

The Human Genome Project and its Impact on Society –Course Syllabus

INSTRUCTORS: Dr. Yvonne Harris and Professor Barbara Berchiolli

MEETING DAY/TIME: Th 6:00-9:30 P.M.

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REQUIRED TEXT: Ricki Lewis, *Human Genetics: Concepts and Applications*, Wm. C. Brown Publishers, 4th edition.

COURSE DESCRIPTION: This course provides an introduction to organic macromolecules, the cell, genetic activity, the theory of evolution and ecological principles. Throughout the course we will discuss how the scientific knowledge gained through the Human Genome Project will affect our lives and society.

COMPETENCIES OFFERED IN THIS COURSE

Students in the School for New Learning earn credit by fulfilling the requirements described in competence statements. These statements represent the instructional objectives students are expected to satisfy. For this course students may earn credit for as many as three of the following competencies.

S1B: Can use public or private institutions as resources for learning science. Students demonstrate this competence by using a laboratory for investigations and as a source of information.

S2C: Can describe, categorize, and explain development or change within physical or biological systems. Students demonstrate this competence by examining the way physical and biological systems change or develop over time.

S2D: Can describe, categorize and analyze the interactions and exchanges between living organisms and their physical environments. Students demonstrate this competence by examining ecological relationships and by articulating the ways any living organisms exist within specific environments.

S3A: Can understand different perspectives on the relationship between technology and society, and describe the scientific principles underlying technological innovations. Students demonstrate this competence by developing a definition of technology and understanding the role it plays in shaping our lives and ideas.

S4: Can describe and explain connections among diverse aspects of nature. Students demonstrate this competence by articulating how exchange occurs among seemingly disparate parts of nature and how interconnection among systems is basic to nature and results in an integrated whole.

ASSIGNMENTS:

- class activities
- one presentation
- two laboratory reports

Students are expected to read all the assigned chapters prior to class. Since class activities are a product of group work completed in class by the students, they will not be made up.

Both class activities and laboratory reports will satisfy the requirements for each one of the competencies offered by this course. However, a presentation must satisfy the instructional objectives of one specific competence.

A student should contact the instructor as early as possible if she or he has any difficulty with the material.

ATTENDANCE POLICY: Regular attendance is mandatory. A student risks failing the

course if he or she misses more than two classes. Students are expected to be on time and to remain for the duration of the class.

EVALUATION AND GRADING SYSTEM: GRADING SCALE:

Attendance and Participation 100 A = 90-100%

Class Activity 100 B = 80-89%

Class Activity 100 C = 70-79%

Class Activity 100 D = 60-69%

Class Activity 100 F = < 60%

Class Activity 100

Oral presentation 200

Laboratory report I 100

Laboratory report II _____ 100 _____

Total points 1000

WEEKLY LECTURE & ACTIVITY SCHEDULE

Week Discussion Topic Activity Textbook Chapter

1 Link between genetics, environment & evolution.

Evolution.

Variation.

Evolution tape.

Tour of Lab Facility.

2 Notes.

Cells and DNA Structure DNA Tape 2

3 Mitosis Mitosis tape.

Mitosis question sheet.

4 Meiosis. Meiosis tape.

Meiosis question sheet.

5 Mendel's Laws. Mendelian genetics tape.

Monogenetics Traits.

6 Mendel's Laws.

The inheritance of two genes.

Pedigree analysis.
Mendelian genetics
& chromosomes tape.
Pedigree Analysis
(autosomal traits.)
Monogenetics Traits–
Practice Problems.

7 Matters of Sex.
Pedigree analysis.
X-linked genes.
Pedigree Analysis
(X-linked traits.)

8 History of the Human
Genome Project:
Origins and objectives
Introduction to:
HGP Internet site.
Howard Hughes
Internet site.
Group Question.
Selected Readings
Handout.

9 Technologies of HGP. Group Exercise:
Mapping.
Group Question.
Selected Readings
Handout.

10 HGP and Its Impact on
society.
Group Exercise. Selected Readings
Handout.

11 Laboratory. PCR and Plasmid
Digestions and
Mapping.
Presentations.
Selected Readings
Handout.

12 Laboratory. Fingerprinting.
Group Question:
Who Did it?
Presentations.
Selected Readings
Handout.

13 Future of HGP. Presentations.

14 Future of HGP. Presentations.