

Social, Legal and Ethical Issues of the New Genetics

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Fall 2013

T/F 10:20-11:40am

LRB110

Instructor:

Dr. Karen Schindler

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LSB 222

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Office hours:

Mondays 9-10 a.m.

Wednesdays 11-12 a.m.

Or by appointment

*The door is under swipe-card access;
knock loudly or call my office # to get in!

Course emphasis:

Science is not separate from your life. In the 21st century, information about genetics is increasing almost exponentially and changing rapidly. Ideas that were science fiction only a few years ago are now possible. But, many social, ethical and legal systems are not advancing at the same pace and are influenced by biological ideas that are no longer valid.

This course fulfills elective requirements for Biological Science and Genetics majors. I will present information from a historical perspective and review emerging genetic technologies. You will be *expected* to understand the basics of genetics and molecular biology: Mendelian inheritance, central dogma, PCR, cloning, etc. If you need review material and supplemental reading please see me. This course also satisfies the SAS Core Curriculum Goal of 21st Century Challenges. You will therefore be expected to apply materials taught in class to current social issues.

Course goals:

1. Students will learn terms, concepts and theories behind genetic technologies and apply them to social, legal and ethical issues.
2. Students will use information and ideas discussed in class to critically analyze published articles in genetics.
3. Students will research the social, legal and ethical implications of a genetic principle/technology. They will understand and describe ethical considerations from multiple sides of an issue.
4. Students will become knowledgeable and well-versed in current events surrounding emerging genetic technologies.
5. Students will analyze the relationship that science and technology have to contemporary social issues.

Class requirements:

1. Participate, participate, participate. In my opinion, one of the reasons that science is often misjudged by the public, is a lack of active dialogue on the part of scientists. My goal is to get you comfortable with discussing these hotly debated topics in a public setting (the classroom) while being respectful of opposing opinions. If you are not an active participant, your chances of receiving an “A” are slim.

2. 3 X 5 index cards: You will need to provide these. At the end of each class, you will be given 1-2 questions to answer on a card. Put your name in the upper right hand corner of the card and turn it in as you leave. This serves as a way for me to gauge any misunderstandings of the material and to challenge you with a thought-provoking, no-right-or-wrong-answer type question.

3. Access to Sakai: All quizzes, opinion polls, emails, reading assignments and journal entries will occur through the class Sakai site.

Grading:

You will be assessed through multiple mechanisms. 50% of your grade will be based on individual assessment and 50% of your grade will be based on group work. The breakdown is as follows:

- 30% Group case study presentation:** Your final will consist of a 20-minute presentation and an 8-10 page position paper on a case study. The groups will be pre-assigned. Topics and cases will be approved by me.
- 20% In class participation:** This will include verbal participation, 3 X 5 card answers, and questions for guest speakers
- 20% Journal entries:** You will be required to write once a week in an on-line journal through Sakai. Sometimes I will provide a question or issue for you to write about, other times you can choose your own topic based on the weekly discussions or your own interests. Weekly submissions are due by 5 pm every Friday. I will choose 10-15 at random each week to grade; you will receive 4 Journal grades during the semester.
- 20% Current event presentation:** You will be pre-assigned a group to present current events surrounding our current topic. Your group will present the news in the 1st 10 minutes of class and lead a group discussion. Your group will present twice, according to the schedule in the syllabus.
- 10% Online reading quizzes/polls:** Short quizzes will be given to ensure that you understand the reading material and to generate class discussion points. These will be issued through Sakai.

Textbooks:

There is no textbook for this course. Instead, I will be providing reading material for each lecture through Sakai. The readings are listed in the syllabus and will be in folders by lecture date in Resources.

Supplemental Resources (not required)

The Busy Physician's guide to Genetics, Genomics, and Personalized Medicine. Kevin M. Sweet and Ron C. Michaelis. Springer 2011.

Bioethics and the New Embryology. Scott F. Gilbert, Anna L. Tyler, and Emily Zackin. Sinauer 2005.

Heredity and Hope. The Case for Genetic Screening. Ruth Schwartz Cowan. Harvard University Press 2008

The Forever Fix. Gene Therapy and the Boy Who Saved it. Ricki Lewis. St. Martin's Press 2012.

Any sort of Genetics textbook for terminology or concept review. I'm partial to: Genetics: From Genes to Genomes. Hartwell et al. McGraw Hill.

