

Imperial Valley College Course Syllabus – BIOL 150 – Human Genetics

Basic Course Information

Semester	Spring 2016	Instructor Name	Dr. Daniel Gilison
Course Title & #	Human Genetics – BIOL 150	Email	daniel.gilison@imperial.edu
CRN #	20798	Webpage	http://imperial.blackboard.com
Room	2722	Office	2770
Class Dates	2/16 – 6/9	Office Hours	MW 11:30-12:30, TR 10-11 AM
Class Days	TR	Office Phone #	(760) 355-5759
Class Times	11:20 AM – 12:45 PM	Office contact if student will be out or emergency	(760) 355-5759 or daniel.gilison@imperial.edu
Units	3		

Course Description

A one semester course examining genetics from a human perspective. Discussion of pattern of inheritance, human genetic diseases and disorders, and the application of genetic technologies in other organisms for human use. (CSU) (UC credit limited. See a counselor.)

Student Learning Outcomes

Upon course completion, the successful student will have acquired new skills, knowledge, and or attitudes as demonstrated by being able to:

1. Answer exam questions that deal with population genetics. (ILO5)
2. Show personal responsibility by turning in homework assignments on time. (ILO3)
3. Answer exam questions that deal with critical thinking problem solving. (ILO2)

Course Objectives

Upon satisfactory completion of the course, students will be able to:

1. Explain the function of cells and cell organelles.
2. Understand the patterns of Mendelian inheritance and analyze pedigrees.
3. Explain and give examples of exceptions to standard Mendelian inheritance.
4. Describe how genes are involved in sex determination.
5. Give examples of genetic traits caused by multiple genes, and explain how they are inherited.
6. Describe the structure of DNA and explain how DNA replication occurs.
7. Understand and describe the processes of transcription and translation.
8. Explain what causes DNA to mutate, and how gene mutations cause disease.
9. Describe chromosome structure, explain how chromosomal abnormalities occur, and give examples of diseases caused by chromosomal abnormalities.
10. Explain population genetics, and explain how the genetics of a population can be changed.
11. Understand the genetic basis of cancer.
12. Explain the current genetic technologies used in labs and in agriculture.
13. Describe the different ways to do genetic testing, and understand the field of genetic counseling.
14. Understand the field of genomics, including the human genome project.

Textbooks & Other Resources or Links

- Human Genetics: Concepts and Applications, 11th edition. Lewis.

Course Requirements and Instructional Methods

1. There will be **4** exams, worth **100 points** each (**400 points** total). Exams will begin at the start of class. Exams will consist of multiple choice/matching/true-false questions, and short answer questions. Figures from the lectures and textbook will appear on the exams. If you are late to the exam, you will not be given extra time to finish it. There will be no make-up exams, except for extreme circumstances. If you have a valid, documented reason for missing an exam, it is **your responsibility** to tell me about it and provide valid documentation by the **next class meeting**, otherwise you will not have the opportunity to make up the exam, and will be given a **zero** for that exam.
2. There will be **10** homework assignments worth **20 points** each (**200 points** total). Homework assignments are due at the **start** of the class. Homework cannot be made up, except for extreme circumstances. **I do not** accept late assignments! If you are late to class (once the lecture begins), you will not get credit for your homework assignment!

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- There will be **3** practice problem sets that are worth **5** extra credit points each (**15 points** total). These involve questions from chapters not covered on the homework assignments. Practice problems are due at the **start** of the class. Practice problems cannot be made up. I **do not** accept late assignments! If you are late to class (once the lecture begins), you will not get credit for your practice problems!
- Spelling and grammar count on all written assignments! You will lose up to **20% of the points** on each assignment if you have excessive spelling or grammatical errors.
- There will be **4 on-line** review sessions for extra credit and they will be due on the date in the schedule listed at 11:59 PM.
- There will be extra credit available on some assignments.

Out of Class Assignments: The Department of Education policy states that one (1) credit hour is the amount of student work that reasonably approximates not less than one hour of class time and two (2) hours of out-of-class time per week over the span of a semester. WASC has adopted a similar requirement.

