

UC Santa Barbara

Guide to the Geographic Approach

Title

Guide to the Geographic Approach Guide to Designing GIS Ethics Lessons and Case Studies

Permalink

<https://escholarship.org/uc/item/0sc4s7dg>

Authors

Kedron, Peter

Nelson, Trisalyn

Frazier, Amy

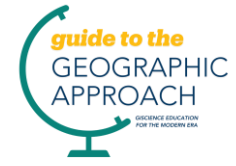
et al.

Publication Date

2025-09-30

Ethical Training in the *Guide to the Geographic Approach*

Created August 2025



Overview

Ethics is an essential part of GIScience education and acting ethically is a key responsibility of GIS professionals. As such, ethical training is a core component of the *Guide to the Geographic Approach*. This document provides an overview to the conceptual foundations and pedagogical approach used to teach ethics within the *Guide to the Geographic Approach*. This document also references related template documents that describe how to develop ethical lessons and ethical case studies similar to those included in the *Guide to the Geographic Approach*.

Ethical Training in the *Guide to the Geographic Approach*

Ethical reasoning is a core competency and foundation learning outcome of higher education. As defined by the American Association of Colleges and Universities¹, Ethical Reasoning:

“... is reasoning about right and wrong human conduct. It requires students to be able to assess their own ethical values and the social context of problems, recognize ethical issues in a variety of settings, think about how different ethical perspectives might be applied to ethical dilemmas and consider the ramifications of alternative actions. Students’ ethical self-identity evolves as they practice ethical decision-making skills and learn how to describe and analyze positions on ethical issues.”

Building on the foundational work of the GIS Professional Ethics Project², ethical training is incorporated into all modules of the *Guide to the Geographic Approach* in the form of ethics lessons and ethics case studies. These lessons and case studies are designed to introduce students to ethical concepts and help students translate that knowledge into actions. The ultimate aim is to prepare students to recognize ethical problems in their daily work and respond with integrity using structured decision-making frameworks. Within the *Guide to the Geographic Approach*, ethical lessons and case studies serve different functions.

Ethical Lessons introduce key ethical concepts relevant to an applied problem or GIScience skill. Ethical lessons typically take the form of a short (3-5 minute) video introducing an ethical issue that relates either to the applied problem or GIScience skills that are the focus of the module. Ethical lessons typically target the ‘remember’ and ‘understand’ levels of Bloom’s Taxonomy and students should be expected to create work achieving the lower levels of the Ethical Reasoning VALUE Rubric (see below).

Ethical Case Studies offer students the opportunity to practice more advanced cognitive processes from Bloom’s Taxonomy and achieve higher levels of the Ethical Reasoning VALUE Rubric. Case studies build on the ethical concepts introduced in the ethics lessons and push learners to consider conflicting obligations and perspectives.

Theoretical Basis of the Ethical Lessons and Case Studies

The pedagogical approach to ethics training adopted in the *Guide to the Geographic Approach* draws from four primary sources:

1. [Ethical Reasoning VALUE Rubric](#) created by the American Association of Colleges and Universities (AAC&U), which articulates fundamental criteria for ethical reasoning, with performance descriptors demonstrating progressively more sophisticated levels of attainment. The rubric focuses on: 1) Ethical Self Awareness, 2) Ethical Issue Recognition, 3) Understanding Different Ethical Perspectives/Concepts, 4) Application of Ethical Principles, and 5) Evaluation of Different Ethical Perspectives/Concepts.
2. **Seven-step Guide to Ethical Decision Making** published by Davis³ outlines a seven-step approach that was adopted by The GIS Professional Ethics Project² as the foundational framework for student evaluation of ethical case studies. Use of this same approach in the *Guide to the Geographic Approach* allows for a degree of interoperability with the resources available through the GIS Professional Ethics Project.
3. [GIS Code of Ethics](#) developed by the GIS Certification Institute, is based on the ethical principle of always treating others with respect and never merely as a means to an end. Four levels of obligation are identified and detailed within the code: 1) Obligations to Society, 2) Obligations to Employers and Funders, 3) Obligations to Colleagues and Professionals, and 4) Obligations to Individuals in Society.
4. [Data Science Ethos Lifecycle](#) developed by a team of interdisciplinary social scientists and data scientists, this approach uses a project lifecycle model to raise awareness among researchers and students of the ethical dimensions of their practice. The *Guide to the Geographic Approach* integrates the four Ethos lifecycle concepts to examine decisions at each project step: 1) Positionality, 2) Power, 3) Sociotechnical Systems, 4) Narratives.

