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Incorporation of Geoethics In Undergraduate Science and Geoscience Curricula: Some Examples

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The June, 2014, Teaching Geoethics Across the Geoscience Curriculum Workshop in Montana, USA, provided a catalyst for more and more teaching faculty to incorporate in select coursework, in different ways and contexts, critical thinking skills that pertain to Geoethics and ethical decision making. As defined by previous workers, Geoethics and ethical decision making requires review and integration of the context/facts of the circumstances requiring an objective decision and will include stakeholders and decision-makers and should explore alternative actions and expected outcomes. Recent events, perhaps at a more accelerating pace, further testify to the increasing need to prepare the future geoscience workforce to be fully capable of solving the immediate and emerging “grand challenges” that face humanity. Solving these grand challenges will require that science, including of course geoscience, concentrators (the future global workforce in STEM fields) have a working knowledge and proper appreciation of *Geoethics* and ethical decision making. For the past few years I have taught a “Science is the Rest of Your Life”-type class (NATS 1101) required of all incoming freshman science majors at the University of Texas at Dallas. One recently established learning outcome for the course is to “Begin the development of Social and Personal Responsibility and ethics required in the world and society at large”. The interest, and intellectual curiosity, of the students in this class in issues directly related to ethics in science are very keen. I assert that examples from all science disciplines can elicit student discussion of ethical conduct in science. Introductory geoscience courses, such as “Physical Geology”, certainly offer opportunities for discussion of how we approach ethical issues related to matters that affect society and Earth, including efforts to minimize the effects of natural disasters and human-caused (and perhaps human fixed???) activities/errors. For example, how will/should the U.S. Environmental Protection Agency handle the August 5, 2015, Gold King Mine (San Juan Mountains, southwest Colorado) waste spill that prompted the banner headline “State of Emergency in NM” in the



Albuquerque Journal, my hometown newspaper? Is the construction of a many billion ton dolomite strip mine in the Florida Mountains, southern NM, to extract magnesium, a sound and safe enterprise? Also, more senior level capstone geoscience courses that are focussed on geoscience careers and the presentation of geoscience are ideal

venues for student engagement in Geoethics.

Figure 1: Animas River, southwest Colorado, following Gold King Mine spill, August, 2015. From www.mintpressnews.com

