PREPARING STUDENTS FOR THE COMPLEXITIES OF FUTURE EMPLOYMENT: LINKING LEARNING OUTCOMES, 21ST CENTURY COMPETENCIES AND THE GEOSCIENCES

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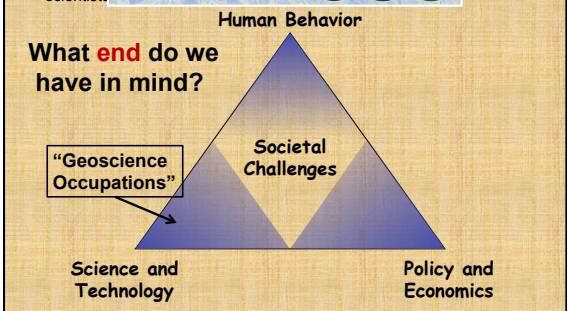
Big Question: What End does Your Program have in mind for your students?

Your **End** defines what the student knows and is able to do when they complete your program and how well it prepares them for the workforce, graduate and professional studies, and/or life-long learning.

(Learning Outcomes)

What end do we have in mind?



Why plan with the end in mind?

Bottom Line:
By knowing where you intend to go, you increase the chances of you, your program, and your students getting there!!!!

Guides:
Instructional and Curriculum Planning – Important/value
Instructional Delivery
Instructional Effectiveness – focus and organize

Provides:
Learner with focus, expectation, and prioritization

Learning Outcome Big Questions

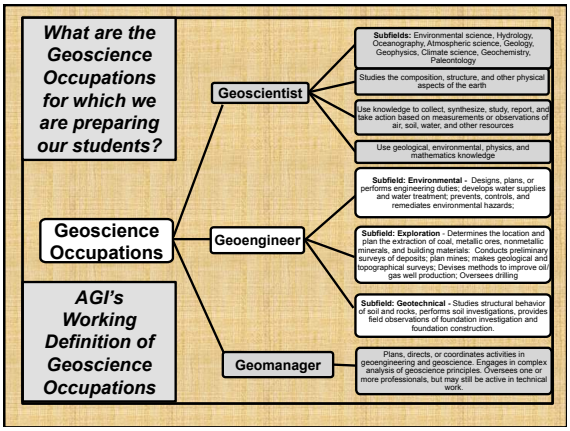
What do they know?
Knowledge-Centered Outcomes
Facts, Concepts and Theories central to the discipline

What can they do?
Skill-Centered Outcomes
- Cognitive: Critical Thinking, Problem-solving, Computational Skills
- Technical: Data Collection Techniques, Measurement Techniques, Technology
- **Interpersonal: Communication, Teamwork, Collaboration, Initiative and leadership**

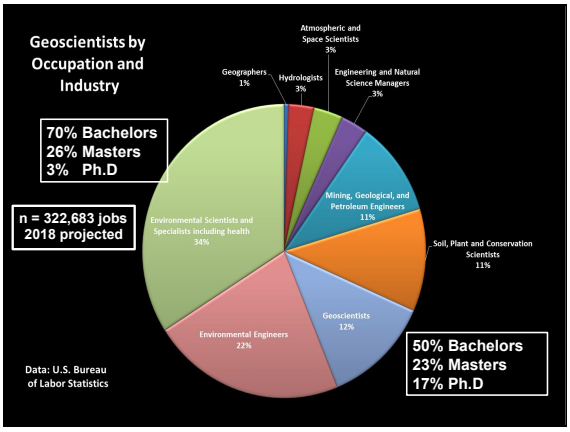
For what are they being prepared?
Societal and Student Focus
- Career preparation – Professional Workforce, Graduate Study, Lifelong Learning
- Identification of employment needs
- Development of professional competence
- Needs of the local campus area, state, and nation

What personal qualities will they possess?
Value and Disposition Outcomes
Examples
- Open-Mindedness and Love of Knowledge Willingness to learn and modify perspectives
- Desire to develop personal interests
- Willingness to take (intellectual) risks
- Diligence and Integrity - Perseverance in one's work habits; Pursue quality results
- Humble about one's own importance
- Social Responsibility - Ethical awareness
- Appreciation for diversity

What are the Geoscience Occupations for which we are preparing our students?



