AGRO 303V: Genetics and Society

Spring 2022

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

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

Time and Place: Tuesday/Thursday 10:30-11:45

Room W122, 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 (no need to purchase): 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 1/5 CLOSED book and consist of short answer and 4/5 OPEN book consisting of medium length essay questions. Questions will cover class lectures, assigned readings, discussions, 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:

Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act Amendments Act (ADAAA) covers issues relating to disability and accommodations. If a student has questions or needs an accommodation in the classroom (all medical information is treated confidentially), contact:

Trudy Luken, Director
Student Accessibility Services (SAS) - Corbett Center, Rm. 208
P. O. Box 30001, MSC 4149
Las Cruces, NM 88003
Phone: (575) 646-6840 E-mail: sas@nmsu.edu
Website: http://sas.nmsu.edu/

ANTI-DISCRIMINATION:
NMSU policy prohibits discrimination on the basis of age, ancestry, color, disability, gender identity, genetic information, national origin, race, religion, retaliation, serious medical condition, sex, sexual orientation, spousal affiliation and protected veterans status.
Furthermore, Title IX prohibits sex discrimination to include sexual misconduct: sexual violence

(sexual assault, rape), sexual harassment and retaliation.

For more information on discrimination issues, Title IX, Campus SaVE Act, NMSU Policy Chapter 3.25, NMSU's complaint process, or to file a complaint contact:

Dr. Laura Castille - Executive Director
Office of Institutional Equity (OIE)
O'Loughlin House, 1130 University Avenue, Las Cruces, NM 88001
Phone: (575) 646-3635
E-mail: equity@nmsu.edu
Website: https://equity.nmsu.edu/

Other NMSU Resources:
NMSU Police Department: (575) 646-3311 www.nmsupolice.com
NMSU Police Victim Services: (575) 646-3424
NMSU Counseling Center: (575) 646-2731
NMSU Dean of Students: (575) 646-1722
For Any On-campus Emergencies: 911

STUDENT CODE OF CONDUCT:

It is expected that students taking this course follow the 'Student Code of Conduct' set forth by NMSU. Plagiarism will not be tolerated. For more information, please refer to the website: https://studenthandbook.nmsu.edu/student-code-of-conduct/academic-misconduct/.

AGRO 303V Genetics and Society: Course Syllabus
Spring 2022

Jan. 13	Lecture 1	Course Overview and Introduction Genetics in the News Media
Jan. 18	Lecture 2	Genetic Fidelity and Variation
Jan. 20	Lecture 3	Genetic Fidelity and Variation
Jan. 25	Lecture 4	Genetic Fidelity and Variation
Jan. 27	Lecture 5	Human Traits and Mendelian Genetics
Feb. 1	Lecture 6	Human Traits and Mendelian Genetics
Feb. 3	Lecture 7	Maternal Inheritance, and Mitochondrial Eve and Disorders
Feb. 8	Lecture 8	Basic Quantitative Genetics- Quantitative Traits
Feb. 10	Lecture 9	Human Behaviors and Genetic Determinism
Feb. 15	Lecture 10	Human Behaviors and Genetic Determinism
Feb. 17	Lecture 11	DNA Sequence Does Not Equal Destiny
Feb. 22	Lecture 12	DNA Sequence Does Not Equal Destiny
Feb. 24	Lecture 13	What Do We Know about Human Genome?
Mar. 1	Lecture 14	DNA-Based Forensics and National DNA Database
Mar. 3	**Mid-term Exam**	
Mar. 7-11	**No Classes**	**Spring Break for Students**
Mar. 15	Lecture 15	DNA-Based Forensics and National DNA Database
Mar. 17	Lecture 16	Race, Ethnicity and Genetics
Mar. 22	Lecture 17	Race, Ethnicity and Genetics
Mar. 24	Lecture 18	Genes Belong to Groups vs.Genes as Commodities
Mar. 29	Lecture 19	Protection against Genetic Discrimination
Mar. 31	Lecture 20	Genetic Testing
April 5	Lecture 21	Genetic Testing
April 7	Lecture 22	Reproductive & Therapeutic Cloning
April 12	Lecture 23	Gene Therapy
April 14	Lecture 24	Gene Therapy
April 19	Lecture 25	Plant Genetic Engineering and GMO Foods
April 21	Lecture 26	Plant Genetic Engineering and GMO Foods
April 26	**Class Debates**	**Term Paper Due**
April 28	**Class Debates**	
May 3	**Final exam** (CLOSED/OPEN BOOK), 10:30am – 12:30pm	