

Geoethics as a common thread that binds a geoscience department together

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SLIDE 1 I want to thank Silvia, Giuseppe, and the other organizers for giving me this opportunity.

SLIDE 2 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 3 I have posted a web resource that allows you to access the text and visuals of this talk along with other resources for expanding awareness of geoethics. You will see its URL at the bottom of most slides. So all you need to do right now is to sit back and be an engaged listener.

My talk has three sections: an introduction, a description of relevant ethical basics, and finally a practical suggestion that any department can implement.

SLIDE 4 The operation of a typical university geoscience department is heavily influenced by the prevailing reward system implemented through the authority of an administrative hierarchy.

SLIDE 5 Above that departmental structure is a higher administration that dictates the priorities, generally in a unidirectional top-down manner.

SLIDE 6 For a science department, those priorities tend to be reflected most clearly in the criteria for tenure and promotion -- not necessarily the *written* criteria, but rather the criteria that are actually used.

SLIDE 7 external funding that generates overhead funds to the university

SLIDE 8 published papers in high-impact peer-reviewed publications

SLIDE 9 doctorates awarded

SLIDE 10 *Collegiality* is the catch-all or cudgel that is used to enforce conformity.

SLIDE 11 *Teaching*, which is only relevant if it is truly inadequate. Excellent teaching might be appreciated but is of no real consequence in the reward structure.

SLIDE 12 Service is generally of even less importance in performance reviews, except that it is often essential to the smooth functioning of the organization.

Many faculty members optimize their part of the environment to conform to these priorities, focusing on their *personal* success as faculty members (as success is defined by the reward structure). To some of them, *the only student who is worth their time* is one who will write a

grant proposal, conduct research, and submit an abstract or paper with the faculty member's name on it.

SLIDE 13 Another hierarchy in a department is the pecking order as defined by academic rank, which also tends to track job security with the most secure jobs at the higher ranks. In a so-called "right to work" state like mine, a non-contract worker can be fired at any time for any reason or for no reason whatsoever. Some universities use short-term contracts that they need not renew as a way of easily eliminating problem employees, such as faculty members who complain or don't "drink the Koolaid."

SLIDE 14 And there is the pecking order as defined by academic degree. This is modified by various biases concerning the quality of degrees from various schools. For example, a doctorate from the worst program at MIT might be considered "better" than a doctorate from the best program at Mississippi State.

SLIDE 15 The flow of power is important in any organization, and a geoscience department is no different. A person with more power than you can require you to act in ways that you might or might not have chosen for yourself -- ways that might serve their interests or desires far more than they serve your well-being. There are many formal and informal power structures in a typical geoscience department. Students are at or near the bottom of the power spectrum in all categories.

SLIDE 16 I know this will come as a shock to you, but some people in positions of power fail to exert that power with justice, fairness, and integrity. This failure has an adverse impact on the community. Examples of this are abundant.

SLIDE 17 What is discrimination in a geoscience department but a lack of respect due to bias resulting in a reduction in opportunity — often facilitated by a power differential?

SLIDE 18 What is sexual harassment in a geoscience department but a form of discrimination that is often facilitated by a power differential?

SLIDE 19 What is retaliation but a form of discrimination that is often facilitated by a power differential?

SLIDE 20 What is coercion but a denial of rights that is often facilitated by a power differential?

SLIDE 21 What fuels the abusive use of students in some geoscience labs but an unjust exertion of power by the lab supervisor or faculty researcher?

And in each of these unethical behaviors, the persons being abused seem to be viewed as of a lesser status or dignity by the perpetrator. They are considered *untermenschen* to be abused at will by *übertmenschen*.

SLIDE 22 The way geoscience departments *actually* are, with their competing priorities, winners and losers, can be a recipe for disrespect, discord and unethical behavior. As damaging as this can be to the faculty and staff personally, it is more important to recognize how damaging

an ethically dysfunctional department can be to students, by providing a distorted example of a geoscience working environment. We can do better.

SLIDE 23 In my view, the principal reason for the geoscience faculty's existence is to facilitate student learning and development. The rest is just narcissism and chasing after golden rings.

SLIDE 24 In my view, a department should model the ideal geoscience community as a whole so that when the novice geoscientist graduates from this novitiate, they have the tools they will need to function in the broader geoscience community.

So let's be idealists for a moment and set aside how departments *actually* work to envision how they might work if the focus was redirected toward facilitating student learning and development.

SLIDE 25 The geosciences cover a very broad range of topics that are constructed on a foundation of mathematics, statistics, physics, chemistry, biology, and related computational tools. The thing that all of these topics have in common is *science*, and whether you have given it much thought or not, *ethics* is of central importance in science. My sense is that we commonly neglect to help our students understand the fundamental nuts and bolts of science as a process for discovering reliable information about our world.

