InTeGrate

*Interdisciplinary Teaching about Earth for a Sustainable Future*

# Geoscience and the 21st Century Workforce

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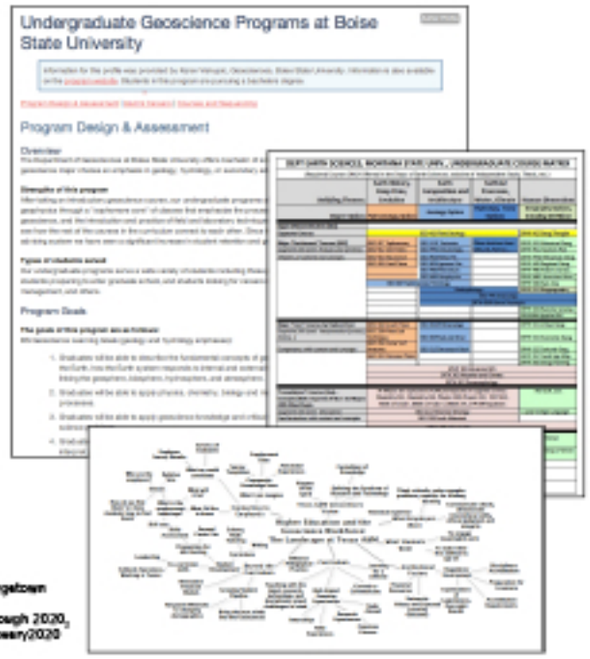
## Understanding Workforce Needs

Undergraduate geoscience students pursue employment both within and beyond the geoscience professions. There is strong evidence that employment in geoscience and environmental science professions will remain strong. Relatively little is know about employment opportunities in emerging sectors such as green energy or sustainability consulting. Recent studies of US workforce needs indicate the importance of STEM skills both within and beyond the STEM workforce (Carnevale et al, 2011) painting a rosy picture for employment.


## Diverse Pathways for Diverse Students

Students bring different skills and interests to their studies. Geoscience programs support pathways into many different parts of the geoscience workforce. In addition, workforce data suggest that in the past only 30% of undergraduate students have remained in the geoscience professions (AGI, 2011). A collection of program descriptions from workshop participants describe their program designs and the careers their student pursue with this education.




AGI, 2011, Status of the Geoscience Workforce, http://www.agiweb.org/workforce/reports/StatusoftheWorkforce2011overview.pdf
Carnevale, A.P., Smith, N., Melton, M., 2011, STEM, Center on Education and the Workforce, Georgetown University, http://cew.georgetown.edu/STEM
Carnevale, A.P., Smith, N., Strohl, J., 2013, Recovery: Job growth and education requirements through 2020, Center on Education and the Workforce, Georgetown University, http://cew.georgetown.edu/recovery2020

## Key Skills: Soft and Hard

Employers at the workshop from all sectors seek a combination of strong skills emphasizing:

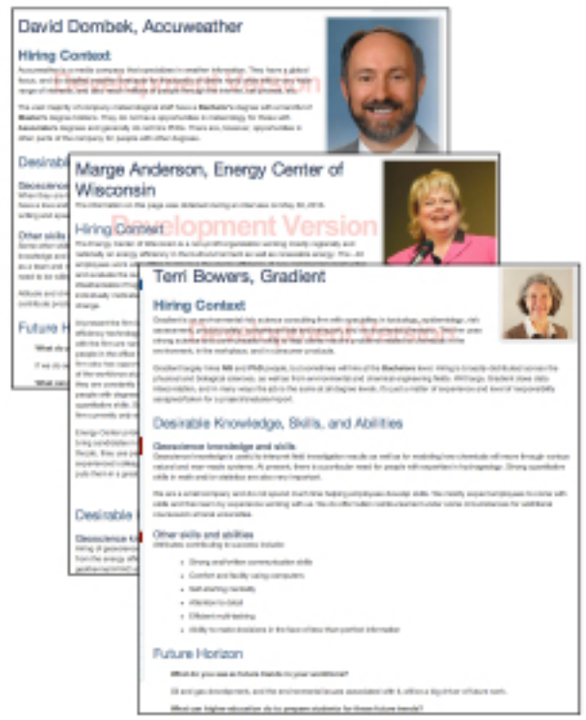
- Technical and data analysis skills
- Problem solving and critical thinking skills
- Quantitative skills
- Communication skills
- Time management skills

They value the ability to articulate an appropriate, effective, creative next step, as well as enthusiasm and drive.

The specific technical skills required are highly specific to the employer and employment needs. Thus there is not a single answer to the question 'What geoscience skills make a student employable?' Thirteen employers answered this question in interviews.

These skills will be very or extremely important to success in all jobs (Carnevale, 2013)
:

- Critical thinking for 96% of jobs
- Math knowledge in 70% of jobs




## Developing Professional Skills

Preparing students for the workforce requires attention to professional skills, as well as to the skills needed to identify career pathways and land a job. This work takes place both inside and outside of course work and occurs as a progression throughout the course of study. Internships, service learning, and interactions with alumni are key strategies for building bridges with employers, both for the department and for individual students.


http://serc.carleton.edu/InTeGrate/programs/workforce.html

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