InTeGrate

Interdisciplinary Teaching about Earth for a Sustainable Future

Supporting Interdisciplinary Teaching about the Earth for a Sustainable Future through the InTeGrate Project

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Informed by an Active Community of Practitioners

InTeGrate is an eight-year community effort to strengthen Earth literacy and build a workforce prepared to tackle environmental and resource issues by integrating interdisciplinary learning about resource and environmental issues across the undergraduate curriculum to create a sustainable and just civilization.

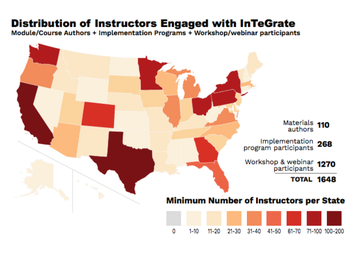
InTeGrate aims to:

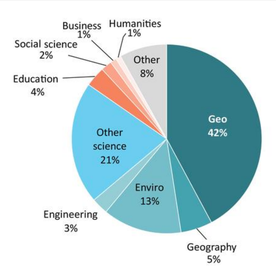
- **develop curricula that will dramatically increase Earth literacy of all undergraduate students**, including the large majority of students that do not major in the geosciences, those who are historically under-represented in the geosciences, and future K-12 teachers, **such that they are better positioned to make sustainable decisions in their lives and as part of the broader society.**
- **increase the number of majors in the geosciences and related fields** who are able to work with other scientists, social scientists, business people, and policy makers **to develop viable solutions to current and future environmental and resource challenges.**

Through the use of the website, workshops, and webinars, the project has built on the community of expertise to create and disseminate products aimed to meet these goals.

InTeGrate's Guiding Principles are to:

- address grand challenges involving the Earth and society,
- develop students' ability to address interdisciplinary issues,
- incorporate systems thinking,
- develop students' understanding of the nature and methods of science, and
- use authentic data and credible science.





InTeGrate Participants by Department Discipline (n=1341)

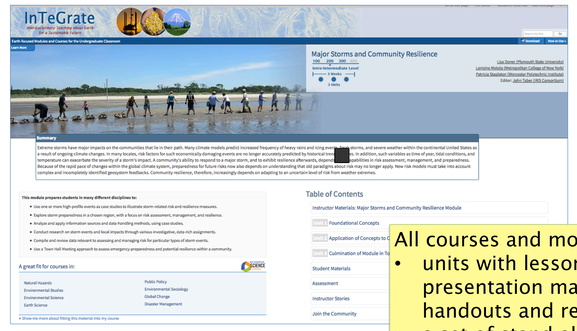
The nation-wide reach and interdisciplinary nature of the project's participants helps to strengthen and bridge disciplinary divides for a more holistic approach to addressing Earth's grand challenges.

Workshops and webinars bring together experts from across disciplines to share their expertise with others, both in-person at the event and in creating material for the website.

Leaders and participants include faculty, including those involved with the curriculum design and implementation programs, administrators, and those in the public and private sector workforce to build an inclusive community that helps to practically prepare students both to make informed decisions in their daily life as well as for the workforce.

A Plethora of Robust Teaching Materials

The InTeGrate project developed 32 freely-available, rigorously reviewed courses and modules, consisting of 2 weeks to an entire course worth of material.

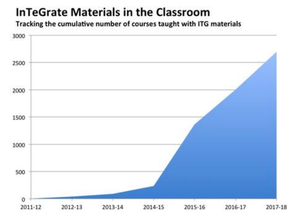


All courses and modules include

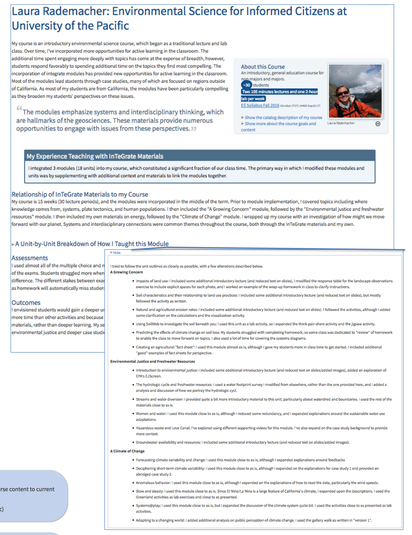
- units with lesson plans, presentation materials, student handouts and resources
- a set of stand-alone student materials
- a list of assessments used
- instructor stories that document how the authors used materials
- an opportunity to join a community of others with interest in the materials.

Designed to be versatile:

- The materials address a wide range of Earth-related grand challenges and contain explicitly interdisciplinary components.
- Instructors can mix and match content among modules and courses and adapt the activities to fit their needs.
- Materials have been used in a variety of classroom settings and institution types. "Instructor stories document how materials were used and adapted by the community.

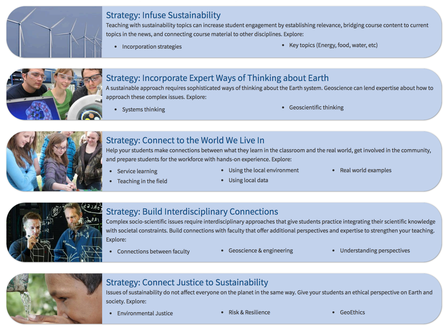


Project-developed materials are used in a growing number of classrooms.



Strategies

These strategies are embedded in the InTeGrate teaching materials above. Explore these strategies in more depth:

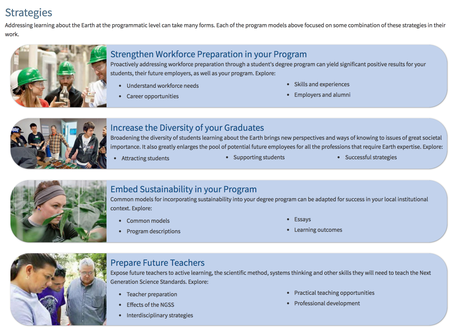


Strategies for infusing sustainability across the curriculum, strengthening interdisciplinary teaching, and engaging students are compiled from the project's community of faculty as well as from faculty and practitioner discussions at workshops and webinars.

A Wealth of Program-strengthening Resources

Laying the foundation for tomorrow's workforce, the InTeGrate project provides resources to catalyze and foster change at the program level using a variety of strategies.

Resources are informed by the literature as well as discussions with administration, faculty, and professionals in the public and private sector. They address program-level goals such as supporting students and preparing them for the workforce, developing and strengthening degree programs, and more.



In addition to the web resources, 16 model programs document how they implemented InTeGrate materials, resources, and concepts to achieve program-level goals such as:

- developing sustainability degree programming,
- increasing diversity, enhancing advising and mentoring,
- bolstering recruitment and retaining students,
- strengthening teacher prep programs, and more.

Strategies for catalyzing and sustaining change are also provided.

The NAGT Traveling Workshop Program brings together expertise from NSF programs including InTeGrate, On the Cutting Edge, SAGE, and GeoNeeds, to provide workshops that (by application) travel to departments to strengthen both courses and programs including attracting and supporting diverse students.

Explore InTeGrate:
https://serc.carleton.edu/integrate/index.html

The InTeGrate STEP Center for the Geosciences 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