As Richard Feynman said, "our responsibility is to do what we can, learn what we can, improve the solutions, and pass them on."

And so I assert that ethics -- geoethics, if you will -- should be the common thread that binds a geoscience department together. It is the context that is common to all of the subtopics of geoscience.

SLIDE 26 Even though ethical conduct is essential to science, explicit discussion or teaching of geoethics is virtually unknown in geoscience departments. Our challenge and our profound responsibility is to reverse this situation by infusing geoethics throughout our geoscience curriculum and make it an essential element of our academic departments.

SLIDE 27 Our challenge is to facilitate student development as geoscientists in both a technical and an ethical sense. We do not want to generate new members of a sort of geoscience cargo cult, who can go through the motions and say the words but who have no real competence or functional understanding as geoscientists. Neither do we want to generate geoscientists who lack integrity as scientists.

SLIDE 28 Truth.

SLIDE 29 Moral agency.

SLIDE 30 Dignity.

SLIDE 31 Human rights.

SLIDE 32 Respect.
SLIDE 33 Character.
SLIDE 34 Integrity.
SLIDE 35 Community.
SLIDE 36 The just exercise of power and authority.
These must be our starting points.

SLIDE 37 *Ethics* is of central importance in science. The very point of science is to discover truth, in the sense Einstein described it: "truth is what stands the test of experience."

SLIDE 38 Physicist and author C.P. Snow wrote, "The only ethical principle which has made science possible is that *the truth shall be told all the time*... a false statement of fact made deliberately is the most serious crime a scientist can commit."

SLIDE 39 It is safe to say that everyone involved in university-level geoscience education and research is a moral agent. Moral agency is a person's ability to make moral judgments based on an assessment of right and wrong, to take responsibility for their actions, and to be held accountable for those actions.

SLIDE 40 Dignity is to living things as gravity is to a quantum of mass. As gravity is a consequence of mass, dignity is an existential characteristic of life.

In his secular account of human dignity, Emeritus Professor George Kateb of Harvard University both recognizes that other types of life on Earth also have dignity, and asserts that the dignity of the human species is qualitatively different.

SLIDE 41 A casual pass through the popular books written by Franz de Waal, the head of the US National Primate Center, should illustrate to you why other living things also have dignity on a planet where life forms an interdependent web of existence.

SLIDE 42 In addition to this group-level dignity, Kateb writes that, "we can distinguish between the dignity of the human species as a whole and the dignity of every human individual."

SLIDE 43 The *very first sentence* of the Universal Declaration of Human Rights, adopted by the United Nations General Assembly in 1948, states that the "recognition of the inherent dignity and of the equal and inalienable rights of all members of the human family is the foundation of freedom, justice, and peace in the world."

SLIDE 44 Although each of us is a unique, distinct individual, every human being has the same dignity -- the same existential status -- as every other human being. There are no übermenschen; there are no untermenschen. None with superior dignity; none with inferior dignity.

- SLIDE 45** Dignity does not vary with
- SLIDE 46** age or
- SLIDE 47** ability or
- SLIDE 48** gender identity or
- SLIDE 49** skin color or
- SLIDE 50** tribe or
- SLIDE 51** nationality or
- SLIDE 52** ancestry or
- SLIDE 53** wealth or
- SLIDE 54** power or
- SLIDE 55** any other attribute of an individual human. Your dignity is the same as mine,
- SLIDE 56** and yours the same as every other human on the planet.

Dignity is an existential characteristic of each of us.

The failure to understand and accept the equal dignity of each individual human has led us to accept slavery, systems of apartheid, the homicidal discrimination of the Nazi death camps, and genocides of all sorts across the globe and throughout history.

SLIDE 57 George Kateb identifies human dignity "as the basis for our duty to respect each other and to serve as stewards of nature." My view is that any form of ethics, including geoethics, begins with the concept of dignity. *It is the cornerstone.*

SLIDE 58 As a thought experiment, imagine that you meet another person -- a generic human, if you will. That person embodies a dignity that is the equal of your own.

Until you have acquired additional information,

SLIDE 59 you assume a basic respect for this person.

If the person displays positive virtues through their words or actions,

SLIDE 60 your respect for that person might grow. If the person is dishonest, violent, obscene, abusive -- if they display negative behaviors --

SLIDE 61 your respect for that person would likely diminish or vanish altogether. But the dignity of that person remains unchanged.

