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Course Description: Advances in genetics and genomics research are rapidly presenting both great opportunities and complex challenges for public health. In order for the potential benefits of genetic research to be realized (and unintended harms minimized), numerous issues relevant to health behavior and health education (HBHE) will need to be addressed. This course will employ a blend of lectures and group discussions to consider such issues, including the following: risk communication; ethical dilemmas in research and practice; the psychological and behavioral impact of genetic testing; public and professional knowledge and attitudes about genetics; health education needs to enhance genetic literacy; and emerging trends in the field (e.g., direct-to-consumer marketing of genetic tests, pharmacogenomics).

Course Objectives: After completing this course, students should be able to 1) understand important health behavior and health education issues raised by genetics research; 2) describe key findings from research conducted in the field to date; 3) critically evaluate the strengths and limitations of existing work in the field; and 4) identify important areas for future research and practice related to genetics, health behavior, and health education.

Readings: All course readings will be available on the C-Tools site. No books or coursepack are required to be purchased.

Grading: Students will be evaluated on the following (more details on each of these course components will be available in separate documents on the course website):

1) Class participation (10%). Students will be expected to regularly attend class and participate actively in class discussions.

2) Online responses to course materials (20%). Students are assigned post a minimum of six responses to class readings and discussions on the course website on C-Tools. A separate document provides more details on this aspect of the course (see C-Tools site).

3) Book review (20%). Students will complete a 5-page review of a book of their choice focused on course topics. The instructor will provide a listing of books for consideration, and students may also select their own book for review (with permission from the instructor). The review should include the following: 1) brief introduction in which the book is placed in the larger context of the HBHE issues it raises; 2) brief summary of the book’s major themes, methodologies, arguments, and findings; 3) discussion of how the book relates to materials and
themes considered in this course; and 4) critical evaluation of the book’s strengths and limitations. This assignment is due Friday, February 21, 2014.

4) **Group presentation (25%)**. At the outset of the semester, students will be assigned in groups (typically three students each) to address a course topic of interest. On their assigned week, the group will be responsible for researching and delivering an oral presentation, as well as facilitating classroom discussion of their assigned topic. Additional guidelines for this assignment are provided in a separate document on the course website, and each student group is encouraged to meet with the instructor for suggestions regarding strategies for the presentation and additional readings on their topic.

5) **Final project: Development of a health education tool (25%)**. Students will review relevant literature and develop a health education tool (e.g., brochure, website, video) addressing a course-related topic of interest. A companion paper will describe the rationale for, and development of, the education tool. This assignment is due Tuesday, April 22, 2014. Students are highly encouraged to meet with the instructor to discuss their approach. Additional information on this assignment is available in a separate document on the course website.

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**Statement on Academic Integrity**

To promote academic integrity, the faculty of the School of Public Health believes that the conduct of a student registered or taking courses in the School should be consistent with that of a professional person. Courtesy, honesty, and respect should be shown by students toward faculty members, guest lecturers, administrative support staff, and fellow students. Similarly, students should expect faculty to treat them fairly, showing respect for their ideas and opinions and striving to help them achieve maximum benefits from their experience in the School.

Student academic misconduct refers to behavior that may include plagiarism, cheating, fabrication, falsification of records or official documents, intentional misuse of equipment or materials (including library materials), and aiding and abetting the perpetration of such acts. The preparation of reports, papers, and examinations, assigned on an individual basis, must represent each student's own effort. Reference sources should be indicated clearly. The use of assistance from other students or aids of any kind during a written examination, except when the use of aids such as electronic devices, books or notes has been approved by an instructor, is a violation of the standard of academic conduct.

**Statement on Accommodations**

Some students may require special accommodations due to learning disabilities, religious practices, physical requirements, medical needs, or other reasons. Please notify the instructor if you are in need of such accommodations.
COURSE OVERVIEW

UNIT ONE: OVERARCHING ISSUES
Background and history
The lived experience of genetic disease
Overview of genetic counseling and genetic testing
Public understanding of genetics & risk communication
Ethical issues
Genetics, race, and health disparities

UNIT TWO: GENETIC AND GENOMIC TESTING APPLICATIONS
Prenatal testing
Newborn screening
Predictive testing for Huntington’s disease
Susceptibility testing: Breast cancer and Alzheimer’s disease

