

UNIVERSITY OF DETROIT MERCY

College of Engineering and Science

BIO 375 Human Genetics Syllabus

Term I 2006  
MWF 11:00 to 11:50 a.m.

Dr. Barbara Hollar  
Credits: 3.0

Pre-requisites: General Biology I is the prerequisite for this course. This course is not equivalent to BIO 270 and does not substitute for that course where BIO 270 is a pre-requisite or a requirement in the major except with permission of the departmental chairperson.

Objectives:

This course is about human genetics in both the clinic and the lab. The impact of new findings in genetics upon society and the ethical issues that surround the use of human genetic knowledge are also discussed.

The student will be able to:

1. Do Mendelian genetics using human examples.
2. Take a pedigree and interpret a pedigree.
3. Identify common genetic diseases (phenotype, cause of the disorder, method of detecting the disorder, etc.)
4. Write a coherent explanation of the genetic basis of cancer and how genetics could be used to develop cancer therapies in the future.
5. Discuss the ethical and societal issues surrounding the uses of genetic knowledge.

Texts:

Barema J. 2005. The test: living in the shadow of Huntington's disease. New York: Franklin Square Press. 160 p.

Lewis R. 2007. Human genetics: concepts and applications. 7th ed. New York: McGraw Hill. 448 p.

Armand ML. 2003. Mutants. New York: Viking. 431 p.

Grading:The course grade is based upon 4 hourly exams of 200 points each. The remaining 200 points will be made up of attendance, participation, homework and in-class exercises.

The grading will be based upon 1,000 points. The grading scale is:

891-top = A	770-779 = C+
880-890 = A-	690-769 = C
870-879 = B+	660-689 = C-
790-869 = B	650-659 = D+
780-789 = B-	600-649 = D

The final exam is given during the first hour of the final exam period 11-12:00 on Dec. 13th. There are no make-ups during the course of the term, but if you have missed an exam you may take a comprehensive final exam during the second hour of the final exam period on Dec. 13th from 12:00 to 1:00 p.m. If you have missed two exams, I will count the comprehensive final exam twice in computing your grade.

#### Office hours:

My office is Life Science 221 on the McNichols campus. Office hours are posted on my door. My office phone is (313) 993-1408. My e mail address is [hollarba@udmercy.edu](mailto:hollarba@udmercy.edu). I generally check it every day and will respond if you write to me. I am happy to see you during my office hours so do not feel hesitant to come by if you are having difficulty with the work. If you have questions that go beyond the scope of the course or want additional recommended reading, I would be pleased to do that as well.

#### A note on academic honesty:

I expect that all of the work turned in to me will be the SOLE work of the student whose name appears on the paper. I expect that material extracted from published sources will be properly referenced. Students who plagiarize any part of an assignment (yes, even one question) will receive a zero on the entire assignment with no opportunity to make up the work. People who plagiarize on their homework or cheat on the exams will be reported to the University for disciplinary action. Information on the use of sources is considered a formal part of this syllabus and is attached to the last page of this syllabus.

#### Attendance:

I do not take attendance at every class, but I expect that you will attend class regularly and participate in the discussion. I assume that students are adults who can take responsibility for their own work, so you do not need to call me if you have an emergency. Everyone has an emergency at one time or another. Just check with fellow students in order to get the notes.

Attending class is beneficial in the sense that all of the exam questions come from the material that is covered in class. If a topic is covered in class, it is fair game for the exam. The book that I had wanted to use for this class went out of print over the summer, and I had to substitute another textbook. Because the substituted book has "lighter" coverage of some topics, I will be adding material to some of the lectures to give you a more in depth appreciation of the topic. If a topic is covered in the book but not in class, it is not on the exam. Occasionally, we will be doing in class

exercises for credit. If you happen to be absent on that day, you are responsible for getting the assignment from another student and completing and turning in the work within one week of the date that the exercise was done in class.

I consider the time in class a time when we are all working together. It shows a lack of courtesy to fellow students to disrupt the class by entering and leaving the room, getting up to plug in your tape recorder, etc. If you have an emergency, please leave quietly and return with as little disruption as possible. If you know ahead of time that you will be leaving for a doctor's appointment or other event, please sit on the end of the row or in the back so that you do not have to disrupt the other students as you leave.

A tentative schedule of topics is listed below. The schedule may be slightly modified depending on the time it takes the class to cover a topic. If no textbook name is given, the chapter is in the Ricki Lewis text. If the chapter you are supposed to read is in another book, the book title or author is mentioned.

<b>Month</b>	<b>Date</b>	<b>Schedule of Topics</b>
Sept.	06	Chapter 1 overview; Begin reading Barema's book
	08	Chapter 1 continued
	11	Chapter 2 The cell cycle.
	13	Chapter 3 Meiosis/ Development
	15	Chapter 3 continued
	18	Mutants Chapter II, III
	20	Mutants IV, V
	22	Chapter 4 Mendel. Discuss Barema's book
	25	Chapter 4. Pedigrees
	27	EXAM
	29	Chapter 5. Extensions to Mendel
Oct.	02	Chapter 6 Sex linkage
	04	Chapter 6 continued. Mutants VII
	06	Chapter 7 Multifactorial traits
	09	Chapter 7 continued
	11	Chapter 8 Genetics of Behavior
	13	Chapter 8 continued
	16	Chapter 10 Transcription
	18	Chapter 11 Control of Gene Expression
	20	Chapter 11 continued
	23	EXAM
	25	Chapter 12 Mutation
Nov.	27	Chapter 13 Chromosomes
	30	Chapter 13 continued
	01	Chapter 13 continued
	03	May be film or beginning of Chapter 14
	06	Chapter 14 Allele frequencies

	08	Chapter 14 Allele frequency changes
	10	Chapter 16 Human origins
	13	Mutants VIII Skin pigmentation
	15	EXAM
	17	Chapter 17 Genetics of immunity
	20	Chapter 17 continued
	22	Chapter 18 Genetics of cancer
	27	Chapter 18 continued
	29	Chapter 19 Genetic technologies
Dec.	01	Chapter 19 continued
	04	Chapter 20 Genetic testing and counseling
	06	Chapter 21 Reproductive technologies
	08	Chapter 22 Human Genome Project
	13	Final exam 11:00 to 12:00 Make-up exam 12:00 to 1:00