Integrating Ethics into Science Case Studies
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“Your scientists were so preoccupied with whether or not they could, they didn’t stop to think if they should.”-Dr. Ian Malcolm, in Jurassic Park

Abstract: I teach an upper level writing course, Genes, Race, Gender, and Society, designed for Life Science majors. Students first work through the topical case study and are then challenged to rethink their responses through the lenses of ethics, taking into account different ethical frameworks such as care ethics, Kantian ethics, utilitarian ethics, and virtue ethics. Students then develop their own case study, integrating ethical components. I want to expose my students to this way of thinking because I see technology being driven by the Jurassic Park phenomenon “Your scientists were so preoccupied with whether or not they could, they didn’t stop to think if they should.” and want future physicians grounded in a sense of how their actions relate to the greater good.

New Medical College Admission Test® Approved Changes Add Emphasis on Behavioral and Social Sciences “...by testing what is taught in introductory psychology, sociology, and biology at many undergraduate institutions, this new section will examine concepts that provide a solid foundation for learning in medical school about the behavioral and socio-cultural determinants of health. The changes to the exam also recognize a growing body of evidence showing that integrating social and behavioral sciences into medical education curricula and clinical practice can improve the health of all patients. In addition, a new “Critical Analysis and Reasoning Skills” section will test students’ reasoning ability by having them analyze, evaluate, and apply information provided in passages from a wide range of social sciences and humanities disciplines, including ethics and philosophy, cross-cultural studies, and population health. ...”
https://www.aamc.org/newsroom/newsreleases/273712/120216.html

“Science cannot stop while ethics catches up - and nobody should expect scientists to do all the thinking for the country.”-Elvin Stackman

LSC363 Genes, Race, Gender and Society
Class Description: Examines biological events and theories on race and gender and their interface with societal views.
Enrollment Requirements: Pre-requisites: Freshman Biology, Genetics, Cell Biology, and Organic Chemistry
General Studies Designation: Literacy and Critical Inquiry “The [L] requirement is one of the principal means we have of validating a transfer student’s literacy skills. Both literacy and critical inquiry promote clear and effective thinking. Literacy involves the development of communicative competence in written and oral discourse. Critical inquiry involves the gathering, interpretation, evaluation of evidence and arguments.”

Case Study

Written Assignment: In the general Jewish population, Tay-Sachs screening programs were set up to determine carriers and then monitor pregnancies when two carriers were to have a baby. Fetuses with Tay-Sachs were determined and aborted to bring down Tay-Sachs births. American Jews were tested as to their carrier status and could make decisions about their reproductive needs. This was in line with what Dr. Harry Ostrer believed, that people had a right to their genetic information and could make their own decisions.

Alternatively, in the Orthodox community, Rabbi Josef Ekstein was testing people and not giving them their information, as he didn’t want his community to be burdened with the (often false) stigmatization of carrier status. People in that community were tested anonymously and then would call to a center to determine if their choice of mate was compatible, never knowing who was a carrier of what disorder.

Debate the pros and cons of each method. Which method is “better” and why? Or are both appropriate for the populations served?

Case Study Reflection Assignment
Design your own case study around an ethical issue in genetics.
http://onlineethics.org/Resources/Cases.aspx
http://sciencecases.lib.buffalo.edu/cs/collection/

Topic Ideas:
Gene therapy
Forced DNA testing
Privacy & discrimination
GM foods
Environmental issues
Patenting genes, commercialization & property rights
Direct to consumer marketing of genetic tests
DNA Testing of minor children
Coverage and reimbursement of genetic tests
DNA testing followed by treatment, even before disease
Assisted reproduction
Animal and plant breeding
Genetic determinism
CODIS and DNA typing of arrested convicted

Ethical Component

Written Assignment: Re-evaluate your initial analysis if the case study, through an ethical lens. Which type of ethical framework did you use? Would you use a different one now that you know of the frameworks? If so which one and why? If not, why not?

We now know dominant BRCA mutations can cause breast and/or ovarian cancer at a frequency between 50-90% with no known cure. Should BRCA testing be mandatory in a family with said history? What should a woman do if her mother has been tested positive for that mutation? Should a young woman who tests positive for that mutation be allowed to reproduce? Why or why not? Can a positive mother test her minor female child and then force her to get a mastectomy? Why or why not?

“A man without ethics is a wild beast loosed upon this world.” -Albert Camus

“I think ethics is always there; it’s not always a very thoughtful or reflective ethics.” -Peter Singer