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## **On the Cutting Edge: A Global Resource to Support Excellence in Geoscience Education**

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*On the Cutting Edge* provides comprehensive resources, collections and services in support of excellence in Earth science education. This program is focused primarily on faculty and students at the undergraduate level, but the resources can also be broadly used in K-12 education and by the general public. Program elements include a faculty professional development workshop series (live and virtual); an integrated website that is designed to keep faculty current in new advances in science, pedagogy, teaching activities, assessment, and research on learning; and, community networking services. The *On the Cutting Edge* website has developed modules in key areas to support excellence in geoscience education. 1) Manage Your Career: workshops and an extensive web resource collection for early career faculty (pre-tenure) that covers topics such as efficient, effective teaching, developing a thriving research program, getting tenure, and making life choices; a companion workshop series is targeted at senior graduate students and post-docs who are preparing for an academic career in the geosciences, with advice on developing an academic resume, the job search, preparing to teach, and moving your research forward. 2) Design and Development of Geoscience Courses: a Course Design module provides step-by-step guidelines for developing effective courses. Courses in the “core” of the geoscience curriculum (e.g., Introductory courses, Mineralogy, Structural Geology, Sedimentary Geology) have modules that help faculty establish course goals, consider assessment options, select appropriate pedagogical approaches, and design teaching activities. Resources include references, peer-reviewed teaching collections, and special topical collections. 3) Topics: a collection of instructional modules on topics that are typically not addressed in a dedicated course but that represent new advances in geoscience (e.g., Deep Earth, Early Earth, Geodesy) or of immediate importance to society (e.g., Geology and Health, Hazards, Geology and Public Policy). 4) Enhance Your Teaching: modules that demonstrate strategies and approaches that can be broadly used to improve instruction (e.g., Affective Domain, Service Learning, Teaching with Visualizations or Videos, Google Earth, Teaching with Data, Simulations and Models). 5) Develop Program-Wide Abilities: resources for developing student skills that need to be addressed across the curriculum (e.g., Complex Systems, Metacognition, Spatial Thinking, Teaching in the Field, Undergraduate Research). *On the Cutting Edge* provides a number of community-wide services such as peer review of teaching activities (2200 activities have been reviewed for scientific accuracy, pedagogic effectiveness, robustness, alignment of learning goals, activities and assessments, and completeness of educational metadata), support for the Classroom Observation Project using RTOP methods, and support for a number of focus group listservs and web-authoring opportunities. The

Building Strong Geoscience Departments program has resources on defining strong departments, advice for department heads and chairs on program management, program design, development and support, and advocacy for your department. In aggregate, the *On the Cutting Edge* website provide a “one stop” resource that supports excellence in geoscience education for students, faculty, departments and the geoscience community. Please visit: <http://serc.carleton.edu/NAGTWorkshops/index.html>

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