

Suggestions for infusing ethics throughout a geoscience department

by Vince Cronin, delivered April 12, 2018, at the EGU General Assembly in Vienna

SLIDE 1 GeoEthics is one of the handful of topics that I focus on. That said, I don't claim any special virtue or status related to this matter, only that I have thought about it for a long time. I have also heard about, directly observed, and been the target of unethical behavior, both in professional geoscience and in the university environment where I have been a geology prof for three decades.

SLIDE 2 To paraphrase Stephanie Bird (2014), it has become apparent that the practice of simply hoping students will learn about responsible research conduct and ethical behavior by observing exemplary behavior in their department is inadequate and does not serve the needs of the student, the department, the geoscience community, or society as a whole.

How do novice geoscientists develop as ethical scientists and professionals? We who are privileged to be geoscience educators have a responsibility to be part of the answer to that question.

SLIDE 3 I have a few suggestions, and a request. The request is that you read through the materials I have posted at the website highlighted in yellow, and think about how you can help us move this work forward. Post your ideas, suggestions, and links to the geoethics resources developed by/for your department to the International Association for Promoting Geoethics (<http://www.geoethics.org>). This should be a shared effort to facilitate the ethical development of our geoscience community.

SLIDE 4 The web page looks like this (<http://CroninProjects.org/Ethics-EGU2018/>), and contains everything worth knowing about this presentation, including the presentation file. So all you have to do right now is listen and think.

Here are a few steps we can take in our departments that are likely to help improve awareness of geoethics among our members.

SLIDE 5 Step 1: Begin and sustain a genuine, ongoing conversation about ethics and integrity in your department.

Involve every member of your geoscience department in the conversation. Learn about geoethics together. Learn about geoethics from each other, and from the broader geoscience community.

Applied ethics education in your department is not a "one and done" matter, but rather is something that needs to be touched on early in every term/semester because there are new members joining your department all the time.

SLIDE 6 Explore the full range of topics that are relevant in the context of your department. Include consideration of ethical issues your students will likely confront as they move into the geoscience workforce, so that they will emerge from your department better prepared to thrive in an ethically challenging environment.

SLIDE 7 Step 2: Create a departmental web portal for ethics that is accessed through an obvious link on your department home page.

This portal can be designed to link students with international, national, institutional, departmental, and personal resources needed to explore the ethical standards of the geoscience community.

AGU maintains an ethics portal (ethics.agu.org), and a draft example of a simple departmental ethics portal is available on my website (CroninProjects.org/Draft-GeoEthics-Page.html). The Jackson School at the University of Texas at Austin has developed separate web portals concerning departmental guidelines and workplace issues.

SLIDES 8-13 These are excellent resources that should be studied by any department, institute, or science school/college that would like to develop their own online resources. Dean Sharon Mosher wrote "We are requiring everyone in the school to sign acknowledging that they have read [the guidelines] and understand the importance of the guidelines."

<ad lib description as several screen-captures of the UT website are displayed>

SLIDE 14 Step 3: Use the ethics portal to expose department members to ethics resources from the broader science/geoscience community

This will facilitate access to the ethical codes, standards, values, and statements of national and international geoscience organizations, such as AGU, GSA, AGI, USGS, AAPG, AIPG, and IAPG among others.

The reason for doing this is to promote a heightened awareness of "the sense of the geoscience community" concerning ethical issues.

SLIDE 15 Step 4: Develop statements of ethical norms for your department.

As these ethical resources are created, make them accessible through the department's ethics portal, along with links to the relevant policies of your college/university.

SLIDE 16 Don't reinvent the wheel. Lots of work has been done on geoethics, so I would suggest you become familiar with Dave Mogk's [Teaching Geoethics](#) page at SERC.

SLIDE 17 I suggest starting with aspirational statements, like those developed by the Geoscience Departments at Colorado State University ([CSU-Geosciences-ValuesStatement.pdf](#)) and Virginia Tech ([VATech-Geosciences-ValuesStatement.pdf](#)). These help to condition the environment in which departmental members interact, work, and learn.

SLIDE 18 Directly, honestly, and unambiguously address issues related to academic integrity, harassment, bullying, discrimination "based on such factors as ethnic origin, religion, citizenship, language, political or other opinion, sex, gender identity, sexual orientation, disability, or age" (ICSU [Freedoms & Responsibilities of Scientists](#) and [Statutes and Rules of Procedure](#), 2011). Refer to the Code of Conduct in AGU's [Scientific Integrity and Professional Ethics Policy](#) for a model.

SLIDE 19 If there have been particular problems in your department that need to be addressed, focus on shared values and underlying ethical principles that should be promoted and that all can agree on.

SLIDE 20 You might develop resources that are aligned with the needs of various groups in your department and of the department as a whole. For example, some ethical statements would be primarily intended for students, some for faculty or staff, and some for all members. Some would be relevant to the research function, some primary relevant to the teaching/learning function, and some to community outreach and education. Involve the relevant stakeholders in the development of these focused resources.

SLIDE 21 While these resources need to be embraced locally, they should be consistent with the statements published by relevant national and international geoscience organization so as not to induce any cognitive dissonance.

SLIDE 22 The goal is to capture and transmit "the sense of this community" about what it means to act with integrity, not to provide a means to justify or support judgmentalism.

A functional set of ethical norms and expectations relevant to your department can form an important part of the fabric that binds a department together.

SLIDE 23 Step 5: Provide every geoscience major (and grad student) with authoritative information about applied ethics in science or geoscience.

Provide them with a copy of a brief overview of science/geoscience ethics, such as [On Being a Scientist -- A Guide to Responsible Conduct in Research](#) by the National Academies (2009) or [Honor in Science](#) (Jackson, 2000). These brief texts are of an appropriate scope and scale to be required reading for any undergraduate science major.

Consider making a more extensive text with significant ethical content a required reference text in an early core course for undergraduate geoscience majors. Hugh Gauch's book [Scientific Method in Brief](#) (2012) might be a good choice.

SLIDE 24 Step 6: Encourage each member of the department to develop their own personal commitment to integrity and geoethics.

Ethics affects how we interact with each other, but it begins with each of us individually. Ideally, people who spend time as members of your department should emerge from that experience with a greater commitment to personal and professional integrity.

Suggest that they read the IAPG's "GeoEthical Promise" (www.geoethics.org/geopromise), and perhaps build upon that promise in articulating their own personal commitment.

SLIDE 25 Other suggestions.

- Develop departmental ethics resources in a very visible and transparent process, with the authentic and meaningful involvement of all stakeholders. Ethical statements compiled by 18-to-25-year-old novice/student geoscientists (with guidance and support from more experienced geoscientists) are more likely to be relevant, understandable, and useful to them than ethical statements imposed on them from older geoscientists.
- Consider departmental ethics resources to be flexible works in progress -- always subject to revision and improvement

SLIDE 26 Facilitating the development of ethical geoscientists is our responsibility, and it is a never-ending process. This is much more like an ultra-marathon than a sprint. Either way, the starting pistol has already been fired, and we need to get moving.