Of course, there are no generic humans. So it is interesting to repeat the experiment, only this time intentionally imagine, for example,

SLIDE 62 a woman, or

SLIDE 63 a young black man, or

SLIDE 64 a Buddhist monk in a flowing saffron robe, or

SLIDE 65 a homeless refugee, or

SLIDE 66 someone who does not speak your language, or

SLIDE 67 anyone else who is obviously different from you and not in your clan. Can you feel any difference in the baseline respect you feel for this non-generic human. Can you sense

that you might pre-judge their worthiness of respect -- that is, can you feel your tendency toward an implicit bias. Those persons are all unique individuals with life stories and challenges, just like you, and they have an innate dignity that is the same as yours.

SLIDE 68 Human dignity is the same for each of us, but our level of respect for another person rises, falls, and might disappear entirely based on the sum total of two things: our actual experience with that person, and any implicit bias we might feel toward anyone who is a member of the groups we perceive that person to be a part of. Basing respect on experience is reasonable and in fact necessary. Basing respect on implicit bias is simply unreasonable discrimination.

SLIDE 69 Humans are social creatures that require interaction with other humans to be healthy. We sense the level of respect we are afforded by another person. A person who respects us, even at a baseline level, makes that known to us through gestures of kindness, courtesy, openness to communication, and so forth. Someone who does not respect us manifests that by behavior that might be hostile or dishonest, or by simply shunning us in an effort to isolate us and deprive us of the human contact and support that we need.

We are all a grab-bag of positive and negative behaviors that affect the respect we are accorded by other people. As moral agents, we can make choices that enhance our ability to be a constructive, productive member of our community.

To the extent that another person's lack of respect for you is based on bias, discrimination, or failure to accept your equal dignity, that other person is simply displaying a deficit of character.

SLIDE 70 In the words of Zora Neal Hurston, "Sometimes, I feel discriminated against, but it does not make me angry. It merely astonishes me. How can any deny themselves the pleasure of my company? It's beyond me."

SLIDE 71 There is a strong and long-standing sense that the discernment of moral "right and wrong" must consider the rights and needs of others, in addition to personal interests. This is evident in the *golden rule* that we should avoid doing anything to someone else that we would not want them to do to us.

Moral philosopher Anthony Weston wrote that "ethics asks us to pay attention to something beyond ourselves... To think or act ethically is to take care for the basic needs and legitimate expectations of others as well as our own."

SLIDE 72 So morality is a prerequisite for any healthy community of humans. And I assert that we should view geoscience departments as communities.

Character and integrity are linked in that someone who consistently displays integrity in their interactions is said to be of good character.

SLIDE 73 Stephen Carter defines integrity as requiring three steps:

1. *Discerning* what is right and what is wrong.
2. *Acting* on what you have discerned, even at personal cost.

3. *Saying openly* that you are acting on your understanding of right from wrong.

SLIDE 74 Truth. Moral agency. Dignity. Human rights. Respect. Character. Integrity. Community. The just exercise of power and authority. Propagating an understanding of these key ideas throughout our geoscience departments must be an ongoing project for all of us, every term, with every student, staff member, faculty member, and administrator.

SLIDE 75 To paraphrase Stephanie Bird, 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.

SLIDE 76 Every term we welcome new geoscience students into our department. All they know about the geoscience community is that they might be interested in being a part of it. What they come to know about the geoscience community over the term, or perhaps over the next few years as a geoscience student, depends on their interactions with the departmental community. They are novice geoscientists, and the geoscience department is their novitiate.

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.

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

SLIDE 77 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 78 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 79 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.

The Jackson School at the University of Texas at Austin has developed separate web portals concerning departmental guidelines and workplace issues.

SLIDE 80 The UT Geosciences portal offering guidelines for members of its community supplies descriptions of best practices for establishing effective and productive relationships.

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."

SLIDE 81 Links to separate resources for various constituencies within UT Geosciences include information about dispute resolution and contact information for mediators.

SLIDE 82 Another UT Geosciences portal considers workplace issues and establishes expectations for ethical behavior.

SLIDE 83 Issues include bullying, harassment, sexual harassment, discrimination, hostile workplace environment, violence, advisor-advisee issues, and academic integrity. Each topic links to additional information.

SLIDE 84 For example, the harassment link provides useful definitional and policy information.

SLIDE 85 Lists of contacts is provided so that members of the UT Geosciences community will have good information about how and where to seek help and file reports. These online resources are exemplary.

SLIDE 86 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 87 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 88 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 89 I suggest starting with aspirational statements, like those developed by the Geoscience Departments at Colorado State University and Virginia Tech. These help to condition the environment in which departmental members interact, work, and learn.

SLIDE 90 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." Refer to the Code of Conduct in AGU's [Scientific Integrity and Professional Ethics Policy](#) for a model.

SLIDE 91 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 92 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 93 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 94 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 95 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 or [Honor in Science](#). 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](#) might be a good choice.

SLIDE 96 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," and perhaps build upon that promise in articulating their *own* personal commitment.

SLIDE 97 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 98 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.