Resources for Teaching Nanoscience Across the Geoscience Curriculum

 $\begin{array}{c} \text{D.W.}\,\text{Mogk}^{1*},\,\,\text{M.F.}\,\text{Hochella}\,\,\text{JR}^2.,\text{J.}\,\text{Ranville}^3,\\ \text{M.Z.}\,\text{Bruckner}^4 \end{array}$

- ¹Dept. of Earth Sciences, Montana State Univ., Bozeman MT, 59717, USA (*correspondence: mogk@montana.edu)
- ²Dept. of Geosciencs, Virginia Tech, Blacksburg VA 24061
- ³Dept. of Chemistry, Colorado School of Mines, Golden CO, 80401, USA
- ⁴ Science Education Resource Center, Carleton College, Northfield MN, 55051, USA

Nanotechnology is an emerging field of research with applications in all STEM disciplines including the physical, chemical, life, Earth and environmental sciences and allied disciplines in materials science and engineering. Applications of nanoscience to the Earth system include global biogeochemical cycling, geochemical processes (e.g., sorption, catalysis, redox, dissolution/ precipitation reactions), and applications of importance to society (e.g., energy capture, storage and transfer; water quality; climate change; human health; transport and fate of natural and engineered nanoparticles. There is a great need and opportunity to integrate nanoscience across the geoscience curriculum (Mineralogy, Petrology, Geochemistry, Hydrology courses) to recruit and train students to engage research in these important areas. A new website introduces the principles of nanoscience, advice on "why," "what," and "how" to teach about nanoscience, primers on instrumentation and methods, and collections of related instructional activities, resources and references that support teaching of nanoscience. Access these resources at: https://serc.carleton.edu/msu nanotech/index. html