Guide to Developing Ethical Lessons and Case Studies for the *Guide to the Geographic Approach*

Within the *Guide to the Geographic Approach*, ethical lessons and case studies are typically jointly developed as part of a module linked to an applied problem. However, the approach described here can be used to develop ethical lesson and case studies for any problem context.

- Create a short list of ethical issues that might arise when addressing the applied problem of the module, or from the GIS topics covered in the module. The **Ethical Challenges in GIScience** document provides a list of ethical questions and situations that can be used as inspiration when developing this module-specific list.
- Next, use the Ethical Reasoning VALUE Rubric to identify which of the five criteria of that rubric the lesson topics will address and the attainment level students are meant to achieve.
- Work to explicitly connect elements of the potential lesson topics to the obligations of the GISCI Code of Ethics (Appendix A) and the lenses of the Data Science Ethos Lifecycle (Appendix B). Identify which obligations will be part of the lesson and consider how the lenses can be used to shape the presentation of the lesson.
- Select the most compelling or relevant topic for the ethical lesson and case study.

- For the ethical lesson, develop a script for a 3-5min video that introduces key ethical concepts and perspectives.
- For the ethical case study, use the **Case Study Template** to develop and structure the ethical case study. The case study should present a scenario that involves a professional facing a genuine ethical dilemma with competing values.
- When developing the case study, be mindful that students will use the **GIS Ethics Case Study - Learner Guide** to analyze the case. That guide presents a seven-step approach to analyzing an ethical problem.

References

1. AAC&U. *Value rubrics – ethical reasoning*. (Association of American Colleges & Universities). Available at: <https://www.aacu.org/initiatives/value-initiative/value-rubrics/value-rubrics-ethical-reasoning>
2. DiBiase, D., Goranson, C., Harvey, F. & Wright, D. The GIS professional ethics project: practical ethics education for GIS pros. In *Proc. 24th Int. Cartogr. Conf.* Santiago, Chile 15–21 November (2009)
3. Davis, M. *Ethics and the University*. (Routledge, London, 1999)

Appendix A.

The GISCI Code of Ethics (3) identifies four obligations of GIS professionals that can be used to analyze ethical problems. Complete details and additional questions that can be used to examine each of the sub-obligations presented here are available at [GISCI Code of Ethics](#).

Obligations to Society

1. Do the Best Work Possible
2. Contribute to the Community to the Extent Possible, Feasible, and Advisable
3. Speak Out About Issues

Obligations to Employers and Funders

1. Deliver Quality Work
2. Have a Professional Relationship
3. Be Honest in Representations

Obligations to Colleagues and the Profession

1. Respect the work of others
2. Contribute to the Discipline to the Extent Possible

Obligations to Society

1. Respect Privacy
2. Respect Individuals

Appendix B.

The four lenses (4) work together to provide a holistic understanding of ethical issues. Use them to uncover the "thickness" of the social and technical world in which your GIS work takes place.

1. Positionality Lens

How are the options you developed shaped by your own experiences? Are your circumstances and experiences leading you to unconsciously only consider some options?

Key questions:

- What assumptions do I bring based on my personal experiences, education, and cultural background?
- What identities are represented among my data subjects, partners, and stakeholders?
- How are these identities linked to privilege and disadvantage?
- Whose perspectives might be missing from this analysis?
- How does my position of power as a GIS professional affect my view of this situation?

2. Power Lens

Who has the capacity to influence decisions and outcomes in this case.

Key questions:

- Who has influence over this work and who is affected by it without having a voice?
- Who gets to decide if the work is valid or valuable?
- Whose power is increased through this work and whose is diminished?
- How might this project redistribute power among stakeholders?
- What are the motivations of those providing data or funding this work?

3. Sociotechnical Systems Lens

How are the options you developed constrained or enabled by relationships between the people involved in the situation and the technologies involved in the situation?

Key questions:

- What social constructs or assumptions are embedded in my data and tools?
- What actions are enabled by my GIS work and what actions are constrained?
- Who or what is held responsible when something goes wrong?
- How does my project seek to modify existing sociotechnical arrangements?

4. Narratives Lens

What beliefs about the world structured the options you developed? Did you miss any options because you simply assumed they were not possible or desirable?

Key questions:

- What narratives motivated the creation of this data and this project?
- What underlying beliefs inform the idea that GIS approaches are appropriate here?
- Whose visions of the future are being privileged or marginalized?
- How might this work reinforce or challenge dominant narratives about technology and society?