Fall 2015

BIOS 3453

Mary Clancy
University of New Orleans

General Course Information: Genetics (BIOS 3453)

Instructor:

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Class Time and place: Kirschman 129. MWF 10:00-10:50. ***Office hours***: after class, 11-1:00 p.m.MWF. Or email for appointment!! I am almost always somewhere nearby.

Course content:

This is a survey course in genetics and includes topics in molecular, classical, microbial and human genetics. This course assumes prior understanding of basic principles of genetics, cell biology and chemistry. The prerequisites are BIOS 2014 and 2114 or equivalent or consent of instructor.

Format: Lecture and discussion. We will have formal lectures but with plenty of opportunity for questions and for going over practice problems. ***Clickers***. We will be using the iClicker brand of classroom response system for in-class discussion and feedback. Among other uses, the clickers will be used to award participation points during class. To get these points, you need to acquire an iClicker, register it, and bring it to each class. Either iClicker 1 or iClicker 2 will be fine.

Planned Topics and schedule:

Test 1: Class days: Aug. 19, 21, 24, 26, 28, 31 Sept 2, 4, (Sept 7: Labor day holiday!), Sept. 9, 11. Sept 14, Review for Test 1. **TEST 1 is on 16 Sept.**

Topics for test 1: Review of genome organization, DNA and gene structure, overall features of trancription and translation, genetic code and mutations. How small changes in the DNA sequence can lead to genetic disease, and some ways in which DNA sequence variation can be detected.

Test 2: Class days: Sept. 18, 21, 23, 25, 28, 30, Oct. 2, 5, 7, October 14, Review for Test. 2. **TEST 2 is on October 12.**

Topics for Test 2: Mitosis, meiosis, Mendel, pedigrees. Inheritance of single-gene variations. Chromosome aberrations and karyotype changes in individuals and in disease conditions. Cell cycle control and its relationship to inherited cancer syndromes.

Test 3: Class days Oct. 14. (Oct. 16. FALL BREAK!!) Oct. 19, 21, 23, 26, 28, 30, Nov. 2. Nov. 4: Review for Test 3. **Test 3 is on Nov, 6.**

Topics for Test 3: Multi- gene inheritance, recombination frequency and other types of mapping, human genetic maps and genome sequence. Large scale mechanisms for genetic change in evolution.

Test 4. Class days Nov. 9, 11, 13, 16, 18, 20, 23, 25. (Nov. 27: Thanksgiving holiday) Nov 30. Dec. 2. Review for Test 4. **Test 4 is on December 2** Dec. 5 LAST CLASS DAY!!!

Topics varying somewhat from year to year but will include some or all of the following: mutational analysis of processes and pathways, pharmacogenomics and personalized medicine, bacterial genetics, GWAS (genome-wide association studies), application of next generation sequencing to genetic disease diagnostics.

COMPREHENSIVE FINAL EXAM (Test5): December, 10 a.m.-noon, same room, Kirschman 129.

Grading basis:

Tests. The grade will be based on four in-class tests and a comprehensive final, 100 points each plus 12 possible bonus points based on your clicker responses. Your final grade will be based on the top four test scores, with the lowest one dropped. There will be NO MAKEUP tests except under extreme and unavoidable circumstances. Any missed test will count as your dropped score.

Attendance is expected and rewarded. Your total Clicker/participation points will be added to the total of four tests. You need to attend 80% of classes to get all 12 clicker points. Your grade will be based on a percentage

of 400 points, with 412 points available. The final will be optional for those who are satisfied with their grades on the four in-class tests plus clicker points.

Genetics syllabus continued, Fall 2015
Course resources:

There is no textbook for this course. Powerpoints and (sometimes) typewritten notes will be posted for each lecture. There will also be practice problems, practice tests, handouts and worksheets, also posted on Moodle. In addition, we will use various web resources, including but not limited to the following :

www.nature.com/scitable Free site from the journal Nature. Excellent eBook chapters about material that we will cover in this class.

geneed.nlm.nih.gov This is an NIH (National Institutes of Health)-sponsored site containing links to a wealth of genetics web sites that are relevant to genetics education.

ghr.nlm.nih.gov This site is also sponsored by the NIH and contains a lot of very basic information about genes and proteins, plus descriptions of a large number of human genetic diseases. It also contains a lot of links to more detailed information about many topics in genetics.

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** Academic integrity is fundamental to the process of learning and evaluating academic performance. Academic dishonesty will not be tolerated. Academic dishonesty includes, but is not limited to, the following: cheating, plagiarism, tampering with academic records and examinations, falsifying identity, and being an accessory to acts of academic dishonesty. Refer to the Student Code of Conduct for further information. The Code is available online at http://www.studentaffairs.unо.edu.*

*** It is University policy to provide, on a flexible and individualized basis, reasonable accommodations to students who have disabilities that may affect their ability to participate in course activities or to meet course requirements. Students with disabilities should contact the Office of Disability Services as well as their instructors to discuss their individual needs for accommodations. For more information, please go to http://www.ods.unо.edu.*