OAKTON COMMUNITY COLLEGE
Spring Semester, 2016

CLASS SYLLABUS

Instructor: Avis Gibons
E-mail: agibons@oakton.edu
Web site: www.oakton.edu/~agibons
Virtual Office: online through Desire2Learn (D2L)
Office Hours: online via D2L, Wednesday evenings, 9:00 pm to 10:00 pm
(by appointment only)

Science Division: SHC-DP 100
Phone: (847) 635-1684

Learning Center: DP, Room 2400
Phone: (847) 635-1658

I. Course Course Section Course
Prefix  Number Number Name   Credit     Lecture       Lab
BIO     104     0C3   Human Genetics      3          3               0
(non-lab course)

II. Prerequisite: None

III. Course Catalog Description:
Course introduces basic genetic principles and applications in human populations. Content
includes cell cycle; structure, function, mutation and transmission of the genetic material; role of
genetics in health care and biotechnology; and ethical, psychological and social implications of
gene-based medicine.

IV. Biology Department Learning Outcomes:
By the completion of your biology courses at Oakton, you will have gained the experience to:
A. think critically – identify, define, analyze, interpret, and evaluate ideas, concepts, information,
problems, solutions, and consequences. This includes the ability to compute and comprehend
quantitative information and to engage in the scientific process.
B. communicate – communicate ideas, concepts, and information through written and oral
means. Collaborate with people of diverse backgrounds and abilities.
C. demonstrate literacy – demonstrate the ability to read critically within content areas. Use
technology to locate, evaluate, and communicate data, information, ideas, and concepts.
Assess, critique, and select from a variety of information resources.
D. demonstrate responsibility – demonstrate an understanding of personal responsibility and
ethical behavior in one’s own academic and civic life.
V. **Course Learning Objectives:**

After successfully completing this course, students should understand and be able to:

A. use critical thinking skills to evaluate advances in genetics.
B. describe the basis of DNA replication, transcription, and translation.
C. describe the regulation of gene expression.
D. describe mutations, mutagenic origins and agents and their effect on cells, individuals and populations, including inborn errors of metabolism.
E. describe and explain the stages of the cell cycle.
F. describe and explain the stages of mitosis.
G. describe and explain the genetic significance of meiosis.
H. work monohybrid and dihybrid Mendelian crosses and sex linkage problems.
I. explain human cytogenetics, including the normal karyotype and chromosome abnormalities.
J. describe the genetic basis of gender.
K. describe the effect of mitochondrial inheritance and multifactorial genetics.
L. discuss the role of genetics in cancer.
M. discuss the importance of genetic considerations in risk assessment, prevention, diagnosis, management and treatment of human disease.
N. discuss the medical applications of genetic technologies, including reproductive technologies.
O. discuss contemporary issues in genetics, including ethical, legal and social implications.

VI. **Academic Integrity:**

Students and employees at Oakton Community College are required to demonstrate academic integrity and follow Oakton’s Code of Academic Conduct. This code prohibits:

- cheating;
- plagiarism (turning in work not written by you, or lacking proper citation);
- falsification and fabrication (lying or distorting the truth);
- helping others to cheat;
- unauthorized changes on official documents;
- pretending to be someone else or having someone else pretend to be you;
- making or accepting bribes, special favors, or threats; and
- any other behavior that violates academic integrity.

There are serious consequences to violations of the academic integrity policy. Oakton’s policies and procedures provide students a fair hearing if a complaint is made against you. If you are found to have violated the policy, the minimum penalty is failure on the assignment. In addition, a disciplinary record will be established and kept on file in the office of the Vice President for Student Affairs for a period of 3 years.

Details of the Code of Academic Conduct can be found in the Student Handbook.

VII. **Instructional Materials:**


Supplemental readings may be assigned by the instructor.
VIII. Schedule of Topics and Readings:

UNIT 1
Introduction Chapters 1 (2-5) and 2 (to 30)
The Cell Cycle: Interphase Chapter 2 (to 30)
DNA Structure and Replication Chapter 9 (164-173)
Gene Expression and Regulation Chapters 10 and 11 (203-205)
UNIT 1 EXAM February 12

UNIT 2
Gene Mutation Chapter 12 (213-229)
The Cell Cycle: Mitosis and Meiosis Chapters 2 (from 30) and 3 (44-51)
Chromosomes Chapter 13
Matters of Sex Chapter 6
Single-Gene Inheritance Chapter 4 (68-83)
UNIT 2 EXAM March 11

UNIT 3
Beyond Mendel’s Laws Chapter 5 (to 102)
Multifactorial Traits Chapter 7 (131-139)
Population Genetics: Allele Frequencies Chapters 14 and 15
UNIT 3 EXAM April 8

UNIT 4
Population Genetics: Evolution Chapter 16 (311-313)
Developmental Genetics Chapter 3 (59-61)
Cancer Genetics Chapter 18 (352-368)
Clinical Genetics Chapter 20 (390-400)
Genetic Technologies Chapters 19 (376-381) and 21 (411-420)
Genomics Chapter 22 (430-437)
UNIT 4 EXAM May 13

IX. Methods of Instruction:

This course will be delivered online via a course management system, Desire 2 Learn (D2L). You need access to the Internet and to a Web browser. From the browser, go to d2l.oakton.edu and use your Oakton account to login to the course. For technical assistance, contact the office of Online Learning at (847) 635-1971 or alt-ed@oakton.edu.

