2nd Summit on the Future of Undergraduate Geoscience Education

More results

Sponsored by

Jackson School of Geosciences
University of Texas at Austin
January 8-10, 2016
• Is your department interested in making changes to your undergraduate curriculum to focus on competencies, skills, and conceptual understanding? Yes 231, No 79

![Bar Chart for Competencies, Skills, and Conceptual Understanding](chart1.png)

• Is your department interested in making changes to how teaching is done at the undergraduate level? Yes 238 No 64

![Bar Chart for Teaching Changes](chart2.png)
1st Summit: Barriers & Solutions

- **Resources – financial and space needs**
  - Time and support to develop and pilot new instructional approaches
  - Space redesigned from lecture-based to interactive classes
  - Technology infrastructure
  - Performance-based incentives to change
  - Investment in professional development activities

- **Annual performance evaluations and tenure and promotion do not reward efforts to improve teaching**

- **Different incoming student backgrounds & quantitative preparation**
Obstacles/barriers identified by Summit to implementing research-validated pedagogies and uses of technology

Lack of time/support needed for developing/piloting new instructional approaches

- dean
- chair
- prof
- assoc. prof
- asst. prof
- nontenured

Financial Resources

- dean
- chair
- prof
- assoc. prof
- asst. prof
- nontenured

Annual performance and tenure and promotion evaluations

- dean
- chair
- prof
- assoc. prof
- asst. prof
- nontenured

1 most 2 3 4 5 - least
Obstacles/barriers identified by Summit to implementing research-validated pedagogies and uses of technology

Instructional space design and teaching infrastructure

- dean
- chair
- prof
- assoc. prof
- asst. prof
- nontenured

Lack of information on what techniques are research-validated

- dean
- chair
- prof
- assoc. prof
- asst. prof
- nontenured

Concern about student evaluations
Proposed Incentives

Does your department use or offer any of the following?

- Professional development for faculty teaching
- Effective teaching as an important hiring criterion
- Improvement in instructional infrastructure (including technology)
- Rewards for innovative teaching
- Incentives (including release time) for developing new courses using research-validated pedagogies
- Effective teaching as a part of graduate student professional training

Out of 354 departments
Preparation of Future K-12 Teachers

• Integrate Next Generation Science Standards into undergraduate curricula
  – Prepare future teachers to do the same
• Integrate math & basic sciences into course content
  – Provide geologic examples that can be used in teaching those subjects
• Encourage collaborations with K-12 in-service teachers and improvements in pre-service programs
  – Can use to address “Broader Impacts” research grant objectives
• Be aware of state teacher education & licensure requirements, local K-12 instruction requirements & content assessment
• Build collaborations between Y4C & Y2C faculty
Which does your department do to help with preparation of K-12 teachers?

<table>
<thead>
<tr>
<th>Option</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrates math and basic science into undergraduate courses</td>
<td>150</td>
</tr>
<tr>
<td>Keeps aware of state requirements for teacher education/licensure &amp; expectations for K-12...</td>
<td>100</td>
</tr>
<tr>
<td>Has curriculum or courses specifically designed for future K-12 teachers</td>
<td>100</td>
</tr>
<tr>
<td>Provides professional development programs, courses, or degree options for K-12 in-service teachers</td>
<td>60</td>
</tr>
<tr>
<td>Integrates the Next Generation Science Standards into its curricula</td>
<td>20</td>
</tr>
</tbody>
</table>

Which does your department do to ease the transition between 2-year and 4-year colleges?

<table>
<thead>
<tr>
<th>Option</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aligns curricula between 4-year and local 2-year colleges</td>
<td>140</td>
</tr>
<tr>
<td>Interacts with faculty from different types of institutions regionally</td>
<td>80</td>
</tr>
<tr>
<td>Has collaborative field trips and research opportunities</td>
<td>20</td>
</tr>
</tbody>
</table>
Broadening Participation of Under-represented Groups

• Emulate & develop successful recruiting programs
  – Provide financial support
  – Reach out to students in their communities
  – Involve members of the community (families, high school teachers, guidance counselors)
  – Incorporate role models
  – Include mentoring

• Collaboration among Y4C, 2YC, Hispanic Serving Institutions (HIS), Historically Black Colleges and Universities (HBCU’s) faculty
  – Provides pathways for successfully transfer to Y4C
  – REUs to recruit and provide opportunities for 2YC, HBCU and HIS students

• Develop or collaborate with STEM programs for minority students at pre-high school and high school levels

• Address geosciences image
  – Emphasize societal relevance & career prospects
  – Earth is Calling video, posters/brochures
Does your department/company/organization have or plan on any systematic efforts to encourage broadening participation and retention of a more diverse student population?

Yes  181  
No   239  

What does your program offer to encourage broadening of participation and retention of a more diverse student population?

- Use of role models
- Mentoring
- Financial support
- Outreach to students' in their communities
- Collaboration with programs for minority students in STEM at the pre-high school and high school levels
- Involvement of community (families, high school teachers, guidance counselors)
- Collaboration among Hispanic Serving Institutions (HSI) and/or Historically Black Colleges/Universities (HBCU's) and 2YC/4YC/university faculty