

## SCIENCE DEPARTMENT

## BIOETHICS: COURSE #453

### **Contact Information**

David Palmer  
Regional Department Leader, Science  
Acton-Boxborough Regional High School  
36 Charter Road  
Acton, MA 01720  
Telephone: (978)264-4700, x3412  
E-mail: [dpalmer@mail.ab.mec.edu](mailto:dpalmer@mail.ab.mec.edu)

### **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.

## **BIOETHICS: COURSE #453**

**Course Frequency:** Semester course, 6 times per 6-day cycle

**Credits Offered:** Two and a half

**Prerequisites:** Biology, Chemistry, and/or Department Recommendation/Parental Consent

### **Background to the Curriculum**

This course was 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 Bioethics continually undergoes student/teacher analysis and evaluation to ensure relevancy of issues. One example of how the course has evolved is the degree to which we endeavor to involve parents and extended family in our discussions. We encourage such participation because we, together as a society, must address these serious issues from a position of knowledge and moral perspective.

### **Core Topics / Concepts**

stem cell research	organ transplantation
designer babies	autonomy
abortion	beneficence
DNA science	AIDS – history/epidemiology
reproductive biology	justice
cloning	non-maleficence
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 V) entitled: “The Historical and Social Context for Science and Technology/Engineering: Topics for Study.”

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

## 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.)

<u>Course activity: skills &amp;/or topics taught</u>	<u>Standard(s) addressed through this activity</u>
1] internet research 2] basic PowerPoint 3] Word Processing	
1] AIDS ( STDs) prevention 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, 5<sup>th</sup> Edition. Dushkin Publishing Group, Inc.

Munson, R. (Belmont, Ca., 2000). Intervention and Reflection, 6<sup>th</sup> Edition. Wadsworth Thomson Learning

Scientific American Readings. (New York, 1989). The Science of AIDS. W. H. Freeman and Company.

\* *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.*