Course material is introduced on the Key Terms and Concepts pages for each of the four units into which this course is divided. Familiarize yourself with the corresponding material from the textbook. The textbook publisher offers many resources, including visual aids and animations, to enhance your learning experience.

Participation in online discussions is a key component of this course. For each discussion topic, you must first submit your own response. Then comment on at least one of your classmates’ contributions to the discussion. You are not eligible to earn points for your comments on others’ contributions until you have submitted your own response. With the exception of Discussion 1, your own response and comment to classmate(s) must each consist of at least 100 words. Spelling, grammar and organization must be consistent with college-level writing.

You are expected to complete all activities associated with each unit, as described in further detail in the following Section.
X. Method of Evaluating Student Progress:

In addition to participating in discussions, students are expected to complete eight multiple-choice quizzes, four problem sets and four exams. Problem set and exam questions take various formats: multiple choice, matching, true/false, fill-in-the-blank, problem-solving, short or long essay, etc. Extra credit is not accepted in lieu of or in addition to the regular course requirements.

Quizzes are timed and must be completed within 30 minutes of the student’s start time. Exams are timed and must be completed within 60 minutes of the student’s start time.

The virtual setting of this class offers students a certain amount of scheduling flexibility. Accordingly, make-up assignments, including exams, are not permitted.

For all due dates shown in the following table, time expires at 11:59 pm Central.

<table>
<thead>
<tr>
<th>Course Material/Chapter(s)*</th>
<th>Activity</th>
<th>Due Date</th>
<th>Maximum Points</th>
<th>Cumulative Maximum Points</th>
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Total Points Available 648 648

* You are responsible for chapter material only to the extent shown in Section VIII.

Letter grades are based on total points earned, where:
A = 580-648     B = 515-579     C = 452-514     D = 388-451     F = fewer than 388

You cannot take an “Incomplete” in this course.
XI. Required Course Practices:
A. Dedicate sufficient time (about 15 hours weekly) to promote successful course completion.
B. Read the assigned materials BEFORE attempting related activities.
C. Familiarize yourself with D2L functionality BEFORE the course begins.
D. Ensure access to reliable technology at all times. Inability to access or properly utilize the virtual classroom does NOT excuse you from satisfying due dates and times.
E. Visit the virtual classroom DAILY to remain informed of any new assignments or changes to the schedule.
F. Be an active participant in virtual classroom discussions.
G. Complete all problem sets and present them in a neat and clear format. Avoid handwritten entries wherever possible. Work that is not legible or that is submitted after its due date will NOT be accepted.
H. Prepare for quizzes and exams so that you can complete them within the time limit provided, just as would be required in a brick-and-mortar classroom.
I. Only work posted directly on D2L will be accepted. Work submitted as an attachment to an electronic mail message will NOT be accepted.
J. Comply with the Code of Student Conduct and the Policy for Responsible Use of Information Technology at Oakton Community College. Details of both can be found in the Student Handbook.
K. Maintain the confidentiality of your user account; you are entirely responsible for all activities related to its use.
L. Post only material that is relevant to this course. The use of the course platform to post, upload, distribute or disseminate any inappropriate, defamatory, obscene or unlawful material is STRICTLY PROHIBITED. The minimum penalty for violating this prohibition is a 300-point reduction in your total point score.
M. The use of the course platform to defame, abuse, harass or otherwise disrespect your classmates or instructor is STRICTLY PROHIBITED. The minimum penalty for violating this prohibition is a 300-point reduction in your total point score.

XII. Other Course Information:
The schedule is tentative and may change as conditions dictate. If necessary, corresponding change will be made to the method of evaluation.
If religious observance interferes with your adherence to this schedule, it is your responsibility to inform me in writing by January 22, 2016.
If you are struggling with this course, please contact me during my office hours and take advantage of Learning Center services.
If you have a documented learning, psychological, or physical disability you may be entitled to reasonable academic accommodations or services. To request accommodations or services, contact the Access and Disability Resource Center at the Des Plaines or Skokie campus. All students are expected to fulfill essential course requirements. The College will not waive any essential skill or requirement of a course or degree program.
If you are pregnant now or become pregnant during the semester, please schedule a virtual meeting with me.
XIII. Important Dates:

January 18   Holiday - College closed
February 14  Last day to withdraw and have course dropped from record
February 15  Holiday - College closed
February 16  Last day to change to Audit
March 14-20  Spring Break
March 27     Last day to withdraw from class with a "W"