as you can and have them ready to hand out to other faculty before you try to get 'buy-in.'

- It is important to get faculty buy in. If only one or two people are interested in implementing improvements, things cannot be done in a systematic and programmatic way

- Be proactive and push ahead even though such changes may take you out of your comfort zone

- There will always be faculty who do not see the importance or have dissenting views on the need to make major changes
  - While we need to listen and acknowledge these viewpoints, as long as there is a critical mass of energetic faculty who have buy-in to make positive change, it makes it substantially easier to make forward progress

- Don't be surprised if people do not want to, or are not willing to, understand

Advice

- There are many relatively easy steps to make that have *minimal impact on faculty time*, so go for it

- Pick one battle at a time. This past year I ended up working on holistic applicant assessment because it was easier to get everyone on board for that one
  - I will pick up other issues that need consensus building now that that one is done

- Compare notes with others at your institution because there is a lot of graduate education reform happening across STEM
  - Other science departments will know how to work within the constraints of your institution

- Talk with your graduate students to identify where their "pain points" are!
  - Acknowledge you won't be able to address them all, but be clear about how you will (or plan to) make changes to the program accordingly - or how you will advocate on their behalf

- When funds are available, rapid and positive development follows

"I have thought it was revolutionary from the start
and it has been terrific in every way! Do it!"

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?**