

InTeGrate

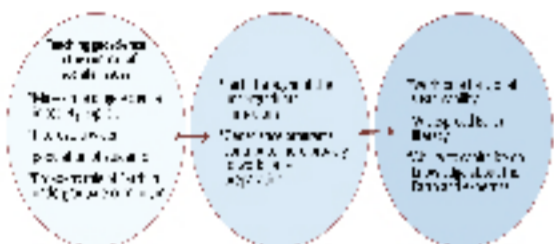
Interdisciplinary Teaching about Earth
for a Sustainable Future



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Evaluation team: Kim Kastens (Educational Development Center), Carol Baldassari (Lesley University)

What is InTeGrate?

- a 5-year STEP Center,
- to transform undergraduate geoscience education.
- context of societal issues within geoscience courses and across the curriculum.
- to develop a citizenry and workforce that can address environmental and resource issues facing society.



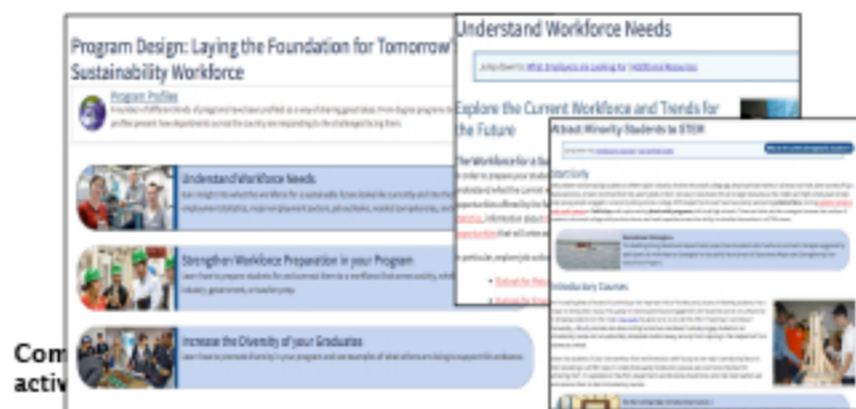
New Website Content

New web pages were developed with content stemming from 2012 and 2013 workshops including materials for both the course and program level:

Course Level Resources:



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Implementation Programs

A call for proposals to develop and evaluate programs that model innovative ways of 1) increasing the number and diversity of students developing Earth literacy and/or 2) preparing a diverse workforce equipped to use geosciences to address societal issues is now active.

Accomplishments:

- Developed template for profiling geoscience programs at minority-serving institutions (MSIs) that highlight what works.
- Developed template for profiling involvement of geoscience in teacher preparation programs.
- Began program implementation in distance education at Penn State.

Challenges:

- Defining a "program" and a "program implementation."
- Engaging large research institutions in efforts beyond their own system.

Professional Development

Workshops offer opportunities to gather best practices from faculty, assess needs for new materials and strategies, and develop new ideas for elaboration through InTeGrate programs.

To date 6 workshops + 2 partnership workshops have been held and have included participants from 2YCs, MSIs, colleges, universities, and professionals from industry, research, and the public sector. More than 200 unique participants have participated in these workshops.

This year's workshop offerings include:

- Broadening Access to the Earth and Environmental Sciences: Increasing the Diversity of Undergraduate Students Learning about the Earth
- Teaching about Risk and Resilience: Sea Level Rise, Flooding, and Earthquakes
- Partnership workshops:
 - Getting the Most out of Your Introductory Courses
 - Teaching at Scale: Effective Strategies for Higher Order Learning in Large, Very-Large and Massive Courses
 - Teaching Geoscience Across the Geoscience Curriculum
 - Undergraduate Research in Earth Science Classes: Engaging Students in the First Two Years

A series of optional interactive professional development webinars are offered to materials developers. Most sessions focus on student assessment strategies. Webinars are recorded and available on the website.



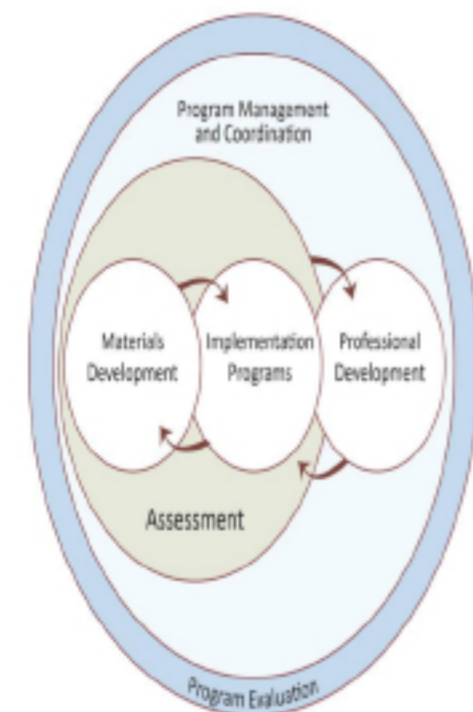
Project Goals

1. Develop curricula to dramatically increase Earth literacy of all undergraduate students - including non-geoscience majors, historically under-represented groups, and future K-12 teachers
2. Increase the number of majors in the geosciences and associated fields able to work with other scientists, social scientists, business people, and policy makers to develop solutions to environmental and resource challenges.

Achieving these goals requires a revolution in how geoscience education is perceived and practiced by geoscientists, as well as the roles that the geosciences play in the broader curriculum in institutions of higher education.

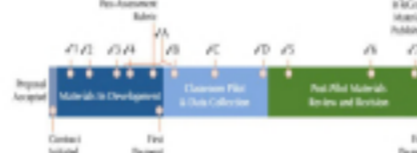
Implementation

Systems Model Program Approach:



Developing Curricular Materials

- Teams of 3-6 faculty from different institutions comprise materials development teams.
- Teams create curricular materials and student assessments for a module or a course.
- Each team is in the Year 1-2 Curricular Materials Development Timeline.



Accomplishments:

- Assessment team developed Geoscience Literacy Exam and student attitudinal survey.
- Materials development instructions, checkpoints and stipends help teams progress.
- 16 modules, 8 courses, 1 module extension are currently in development.
- 7 modules have piloted materials at 21 institutions and are currently under revision based on piloting feedback and assessment.
- More than 1500 students have been involved to date.
- 2 additional modules are currently being piloted at 4 institutions.
- A sneak preview of the Climate of Change module is now available online. The full module is in its final stages of review and will be published online by the end of summer 2014.

Challenges:

- Communication issues within and between teams can significantly stall progress - solution: requiring teams to document communication plan.

Successes:

- Module materials to be published soon.
- Authors report learning from one another about how to revise and improve upon their own teaching



Program Evaluation

- Formative and/or summative feedback is collected at workshops, webinars, and after milestone checkpoints in materials development process and includes online surveys and face-to-face interviews.
- Participants report broadening their professional networks as well as learning from one another about best teaching practices.

Questions for You

- How are you disseminating your materials for broad adoption at other institutions?
- What organizations do you see as potential candidates for collaboration on this project?

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See the preview!
serc.carleton.edu/75236