UNIT THREE: GENOMICS EDUCATION FOR PROFESSIONALS AND THE PUBLIC
Genetics education for health professionals
Genetics education for the public
Genetics in the media and popular culture

UNIT FOUR: EMERGING ISSUES IN GENOMICS AND HBHE
Direct-to-consumer genetic testing
Pharmacogenomics and nutrigenomics
Behavioral genetics
Environmental epigenomics
Genetic enhancement

GROUP PRESENTATIONS

1) Genetic Discrimination (February 12)
2) The Bi-Dil Case (February 19)
3) Multimedia Cancer Genetic Education Tools (March 12)
4) Family History as a Tool for Public Health & Preventive Medicine (March 19)
5) Engaging Students in Genetics Education (March 26)
6) Genetic Genealogy (April 2)
7) Nutrigenomics (April 9)
CLASS SCHEDULE AND READING ASSIGNMENTS

UNIT ONE: OVERARCHING ISSUES

1) Introduction to the course (January 8)

2) Background (January 13)


3) History (January 15)


No class, MLK Holiday (January 20)

4) The lived experience of genetic disease (January 22)
*Guest speaker: Kara Milliron, MS; Certified Genetic Counselor, University of Michigan Breast and Ovarian Cancer Risk Evaluation Program*

*NOTE: This film will be available at Askwith Media Library and will also be shown outside of the usual class time on Tuesday evening, January 18 at 7 p.m. in Room 2695*


5) Genetic counseling (January 27)
*Guest speaker: Wendy Uhlmann, MS, CGC, Clinical Assistant Professor, Genetic Counseling Program, Division of Molecular Medicine & Genetics, University of Michigan*


6) Genetic testing: An overview (January 29)


7) Public understanding of genetics (February 3)


8) Risk communication and health behavior (February 5)


9) Ethical issues, Part I (February 10)


10) Ethical issues, Part II (February 12)


Group presentation: Genetic Discrimination
11) Genetics, race, and health disparities, Part I (February 17)


12) Genetics, race, and health disparities, Part II (February 19)


Group presentation: The Bi-Dil Case

**BOOK REVIEW DUE BY END OF DAY ON FRIDAY, FEBRUARY 21**

UNIT TWO: GENETIC AND GENOMIC TESTING APPLICATIONS

13) Prenatal testing (February 24)


14) Newborn screening (February 26)
*Guest speaker: Beth Tarini, MD, MS, Assistant Professor, Division of General Pediatrics, University of Michigan Medical School*


**Week of March 3-March 7: SPRING BREAK, NO CLASSES**

15) Predictive testing for Huntington’s disease (March 10)
*Wendy Uhlmann, MS, CGC, Clinical Assistant Professor, Genetic Counseling Program, Division of Molecular Medicine & Genetics, University of Michigan*


**16) Susceptibility testing for hereditary cancer syndromes (March 12)**


Group presentation: Multimedia Cancer Genetic Education Tools
See CTools for examples of decisional support websites

**17) Susceptibility testing for Alzheimer’s disease (March 17)**


**UNIT THREE: GENETICS EDUCATION**

**18) Genetics education for health professionals, Part I (March 19)**


Group presentation: Family History as a Tool for Public Health & Preventive Medicine


**19) Genetics education for health professionals, Part II (March 24)**

*Guest speaker: Debra Duquette, MS, CGC, Adult Genetics/Genomics Coordinator, Michigan Department of Community Health*


20) Genetics education for the public (March 26)

Group presentation: Engaging Students in Genetics Education

21) Genetics in the media (March 31)
Guest speaker: Kim Kozlowski, Reporter, Detroit News; Former Knight-Wallace Journalism Fellow, University of Michigan


22) Genetics in popular culture (April 2)


Group presentation: Genetic Genealogy

UNIT FOUR: EMERGING ISSUES IN GENOMICS, HEALTH BEHAVIOR and HEALTH EDUCATION

23) Direct-to-consumer genetic testing (April 7)


24) Pharmacogenomics and nutrigenomics (April 9)

Group presentation: Nutrigenomics

25) Behavioral genetics (April 14)

26) Environmental epigenomics (April 16)
*Guest speaker: Dana Dolinoy, PhD; Assistant Professor, Department of Environmental Health Sciences, University of Michigan School of Public Health*


27) Genetic enhancement (April 21)


**FINAL PROJECTS DUE BY END OF DAY ON APRIL 22**