Fall 9-1-2005

PHIL 395.01: Engineering Life - Ethics and Biotechnology

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Engineering Life: Ethics and Biotechnology

Fall Semester, 2005
Wed., 3:10 - 6:00
LA 307
Office Hours: TTh, 2:30-4:00

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Course Description and Objectives: This three-credit class examines the ethical issues raised in the major areas of biotechnology. Emerging biotechnologies are giving us new powers to manipulate the very building blocks of life. We can imagine revolutionary medical treatments as well as designing life to suit our needs and desires. Tremendous potential exists for human benefit, but also for harm and exploitation. This course will examine fundamental ethical questions raised by the powers of biotechnology itself, as well as a range of possible applications, such as gene therapy, germline modification, genetic enhancements, cloning, stem cells, and related issues. The course will also consider agricultural, plant, and animal realms, as well biotech commercialization. The purpose of the course is to:

1. Provide students with a basic understanding of the fundamental philosophical and social issues raised by biotechnology
2. Provide students with an understanding of the major moral issues raised by biotechnology
3. Advance students’ skills in critical thinking and writing in ethics through the consideration of contemporary issues and cases

Prerequisites: none, although a lower-level ethics course is helpful

Requirements
1. Mid-term examination, (30 percent of grade)
2. Ethics analysis paper (20 percent of grade)
3. Participation in class discussions (20 percent of grade)
4. Final examination, Dec. (30 percent of grade)

• Examinations will likely be a combination of a choice among short answer questions and a longer essay and/or case analysis. The final examination will not be comprehensive but may be longer than the mid-term. Exams must be taken at scheduled times unless prior permission of the instructor is obtained, otherwise the exam receives a failing grade.
• The required paper should identify and concisely analyze a moral issue in biotechnology, which need not be among those discussed in this course. Students are encouraged to discuss topics and ideas with the instructor in advance. Unless an extension is granted, late papers are immediately penalized one grade, and thereafter at a graduated rate, amounting to an additional letter grade per five days. The paper is due November 23.
Class participation is central to achieving the learning goals for this course. Participation involves attendance, participating actively with group discussions, and being well prepared for discussions.

Students taking the course with the C/NCR option are required to achieve at least the equivalent of a D- to pass.

**Required Reading (available at the UM Bookstore)**

- Aldous Huxley, *Brave New World* (pb). Used copies may be available.
- Other articles on electronic and paper reserve (password: “bioethics”)

**Topics and Reading Assignments**

**Introduction: Ethics and Biotechnology**

Aug. 31  
*Course Introduction; Ethics Introduction*  

Sept. 7  
*Considering Biotechnology*  
- Sherlock & Morrey, pp. 47-87  

Sept. 14  
*Brave New World?*  
Huxley, *Brave New World*

**Human Applications**

Sept. 21  
*Human Gene Transfer*  
Sherlock & Morrey, pp. 461-501

Sept. 28  
*Human Enhancement*  

Oct. 5  
**Human Genetic Testing and Screening**  
- The Council on Ethical and Judicial Affairs of the American Medical Association, “Ethical Issues Related to Prenatal Genetic Testing”  

Oct. 12  
**Human Reproductive Cloning**  
- Sherlock & Morrey, pp. 551-81  
- NBAC Executive Summary (on reserve)  

Oct. 19  
**Stem Cell Research**  
- NBAC Executive Summary (on reserve)  

Examination

Oct. 26  
**Mid-term Examination**

Non-human Applications

Nov. 2  
**Agricultural Biotechnology**  
- Sherlock & Morrey, pp. 111-26; 161-89  

Nov. 9  
**Food Biotechnology**  
Sherlock & Morrey, pp. 191-201; 231-46

Nov. 16  
**Animal Biotechnology**  
Sherlock & Morrey, pp. 271-86; 309-23

Nov. 23  
**Xenotransplantation**  
- Sherlock & Morrey, pp. 341-58

Paper Due
Commercializing Biotechnology

Nov. 30

*Commercializing Biotechnology*


Conclusion

Dec. 7

*Looking Ahead; Conclusion*

Reading TBA

Examination

Dec. 15, 1:10-3:10

*Final Examination*