COURSE SCHEDULE

DATE	TOPIC(S)	SPEAKER	READINGS
9/3	Intro; Scientific literacy and public perception	KS	1. Public perceptions and science
9/6	Genes and more: What are genetics and epigenetics?	KS	1. Waterland and Jirtle 2. Encode 2012; pg 1-4; 15 3. Epigenetics from TIME mag
9/10	Reprogenetics: Baby making in the 21st Century	KS	1. Darnovsky commentary 2. ESHRE commentary; pg 18-24; 28-34 3. Tachibana 2013a 4. Walsh commentary
9/13	Reprogenetics: Prenatal testing-the new eugenics?	KS	1. Silver 2000 2. Caplan 2008 3. Allen 2011 4. NYTimes 2007
9/17	Johanna Schoen: Eugenics in the US	JS	1. NC Sterilization parts 1, 2, 4
9/20	Reprogenetics: Epigenetics and ART	KS	1. Ecker 2004 2. Feuer 2013 3. ART risks

9/24	Monica Manigi: Reprogenetics- A clinical perspective	MM	1. Pro-creative beneficence
9/27	Stem Cells and Cloning	KS	1. Tachibana 2013b 2. Asilomar revisited 3. Hyun 2010 4. Kiskinis and Eggan 2010
10/1	Suzanne Carter: Genetic Discrimination	SC	TBD
10/4	MYome: Personal Genomics and medicine	KS	1. Clinical genetics review 2. My Genome, my self 3. 2011 NHGRI strategic plan
10/8	Genomics wrap up/ Group work	KS	1. 1000 Genomes Project (skim) 2. Rare variants
10/11	Hetal Vig: Genetic Counseling and cancer	HV	1. E/L return of results 2013 2. JAMA 2004 3. JCO 2013 patent 4. Robson Blog
10/15	Misha Angrist: Genome privacy	MA	1. Are you scared of your genome? 2. Do you really want to know what's in your genome? 3. Privacy protections 4. Don't just invite us to the table
10/18	Who owns your DNA?	KS	1. Williams Biotech Briefing 2. Allen 2001 3. McCarthy 2013 4. Perkel 2013
10/22	DIY science	KS	1. Maher 2007 2. Maher 2013
10/25	Group work	-	-
10/29	Francis Barchi: Conducting human research	FB	1. DeVries 2011 2. Nyika 2009 3. Nigeria study 4. Wandler
11/1	GMO: history and background	KS	1. GMO special 3, 4 2. http://web.mit.edu/demoscience/Monsanto/index.html
11/5	GMO: genetic engineering	KS	1. Stolberg 1999 2. Wade 1999 3. http://learn.genetics.utah.edu/
11/8	Brendan Maher: Research and bioterrorism	BM	1. Butler/Fauci interview 2. Grady and Broad 3. Harmon 4. Maher_biosecurity 5. NYT 2012
11/12	Carl Prey: GM crops and Africa	CP	TBD

11/15	Paola Leone: Successes in gene therapy	PL	TBD
11/19	GMO wrap up; Group work	KS	1. GMO special 6, 8
11/22	Forensic Genetics: History and background	KS	1. Murphy 2013 2. Murphy 2009 3. NJ Laws 4. Case Study OJ Simpson 5. Kolata 1995
11/26	No class ; RU holiday schedule	-	
WED 11/27	Forensic Genetics: Successes; Group work	KS	1. Tweedie 2011 2. Innocence Project 3. Idov 2011
11/29	Thanksgiving Break- no class	-	
12/3	Group final presentation	1, 2, 3	
12/6	Group final presentation	4, 5, 6	
12/10	Group final presentation	7, 8, 9	

CURRENT EVENT PRESENTATIONS

GROUP 1: 9/20 & 10/22
 GROUP 2: 9/24 & 10/25
 GROUP 3: 9/27 & 10/29
 GROUP 4: 10/1 & 11/1
 GROUP 5: 10/4 & 11/5
 GROUP 6: 10/8 & 11/8
 GROUP 7: 10/11 & 11/12
 GROUP 8: 10/15 & 11/15
 GROUP 9: 10/18 & 11/19

FINAL PRESENTATIONS

DATE	GROUP #
12/3	1-3
12/6	4-6
12/10	7-9

IMPORTANT DUE DATES

1. Journal entries every Friday by 5pm
2. Questions for guest speakers by 5pm the night before class (9/16, 23, 30; 10/12, 14, 28; 11/7, 11, 14)
3. Group project topics due 10/31/13 by 5pm
4. Group papers due 12/13/13 by 5pm

*** Refer to the Sakai course calendar for due dates if you are confused!**