Transforming Undergraduate Geoscience Education Using a Systems Approach: The InTeGrate STEP Center

InTeGrate Leadership Team

Presented at the National Science Foundation
October 22, 2015

This work is supported by a National Science Foundation (NSF) collaboration between the Directorates for Education and Human Resources (EHR) and Geosciences (GEO) under grant DUE - 1125331
Traveling workshop opportunities

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InTeGrate: Interdisciplinary Teaching about Earth for a Sustainable Future

- NSF STEP Center = STEM Talent Expansion Program
- Focused on undergraduate education
- $10M 5 years InTeGrate is finishing year 4

Two required goals:
- National impact on increasing number of students in STEM pipeline
- Address a national grand challenge: in InTeGrate’s case, environmental sustainability and resource limitations.
These two goals are synergistic…

Teaching geosciences in the context of societal issues* triggers a cascade of beneficial outcomes:

1. **Teaching geoscience in the context of societal issues**
   - Makes role of geoscience in society explicit
   - Interests a wider population of students
   - Broadens role of Earth in undergraduate curriculum

2. **Earth throughout the undergraduate curriculum**
   - Geoscience programs contribute more broadly to workforce preparation

3. **Workforce for global sustainability**
   - Widespread Earth literacy
   - Ability to capitalize on knowledge about the Earth and expertise

* …along with better pedagogy, insightful assessments, educative curriculum materials, a welcoming community of practice, strategies for supporting the whole student, strategies for workforce preparation, allies in other disciplines….
Pedagogical & programmatic workshops
Teaching the Methods of Geoscience

Topical Workshops
Coastal Hazards, Risks & Environmental Justice

Traveling Workshops
(Collaborative with NAGT)

Earth Educators Rendezvous
Traveling Workshops Program

• Brings national leaders in geoscience education to your campus or regional event. The Traveling Workshops Program consists of two different tracks – improving Courses and Departments and Programs in colleges and universities. NAGT provides funding for leader travel and stipends, and the hosting group is responsible for all expenses incurred on site. The TWP is a part of NAGT's integrated Workshop Program.
Building Stronger Departments and Programs

• 1-2 day workshops bring two trained leaders to your institution to facilitate a working session with all members of your department. These workshops bring the knowledge gained from InTeGrate, and other NAGT-sponsored efforts onto your campus to support conversation and planning by your department as a whole. They offer a menu of interactive sessions fully supported with online resources. All sessions feature presentations, discussions, and action planning.
Unique Opportunities

- They focus on the specific context of your department. They engage the *entire* department, in deep, structured discussion and action planning.
- They use a Strengths/Weaknesses/Opportunities/Threats (SWOT) approach to focus development of action plans for achieving your objectives.
- They provide an external framework and support for a department that is committed to making changes.
- The two-person team approach provides two outside perspectives.
Topics and Sessions

• Three Core Sessions form the foundation of the agenda:
• Envisioning your Program
• Program Design
• Action Planning & Departmental Management
Elective Sessions

• Increasing the Diversity of your Majors
• Preparing Students for Careers From Day One
• Embedding Sustainability in your Program
• Building a Thriving and Valued Department
• Pedagogies of Engagement
• Course Design
• Program Assessment
Learn More


- Proposals for spring 2017 due October 15
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Earth Educators' Rendezvous 2016

• July 18-22, University of Wisconsin, Madison
• Our program is designed to appeal to everyone from instructors attending their first Earth-education–themed meeting, to experienced STEM education researchers, to administrators who want to better support students in their programs. Among many options, participants can learn about new teaching approaches, discover opportunities to get involved in research programs, prepare for an academic career, or discuss how to approach teaching and learning challenges in their classroom.