**SCIENCE DEPARTMENT** **ON-LINE BIOETHICS: COURSE #454**

## Contact Information

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## The Department's Educational Philosophy

We believe that students should be exposed to the process of scientific inquiry so they can acquire and interpret scientific knowledge, and begin to realize the wider applicability of scientific problem-solving methods. By making the laboratory the focal point of learning, we seek to foster students' appreciation for the experience of doing science.

## Guiding Principles

- Students must be able to collect and analyze data and formulate hypotheses.
- Inductive and deductive problem-solving skills are central to science education.
- An effective program in science addresses the limitations of data and conclusions.
- Students should be able to use or design a strategy for testing scientific concepts.
- A comprehensive science program will emphasize the delicate checks and balances in man's abiotic and biotic environments and the stresses upon these ecosystems, which could affect the destiny of the world.
- Science is integrally related to mathematics.
- An effective science program builds students' ability to communicate accurately and precisely.
- An effective science program stresses both cooperative and independent learning.

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**Course Frequency**: Semester Course, Weekly assignments completed by students independently online
**Credits Offered:** Two and a half
**Prerequisites:** Biology, Chemistry, and/or Department Recommendation/Parental Consent

## Background to the Curriculum

This course was originally developed more than a decade ago in response to the growing concern about such public health issues as AIDS, the advancements in DNA science and molecular biology, and due to the urgent need for serious ethical reflection (bioethics) as a consequence of our scientific and technological progress. The on-line section will address the same issues, structured to use web-based resources and forum style discussions. The set up on the on-line course encourages active participation and students collaboration to understand these complex issues. Through group and individual work students will address many serious modern issues from a position of knowledge and moral perspective.

## Core Topics/Questions/Concepts/Skills

stem cell research, organ transplantation, designer babies, autonomy, abortion, beneficence, DNA science, AIDS – history/epidemiology, reproductive biology, justice, cloning non-malfeasance, genetic testing, confidentiality, genetic manipulation, informed consent, fetal tissue research, human/animal experimentation, doctor-assisted suicide, allocation of scarce medical resources, euthanasia, drug legalization/decriminalization

Student research topics (some examples): Anorexia & Bulimia, Dyslexia, Obsessive Compulsive Disorder, eugenics Tuskegee Syphilis study, Karen Quinlan case

**Course-End Learning Objectives**

Bioethics is an elective course intended for qualified juniors and seniors; therefore, the intent is not to address the State science frameworks. It is assumed that the student participants have met the State standards in biology, chemistry or earth science. Bioethics, however, does address some of the concepts alluded to in the State Science Framework (Appendix III) entitled: "The Historical and Social Context for Science and Technology/Engineering: Topics for Study."

| **Learning objectives** | **Corresponding state standards, *where applicable*** |
|---|---|
| **Bioethical Case Studies** | |
| 1] Explore and evaluate alternative perspectives on particular ethical problems through case analysis and discussion. | Appendix III |
| 2] Identify the ethical problem(s) germane to the decision. | Appendix III |
| 3] Assess the factual information available to the decision-maker. | Appendix III |
| 4] Identify the "stakeholders" in the decision. | Appendix III |
| 5] Identify the values at stake in the decision. | Appendix III |
| 6] Identify the options available to the decision-maker. | Appendix III |
| 7] List the factors (reasons, values, etc.) that led to your decision. | Appendix III |
| **Essential Readings** | |
| 1] Analyze and discuss the supplemental articles that are assigned in class. | Appendix III |
| 2] Choose and critique contemporary articles that are germane to the course. | Appendix III |
| **Essential Writings** | |
| 1] Write a supportive and/or opposing argument for doctor-assisted suicide, abortion and embryonic stem cell research. | Appendix III |
| 2] Critique contemporary articles that are germane to the course. | Appendix III |
| 3] Write a comprehensive research paper utilizing acceptable format guidelines. | Appendix III |
| 4] Organize and submit a compilation of ethic cases, readings, critiques, a course evaluation, and a student journal. | Appendix III |
| **Presentation** | |
| 1] Produce a Multimedia presentation on the research topic. | Appendix III |
| 2] Express oneself readily and effectively in writing. | Appendix III |

**Assessment**

Critique = 400 words
Position Paper: Grade (A) – Must write Pro and Con = 800 words
Grade (B) – Must write either Pro or Con = 400 words
Research Paper: 5-8 pages; minimum of 5 references. Must use an approved format.
Portfolio = formal case study analyses, journal, selected readings, video critique, and course evaluation

- 3 critiques = 3 tests
- 3 position papers = 6 tests
- Portfolio = 2 tests
- Effort / Participation = 4 tests
- Research paper/PowerPoint presentation = final exam

**Technology and Health Learning Objectives Addressed in This Course**

**(This section is for faculty and administrative reference; students and parents may disregard.)**

| Course activity: skills and/or topics taught | Standard(s) addressed through this activity |
|---|---|
| 1] Internet research<br>2] On-Line Forum Discussion<br>3] Word Processing<br>4] PowerPoint, Podcasting, and/or Streaming Video Presentations<br>---<br>1] AIDS ( STDs) prevention<br>2] condoms (types/usage) | |

**Materials and Resources**

Crigger, B.J. (New York, 1993). Cases in Bioethics-Selections from the Hastings Center. St. Martins's Press.
Dyck, A.J. (Cleveland, 2001). When Killing is Wrong. The Pilgrim Press.
Dyck, A.J., Kinley J.K., Norton, R.A. (Cambridge Massachusetts, 2002). Ethics in Medical Practice (Reader). Harvard Divinity School.
Hockhauser, M., Rothenberger, W. ( Dubuque, 1992). AIDS Education. Wm C. Brown Publishers.
Levine. (Guilford Connecticut, 1993). Taking Sides, 5th Edition. Dushkin Publishing Group, Inc.
Munson, R. (Belmont, Ca., 2000). Intervention and Reflection, 6th Edition. Wadsworth Thomson Learning

**** Numerous texts in biology, genetics, immunology, epidemiology and biotechnology are used as references by the instructor.***
***** Various other sources are utilized, such as magazines, newspapers, Internet, films, and video.***