

SYLLABUS FOR BIOL220: TOPICS IN GENETICS AND EVOLUTION- SUMMER 2017

West Bldg W207, Tu/Th 11:40AM-1:24PM

Course outline

This course will review the basis of genetics starting with the processes of mitosis and meiosis, chromosome structure and classical transmission genetics. The course will then focus on the use of model genetic organisms in gene discovery, including yeast, flies and the mouse. Human genetics and genetics of human disease will also be covered. Current research articles will be discussed to support the lectures.

For a list of probable topics, see below.

Course format:

This is a lecture-only class that makes extensive use of the Blackboard (Bb) course web site, and students need to visit this Bb course site at least twice a week. All course materials will be distributed via the Bb course site. The figures and slides used in the course will be posted on Bb ahead of time, whenever possible. Class attendance is mandatory for all students.

A few reading assignments will be given.

The final grade will be based on:

1. a midterm classroom exam (40%), on the first half of the course.
2. a final classroom exam (40%), on the second half of the course, non cumulative.
3. 4 quizzes (20%)

The quizzes will be announced, and given in the last 20 minutes of class. Their purpose is to help in the studying of the material and to provide feedback in view of the exams (midterm or final). There will be four (4) quizzes for the semester, two during the first half of the semester, before the midterm, and two during the second half, before the final exam. There is no make up date for a quiz. The best 3 scores are taken into account. If two or more quizzes are missing, the cumulated score will be prorated to 3 scores (that is, you will get 0 pts for the missing quizzes). Failure to attend the midterm or final exam leads to an automatic F.

There will be no alternate dates for the exams without documented emergency, deemed acceptable by the Instructor, and only in extreme cases, **WHEN** notification of the Instructor is made AHEAD of the exam date.

Pre-requisite

BIOL100 or equivalent. Students should have basic knowledge in gene expression, mitosis, meiosis and chromosome transmission, at the level of a general introductory Biology class.

Students are highly encouraged to review these concepts in a fundamental Biology textbook prior to the semester's start.

Learning outcomes

By the end of the course, a successful student should be able to:

1. Demonstrate an understanding of the basic principles of genetics
2. Appreciate the differential contribution of model genetic systems such as *S. cerevisiae*, *D. melanogaster*, *M. musculus* to the biomedical research.
3. Comprehend the rationale of a genetic screen in the study of a fundamental biological process.
4. An important aspect of the class is its format: each class will be centered on a focused topic with visual aids of the kind used in scientific seminar (but in simpler form). The students will learn to absorb, critique and question the material during the lecture, as is expected from the audience of a scientific seminar. They are expected to become comfortable with asking questions and participate as part of an informed and critical audience. This mode of communication is extremely important in science and many other professional disciplines.

How to succeed:

Review the material distributed via Blackboard ahead of time. The material includes (but is not limited to) the slides used during the lecture. By doing so, students should come to class prepared, by having a good vision of the topic that will be covered in class, with specific questions and comments. The class and tests focus on understanding and logic, rather than pure memorization. Students usually achieve better results by reviewing and studying the lecture a little at the time rather than only the last 2-3 days before the exams. Most importantly do not hesitate to ask questions if a topic is not clear. Reach out during or after class, or email to schedule a meeting.

Instructor:

Claudia Cosentino

For all communications: **send an e-mail.**

cc3406@hunter.cuny.edu

Office hours:

Please send an email to cc3406@hunter.cuny.edu to schedule a meeting if necessary

Class Location & Time:

Tuesday and Thursday, 11:40AM-1:24PM. Room W-207

Texts:

No textbook is required for this class. It is highly recommended to review the relevant chapters covered in BIOL100, namely Unit three (Chapters 13-21) + Chapter 12 in:

“BIOLOGY” 8th ed., Campbell & Reece, Pearson Cummings ed., or equivalent material, covering Mitosis, Meiosis, basics in chromosomal inheritance, and fundamentals in gene expression, in other texts.

Some of the class material will be taken from: "Genetic Analysis: An Integrated Approach" Sanders and Bowman, Pearson, 2nd Edition or from: "Genetics from Genes to Genomes", Hartwell, Hood, Goldberg, Reynolds, and Silver, Mc Graw Hill, 3rd edition, but these texts are not required.

It is expected that the materials provided to the students through Blackboard will be sufficient.

Academic Dishonesty

Hunter College regards acts of academic dishonesty (e.g., plagiarism, cheating on examinations, obtaining unfair advantage, and falsification of records and official documents) as serious offenses against the values of intellectual honesty. The College is committed to enforcing CUNY Policy on Academic Integrity and will pursue cases of academic dishonesty according to the Hunter College Academic Integrity Procedures.

Special Accommodations

In compliance with the American Disability Act of 1990 (ADA), Hunter College is committed to ensuring educational parity and accommodations for all students with documented disabilities and/or medical conditions. It is recommended that all students with documented disabilities (Emotional, Medical, Physical and/ or Learning) consult the Office of AccessABILITY located in Room E1124 to secure necessary academic accommodations. For further information and assistance please call (212- 772- 4857)/TTY (212- 650- 3230). The website for Hunter's AccessABILITY is: <http://www.hunter.cuny.edu/student-services/access/welcome>