



Online Ethics Center
FOR ENGINEERING AND SCIENCE

Life and Environmental Science Ethics: Case Studies

Author(s)

Michelle Sullivan Govani

Year

2018

Description

This collection of cases covers topics related to Life and Environmental Science ethics including, agriculture ethics, bioethics, environmental ethics, and more. Cases come from a variety of online educational sources, ethics centers, and ethics programs.

Body

Ethics Unwrapped. “Arctic Offshore Drilling.” 2021.

<https://ethicsunwrapped.utexas.edu/case-study/arctic-offshore-drilling>.

- Offshore oil and gas reserves, primarily along coastlines in Alaska, California, Louisiana, and Texas, account for a large proportion of the oil and gas supply in the United States. In August 2015, President Obama authorized Royal Dutch Shell to expand drilling off Alaska’s northwest coast. His decision brought into sharp relief the different, oftentimes competing views on the expansion of offshore drilling.

Ethics Unwrapped. “Climate Change & the Paris Deal.” 2021.

<https://ethicsunwrapped.utexas.edu/case-study/climate-change-paris-deal>.

- In December 2015, representatives from 195 nations gathered in Paris and signed an international agreement to address climate change, which many observers called a breakthrough for several reasons. First, the fact that a deal was struck at all was a major accomplishment, given the failure of previous climate change talks. Second, unlike previous climate change accords that focused exclusively on developed countries, this pact committed both developed and developing countries to reduce greenhouse gas emissions. However, the voluntary targets established by nations in the Paris climate deal fall considerably short of what many scientists deem necessary to achieve the stated goal of the negotiations: limiting the global temperature increase to 2 degrees Celsius. Furthermore, since the established targets are voluntary, they may be lowered or abandoned due to political resistance, short-term economic crises, or simply social fatigue or disinterest.

Ethics Unwrapped. “Patient Autonomy & Informed Consent - Ethics Unwrapped.” 2021. <https://ethicsunwrapped.utexas.edu/case-study/patient-autonomy-informed-consent>.

- In the context of health care in the United States, the value on autonomy and liberty was cogently expressed by [Justice](#) Benjamin Cardozo in *Schloendorff v. Society of New York Hospitals* (1914), when he wrote, “Every human being of adult years and sound mind has a right to determine what shall be done with his own body.” This case established the principle of informed consent and has become central to modern medical practice [ethics](#). However, a number of events since 1914 have illustrated how the autonomy of patients may be overridden. In *Buck v. Bell* (1927), Justice Oliver Wendell Holmes wrote that the involuntary sterilization of “mental defectives,” then a widespread practice in the U.S., was justified, stating, “Three generations of imbeciles are enough.” Another example, the Tuskegee Syphilis Study, in which African-American males were denied life-saving treatment for syphilis as part of a scientific study of the natural course of the disease, began in 1932 and was not stopped until 1972.

Ethics Unwrapped. “Prenatal Diagnosis & Parental Choice.” 2021.

<https://ethicsunwrapped.utexas.edu/case-study/prenatal-diagnosis->

parental-choice.

- In the United States, many citizens agree that the government may impose limits on the freedom of individuals when individuals interfere with the rights of others, but the extent of these limits is often a topic of debate. Among the most debated of bioethical issues is the issue of abortion, which hinges on whether the fetus is a person with rights, notably the right to life.

Ethics Unwrapped. “Retracting Research: The Case of Chandok v. Klessig.” 2021. <https://ethicsunwrapped.utexas.edu/case-study/retracting-research-case-chandok-v-klessig>.

- In 2003, a research team from prominent laboratory the Boyce Thompson Institute (BTI) for Plant Research in Ithaca, New York published an article in the prestigious academic journal Cell. It was considered a breakthrough paper in that it answered a major question in the field of plant cell biology. The first author of this paper was postdoctoral researcher Meena Chandok, working under her supervisor Daniel Klessig, president of BTI at the time.

International Dimensions of Ethics Education in Science & Engineering. “IDEESE Case: GMOs.” University of Massachusetts Amherst, 2009. <https://www.umass.edu/sts/ethics/online/cases/GMO/case.html>.

- High ethical concern about GM organisms has two sources: concerns for the integrity and sustainability of the natural environment and concern about the social consequences of allowing the supply of seeds or breeding stock to be controlled by developers (mainly though not exclusively large multinational corporations) having 20-year monopolies over the distribution of any particular genetic material as a consequence of patent rights.

International Dimensions of Ethics Education in Science & Engineering. “IDEESE Case: Stem Cell.” University of Massachusetts Amherst, 2009. <https://www.umass.edu/sts/ethics/online/cases/StemCell/case.html>.

- Stem cells are undifferentiated cells in the human body which are able to replenish themselves by dividing. Under particular natural or medically induced circumstances, they are able to develop into more specialized cells for forming bones, nerves, body tissue, brains, muscles, and blood. Stem cell research has provoked considerable ethical concern; while many welcome the prospect of

more effective treatments of birth defects or diseases, using human embryonic stem cells for such treatments, or even in scientific research, is very controversial. The embryo must be destroyed to secure its stem cells, and anyone who believes that human life begins at the moment of conception equates destroying embryos with committing murder. Excitement generated by the first acquisition of human embryonic stem cells in 1998 spread around the world. In South Korea, where scientists and the government had been attuned to advances in genetics, bioscience, and biotechnology since the mid-1980s, there was strong interest in taking up the new possibilities. Four years earlier, the South Korean government had adopted an ambitious "Plan 2000" intended to make South Korea one of the leading sites of bioscience and biotechnology research in the world. In 1990 it provided its national Genetics Research Institute with ample facilities in the new Taedok Science town just outside Seoul; in 1995 it expanded the Institute and renamed it the Korean Research Institute for Bioscience and Biotechnology to better reflect its expanded areas of work.

Iowa State University. "Case Studies." Bioethics Program, 2021.

<https://bioethics.las.iastate.edu/a-note-about-case-studies-for-the-classroom/>.

- The following are helpful for introducing real-life ethics situations to students. These case studies are designed for teaching purposes, to help students develop critical responses to ethical issues, taking into account a multitude of viewpoints. Please feel free to use these case studies in your classrooms, or modify as necessary for your purposes. Please give credit where credit is due.

Teach the Earth. "Case of GMOs in Environmental Cleanup." Across the Geoscience Curriculum, 2019.

<https://serc.carleton.edu/geoethics/activities/84049.html>.

- This case represents various agendas, hidden and otherwise, that can come into play during environmental remediation.

Teach the Earth. "Does A River Have Rights?" Across the Geoscience Curriculum, 2019.

<https://serc.carleton.edu/geoethics/activities/84031.html>.

- Individual students have different ethical "lines." This class discussion proceeds with a series of prompts that presents a set of scenarios that explores ethical boundaries. Students discuss right and wrong actions with respect to a river and discuss why those actions are "right" or "wrong" as well as how their ethical viewpoints vary.

Contributor(s)

Michelle Sullivan Govani

Karin Ellison

Joseph Herkert

Rights

Use of Materials on the OEC

License

CC BY-NC-SA

Resource Type

Bibliography

Discipline(s)

Life and Environmental Sciences

Biotechnology