

AGRO 303G: Genetics and Society

Fall 2009

Instructor: Dr. Jinfa Zhang, Associate Professor, Plant and Environmental Sciences

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Office hours: Tu/Th 9-10:00 or by appointment

Time and Place: Tuesday/Thursday 10:20-11:35

Room W139, Skeen Hall

Course goals:

1. To provide science- or non-science majors with the basic concepts and understanding of genetics and modern methods of biotechnology.
2. To empower students to evaluate for themselves the present and future impact of genetics on society.

General Education: This is viewing a wider world course (part III). Students in the College of Agriculture and Home Economics **may not** get GE credits for this course.

Course Format:

1.5 hours lecture/discussion twice a week.

Reading materials:

- Textbook: Linda L. McCabe and Edward R.B. McCabe (2008) DNA: Promise and Peril. University of California Press, Oakland, CA
- Handouts: As needed.

Grading:

A=90% or above; B=80-89%; C=70-79%; D=60-69%; F=59% or below

Critical thinking, organization, legibility, spelling, and grammar will be taken into consideration in grading exams and assignments.

Midterm exam -20%

The midterm exam will cover basic genetics and the process of scientific discovery and understanding.

Term paper - 20% (5 pages double spaced)

Students will be given an opportunity to examine the progress of a real world issue in biotechnology/genetics. Students will evaluate the public and scientific debate of the issue. Please email or discuss term paper topics with me before beginning. You can choose subjects talked about

in class, but the term paper cannot be on the same subject as your debate. For complete credit, your term paper must include the following sections:

1. Introduction, describe background issues, historical perspectives, problem to be addressed.
2. Scientific knowledge of issue (you must cite your sources (at least 3). If you use a newspaper or web as a source, discuss reliability of source).
3. Possible outcomes or research, ethic issues.
4. Your opinion of issue (e.g., should testing for this particular disease be done?)

Class debate - 10%

Students will form groups of 4 and choose from a list of topics to be presented to the class. The timing of the oral presentation will be strictly limited according to the rules. You will be graded on your ability to clearly convey the scientific knowledge and importance of your subject to the class.

Homework - 20%

A variety of short reading and/or writing assignments will be given during the semester. Please submit a hard copy of your homework at the beginning of class. No late homework will be graded.

Final exam - 20%

The emphasis on the final exam will be on application of genetics to medicine, agriculture, and its impacts on society. The exam will be 2/5 CLOSED book and consist of short answer and 3/5 OPEN book consisting of medium length essay questions. Questions will cover class lectures, assigned readings, and debates.

Class participation - 10%

Class participation is solely based on the judgment of the instructor. Included in the determination of class participation are attendance, lecture time questions and answers.

STUDENTS WITH DISABILITIES: If you have (or believe you have) a disability and would benefit from classroom accommodation(s), feel free to call Gerard Nevarez, Director of Institutional Equity, at 575-646-3635 (<http://www.nmsu.edu/~eeo/>) with any questions you may have about NMSU's Non-Discrimination Policy and complaints of discrimination, including sexual harassment. Feel free to call Michael Armendariz, Coordinator of Services for Students with Disabilities (SSD), at 575-646-6840 (TTY: 646-1918) (<http://www.nmsu.edu/~ssd/index.html>) with any questions you may have on student issues related to the Americans with Disabilities Act (ADA) and/or Section 504 of the Rehabilitation Act of 1973. All medical information will be treated confidentially. You have the following responsibilities: (1) Register with SSD and obtain accommodation documents early in the semester; (2) Deliver the completed accommodation and testing form(s) to the instructor(s) within the first two weeks of beginning of classes (or within one week of the date services are to commence); (3) Retrieve the signed form(s) from faculty and return to SSD within 5 days of the receipt from faculty and at least one week before any scheduled exam; and, (4) Contact the SSD Office if the services/accommodations requested are not being provided, not meeting your needs, or if additional accommodations are needed.

**AGRO 303 G Genetics and Society: Course Syllabus
Fall 2009**

Aug. 20	Lecture 1	Course Overview and Introduction Genetics in the News Media	
Aug. 25	Lecture 2	Cell, Chromosome, Gene And DNA	
Aug. 27	Lecture 3	Cell, Chromosome, Gene And DNA (Video)	
Sep. 1	Lecture 4	Basic Genetics- Mendelian Genetics	
Sep. 3	Lecture 5	Basic Genetics- Maternal Inheritance	
Sep. 8	Lecture 6	Basic Genetics- Complex Traits	
Sep. 10	Lecture 7	Chapter 1- DNA Sequence Does Not Equal Destiny	
Sep. 15	Lecture 8	Chapter 2- What Is Genomics?	
Sep. 17	Lecture 9	Chapter 3- Genetic Determinism	
Sep. 22	Lecture 10	Chapter 4- Evolution and Deconstruction in Human-Centered Biology	
Sep. 24	Lecture 11	Chapter 5- Race and Ethnicity	
Sep. 29	Lecture 12	Chapter 5- Race and Ethnicity	
Oct. 1	Lecture 13	Chapter 6- Gender Is a Spectrum	
Oct. 6	Lecture 14	Chapter 6- Gender Is a Spectrum	
Oct. 8	Lecture 15	Chapter 7- Genome-Based Forensics	
Oct. 13	Lecture 16	Chapter 7- Genome-Based Forensics	(Mid-term Exam)
Oct. 15	Lecture 17	Chapter 8- When Genes Belong to Groups and Not Individuals	
Oct. 20	Lecture 18	Chapter 9- Genes as Commodities	
Oct. 22	Lecture 19	Chapter 10- Protection Against Genetic Discrimination	
Oct. 27	Lecture 20	Chapter 11- Reproductive Technologies	
Oct. 29	Lecture 21	Chapter 12- Reproductive Cloning	
Nov. 3	Lecture 22	Chapter 13- Therapeutic Cloning and Regenerative Medicine	
Nov. 5	Lecture 23	Chapter 14- Gene Therapy	
Nov. 10	Lecture 24	Chapter 14- Gene Therapy	
Nov. 12	Lecture 25	Chapter 15- Large Population Assessments	
Nov. 17	Lecture 26	Plant Genetic Engineering and GMO Foods	
Nov. 19	Lecture 27	Plant Genetic Engineering and GMO Foods	
Nov. 23-27	No Classes	Thanksgiving Holiday for Students	
Dec. 1	Class Debates	Term Paper Due	
Dec. 3	Class Debates		
Dec. 10	Final exam	(CLOSED/OPEN BOOK)	