Learning to Integrate Across Natural & Social Sciences

Solutions to difficult problems at the interface of the environment and human society require the synthesis of diverse types of information from the natural and social sciences. Today's undergraduate and graduate students must develop the knowledge, skills, and abilities that enable them to undertake such synthesis efforts and successfully engage in interdisciplinary efforts to solve socio-environmental problems.

This Theme seeks proposals that build upon existing knowledge from various disciplines to advance our understanding of 1) how undergraduate and graduate students learn to integrate data, concepts, techniques, approaches, tools, perspectives, theories, etc. from the natural and social sciences to understand environmental problems and inform solutions, and 2) pedagogies that support the development of this cognitive ability in a socio-environmental context at the undergraduate or graduate level.

Under this Theme, we hope to catalyze collaborations across a broad range of areas. Thus, teams might include experts from domains traditionally engaged in social and environmental research; learning, behavioral, and cognitive sciences; information and computer sciences; and education-related disciplines. Because a major goal of this RFP is to produce research that informs classroom practice, educational policies, and curriculum and program development, we also encourage teams to consider the “actionability” of the project results (i.e., implementation and diffusion of findings and of emerging pedagogies).

Examples of research questions under this Theme might broadly include (but are in no way limited to):

- How can cyber-learning tools facilitate the instruction and learning of interdisciplinary integration across natural and social sciences?
- How do students learn to use and integrate large and diverse data sets? What are the challenges and opportunities for developing this competency, especially for integration of data sets across natural and social science disciplines?
- How might the fundamental skills and competencies underlying interdisciplinary integration be reliably assessed in individuals?

Information on projects funded under this Theme can be found here. [1]

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Links
[1] https://www.sesync.org/projects-results/funded-projects?audience=All&amp;keys=&amp;field_research_theme_tid=49 &amp;field_opportunity_program_type_tid=All