AGI's Working Definition of Geoscience Occupations



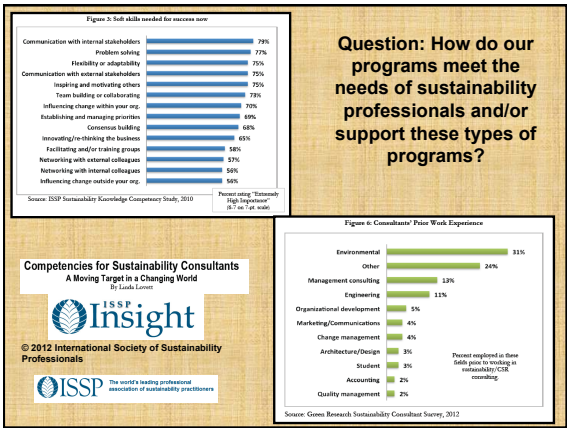
Geoscience Workforce for 21st Century Challenges

Marilyn J. Suiter and Lisa C. Patino

National Science Foundation, 4201 Wilson Blvd., Arlington, Virginia 22230

"The geosciences will continue to be a highly relevant discipline during this century, but its role has expanded. In the past, geosciences contributed to the advancement of society mostly through the exploration and exploitation of natural resources. Currently, the role of geosciences has expanded to include environmental issues. Thus, workforce development models need to adapt to the new demands. Geoscientists now need to be able to work in interdisciplinary teams, address issues at the systems level, be literate in issues related to finance, social sciences, and engineering. In addition, the workforce must be able to work in multicultural settings and demonstrate leadership skills."

Source: Suiter, M. J., and L. C. Patino, 2012, Geoscience workforce for 21st century challenges: Gulf Coast Association of Geological Societies Transactions, v. 62, p. 623–627.



Question: How do our programs meet the needs of sustainability professionals and/or support these types of programs?

Competencies for Sustainability Consultants
A Moving Target in a Changing World
By Luula Lovett

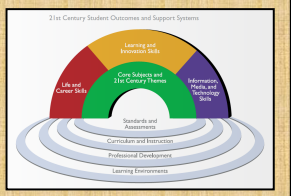
ISSP Insight

ISSP The world's leading professional association of sustainability practitioners

For what are they being prepared?

Soft Skills or Personal Competencies

Learning and Innovation Skills
- Creativity and Innovation
- Critical Thinking and Problem Solving
- Communication and Collaboration



Life and Career Skills
- Flexibility and Adaptability
- Initiative and Self-Direction
- Social and Cross-Cultural Skills
- Productivity and Accountability
- Leadership and Responsibility

Partnership of 21st Century Skills (P21) includes US Depart. of Education, International Society for Technology in Education (ISTE), Microsoft, Apple, DELL and Cisco.

For what are they being prepared?

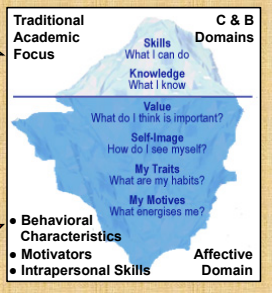
Question:

To what extent do your programs consider the 80% below the line as you create learning opportunities to develop your student's competence?

10 -20%

80 -90%

Workforce Context



Iceberg Model for Competency Development

For what are they being prepared?

