GENERAL EDUCATION COURSE PROPOSAL  
Heredity and Society

1. Catalog Description

2. a. Course level: Bio 3001G
b. Title: Heredity and Society
c. Credit: 2-0-2
d. Term to be offered: F, S, SU
e. Short title: Heredity/Society
f. Course description: course for nonscience majors that addresses the ethical, political, and social implications of heredity and modern genetic technology. Basic genetic principles as well as contemporary issues in biotechnology will be studied.
g. Prerequisites: none
h. Course is writing active.

2. Student Learning Objectives

- To gain the knowledge and reasoning abilities needed for making informed personal choices about genetic technology and for participation in society’s debate of genetic issues (critical thinking, citizenship)
- To become aware of current genetics issues in society (citizenship)
- To explore social, ethical, political, and legal implications of modern genetic technology (critical thinking, citizenship)
- To learn the basic genetic principles and the essentials of modern technologies so that issues in contemporary genetics can be understood (critical thinking)
- To understand the role of science, and its limitations, in shaping public policy on genetic technology (critical thinking, citizenship)
- To understand that scientific technology can be evaluated, rather than blindly accepted or rejected (critical thinking)
- To learn to analyze issues raised by modern genetic technologies and to arrive at well-reasoned and clearly written opinions (effective writing, critical thinking)

Course Outline

Week 1 Science and Nonscience; The Science of Genetics
Issues: roles of science vs. religion/philosophy in analyzing genetic issues; the eugenics movement

Week 2 Cells are the basic units of living things
Issue: animal cloning

Week 3 Molecular Basis of Heredity
DNA and RNA
Issue: the ethical, legal, and social implications of the Human Genome Project

Week 4 How genes determine characteristics

Week 5 Issue: ethics and politics of genetically modified organisms
Week 6  Mutations
   Issue: carcinogens and radiation as public policy issues
Week 7  Genetic diseases
   Issue: ethics of gene therapy; genetic discrimination
Week 8  Cellular Basis of Heredity
   Chromosomes
   Cell division underlies heredity
   The cell cycle
   Issues: cancer susceptibility and genetic privacy; use of fetal cells
           in research and medicine
Week 9  Making gametes
   Issues: selling eggs and sperm; uniqueness of individuals
Week 10 Chromosomal abnormalities
   Issue: accommodating affected individuals in society
Week 11 Sex determination
   Issue: gender determination in athletics
Week 12-13 Transmission of genes to offspring
   Inheritance patterns and pedigrees
   Issue: reproductive rights and public funding for care of those with
           genetic defects
Week 14-15 Modern genetic technology
   Reproductive technology
   Issue: ethics of assisted reproductive technology
   Recombinant DNA
   Issue: ethics of recombinant DNA research
   Genetic testing and counseling
   Issues: ethics of preimplantation and prenatal genetic testing; emotional
           implications of presymptomatic genetic testing

Evaluation of Student Learning
   a. Learning will be evaluated by the following: three written papers (30%) and weekly in-
      class writing assignments (10%) in which the students state and defend their positions on
      controversial issues in genetics; a journal of genetics items in the news found throughout
      the semester (10%); three examinations (50%).
   b. The course will be writing active. There will be short weekly in-class writing
      assignments and three 350-word position papers.

5. Rationale
   a. This course will be part of the biological sciences component in the scientific awareness
      segment of the general education program. It will demonstrate both the role and the
      limitations of science in shaping public policy on genetic issues, one of the most
      controversial areas of biology in today’s society. The ethical, social, legal, and political
      implications of various genetic technologies will be explored. It will ask the students to
reach reasoned and informed positions on contemporary issues related to genetics, to prepare them for making decisions in their personal and societal lives.
b. There are no prerequisites for this course, which will survey the essential aspects of genetic principles at a level understandable to the non-science major. The complex nature of the material and issues presented in this course dictates at least sophomore level maturity, hence a 3000 level.
c. This course is a revision of BIO 3001C and should maintain the same curriculum i.d. as BIO 3001C. This course is not similar to other courses in any department and will not require any program changes.
d. This course may be used as an approved elective in Education majors.

6. Implementation
   a. The course will initially be assigned to Ruth Chesnut.
   c. There will be no additional costs to students.
   d. The course will first be offered in Spring 2001.

7. Community College Transfer
   Not applicable.

8. Date approved by the department   _____March 24 2000____________________

9. Date approved by the curriculum committee  ________________________________

10. Date approved by CAA  ________________________________

Department contact person (Phone number): Judith James (6387) or Ruth Chesnut (7061)
Revised Course Proposal for General Education Program

BIO 3091G  Heredity and Society, Honors

1. Catalog Description
   a. Course level:  BIO 3091G
   b. Title:  Heredity and Society, Honors
   c. Credit:  3-0-3
   d. Term to be offered:  F, S, SU on demand
   e. Short title:  Heredity/Society
   f. Course description:  A course for nonscience majors that addresses the ethical, political, and social implications of heredity and modern genetic technology. Basic genetic principles as well as contemporary issues in biotechnology will be studied.
   g. Prerequisites:  none
   h. Course is writing active.

   The additional hour of class per week for the honors course over the regular version of the course will be used for additional in-depth discussions, student presentations of genetics issues to the class, and for coverage of additional relevant topics. In addition, the students will be required to write a ten-page paper not required of students in the regular version of the course.