



InTeGrate project: Interdisciplinary Teaching about the Earth for a Sustainable Future

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The InTeGrate project supports integrated interdisciplinary learning about resource and environmental issues across the undergraduate curriculum. The project has developed teaching materials and examples of their use in US programs and is currently engaged in a suite of activities that support use of these resources in improving undergraduate Earth education. Thirty-three sets of teaching materials supporting instruction over time periods of 2 weeks to a full semester have been developed by interdisciplinary teams of faculty. The materials are peer-reviewed to ensure strong research-based pedagogic design and attention to five design principles: 1) address one or more grand challenges involving the Earth and society, 2) develop student ability to address interdisciplinary problems, 3) improve student understanding of the nature and methods of science and developing geoscientific habits of mind, 4) make use of authentic and credible science data to learn central concepts in the context of scientific methods of inquiry, and, 5) incorporate systems thinking. They have been tested in a wide variety of institutional and disciplinary settings and are documented with instructor notes describing adaptation for specific settings. All published materials passed a review for scientific accuracy. Student assessment data demonstrates improvements in systems thinking relative to a control population. Over 1000 faculty from 701 unique institutions have reported teaching courses that adapted, adopted or were inspired by InTeGrate materials enrolling in total more than 70,000 students. Sixteen program models demonstrate strategies for strengthening learning about Earth and sustainability at scales ranging from a department to an interinstitutional collaboration. These examples document the use of InTeGrate resources in the development and evaluation of these programs. A synthesis of lessons learned by these projects addresses strategies for teaching about the Earth across the curriculum. InTeGrate is currently supporting use of ideas and resources developed over the past six years of project work through a webinar series and other activities.