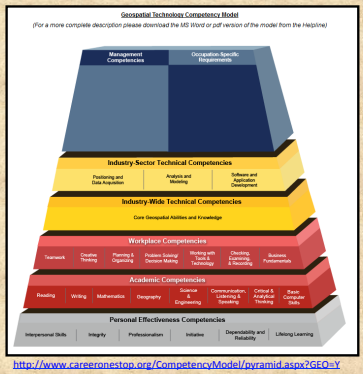
Workforce Context

Competencies

- are a way of talking about what helps people get results in their jobs.
- refer to skills or knowledge that lead to superior performance.
- provide a framework for distinguishing between poor performances through to exceptional performance.
- are not "fixed"–they can usually be developed with effort and support.

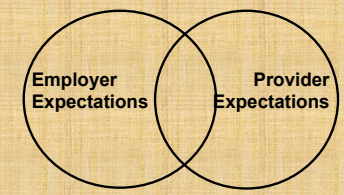
Modified from: http://www.carltonglobal.com/samplelesson_HR.pdf

Competency Model Resources



http://www.careeronestop.org/CompetencyModel/pyramid.aspx?GEO=Y

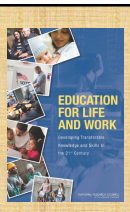
For what are they being prepared?

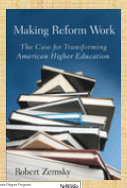


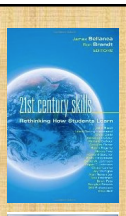
Question: Are we connected or disconnect?

Data suggests there is a disconnect

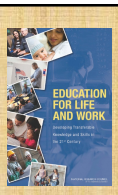
For what are they being prepared?

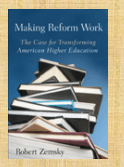






Meet the Challenge Talk with Colleagues





For what are they being prepared?

Resources to Meet the Challenge

Selected References

Compiled primarily by David Gosselin, University of Nebraska-Lincoln

Include workforce reports, student preparation for the 21st Century workforce

Jump down to: AGI Reports | Assessment | Competencies for Geoscience | Competencies for Environmental | Competencies Misc.

http://serc.carleton.edu/integrate/workshops/workforce2013/references.html

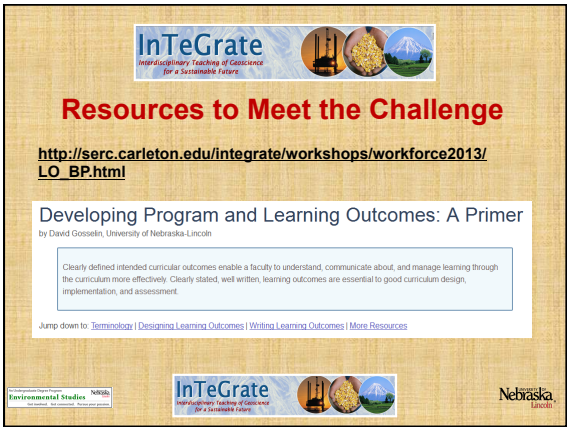
Resources to Meet the Challenge

http://serc.carleton.edu/integrate/workshops/workforce2013/competencies_and_LO.html

Competencies and Learning Outcomes

by David Gosselin, University of Nebraska-Lincoln

Competencies and learning outcomes are two related educational terms that can create confusion. Competencies and outcomes can be written to describe the learning gained by students in individual courses (course outcomes) or for the program as a whole (program outcomes). They DO NOT mean the same thing. We will follow the lead of Hartel and Foegeding (2004) and use the following working definitions:


InTeGrate
Interdisciplinary Teaching of Geoscience for a Sustainable Future
Resources to Meet the Challenge
http://serc.carleton.edu/integrate/workshops/workforce2013/LO_BP.html
Developing Program and Learning Outcomes: A Primer
by David Gosselin, University of Nebraska-Lincoln
Clearly defined intended curricular outcomes enable a faculty to understand, communicate about, and manage learning through the curriculum more effectively. Clearly stated, well written, learning outcomes are essential to good curriculum design, implementation, and assessment.
Jump down to: Terminology | Designing Learning Outcomes | Writing Learning Outcomes | More Resources
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Thank you!!
Questions?
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