Course Grading Based on Course Objectives

4 exams	=	400 points
10 homework assignments	=	200 points

Total	=	600 points

A	540 - 600 points
B	480 - 539 points
C	420 - 479 points
D	360 - 419 points
F	0 - 359 points

Attendance

- A student who fails to attend the first meeting of a class or does not complete the first mandatory activity of an online class will be dropped by the instructor as of the first official meeting of that class. Should readmission be desired, the student's status will be the same as that of any other student who desires to add a class. It is the student's responsibility to drop or officially withdraw from the class. See General Catalog for details.
- Regular attendance in all classes is expected of all students. A student whose continuous, unexcused absences exceed the number of hours the class is scheduled to meet per week may be dropped. For online courses, students who fail to complete required activities for two consecutive weeks may be considered to have excessive absences and may be dropped.
- Absences attributed to the representation of the college at officially approved events (conferences, contests, and field trips) will be counted as 'excused' absences.

Classroom Etiquette

- Only bottled water allowed in the classroom.
- Cell phones must be turned off at all times!** Ringing cell phones are a distraction both to me and to other students in the class. If you must use your cell phone during class, please take it outside, and then come back in when you are done. You should not be checking your phone, or texting, during lectures. If you are caught checking your phone, or texting, during class, you may be asked to leave for the day.
- No talking during class!** Talking is a distraction to me and other students in the class. If you have questions during the lecture, please ask me! If you are caught talking, you may be asked to leave for the day.
- The deadline for dropping a course without appearing on transcript is **Sunday, February 28**.
- The deadline for dropping a full-term class is **Saturday, May 14**.

Academic Honesty

- Plagiarism** is taking and presenting as one's own the writings or ideas of others, without citing the source. You should understand the concept of plagiarism and keep it in mind when taking exams and preparing written materials. If you do not understand how to 'cite a source' correctly, you must ask for help.
- Cheating** is defined as fraud, deceit, or dishonesty in an academic assignment, or using or attempting to use materials, or assisting others in using materials that are prohibited or inappropriate in the context of the academic assignment in question.

Anyone caught cheating or will receive a zero (0) on the exam or assignment, and the instructor may report the incident to the Campus Disciplinary Officer, who may place related documentation in a file. Repeated acts of cheating may result in an F in the course and/or disciplinary action. Please refer to the General School Catalog for more information on academic dishonesty or

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other misconduct. Acts of cheating include, but are not limited to, the following: (a) plagiarism; (b) copying or attempting to copy from others during an examination or on an assignment; (c) communicating test information with another person during an examination; (d) allowing others to do an assignment or portion of an assignment; (e) using a commercial term paper service.

Students may work together for homework assignments, but each student must turn in **their own work in their own words**. If students turn in assignments with the same or similar wording (i.e., from copying off another student), they will all be given a **zero** for that assignment. Additional disciplinary action may be taken if needed.

Additional Help

1. Make sure you come on time to all lectures! Arriving late or missing a class for any reason (excused or unexcused) can cause you to miss lecture material, and will only put you at a disadvantage in this class.
2. Make sure you know what will be happening each day for class! Keep the class schedule handy.
3. Skim through or read the chapter before coming to lecture. You will have a general feel for the subject matter, which will help your understanding of the material during lecture.
4. Pay attention during lectures! I will say things during lecture that are not written on the PowerPoint slides or the board that will be on the exams. Make sure you take good notes during class. Don't just mindlessly write down word-for-word what is on the slides. Listen to what I have to say, and take notes on that also!
5. Study, study, study! You should spend at least 4-5 hours studying for this class each week. You should study in an area where there are no distractions (television, radio, computers, iPods, other people, etc.). However, you should also spend time studying in groups. Nothing makes you learn the material better than having to explain it to someone else!
6. Don't cram! It's better to spend some time each week studying as compared to saving it all until the night before the exam.
7. It is not enough just to memorize facts! On the exams, you will be responsible for using the information learned and applying it to new situations. You need to understand what these facts mean!
8. When answering homework/exam questions do not overcomplicate the question! Students tend to think that questions are more difficult than they really are. Just answer the question being asked! However, make sure that you read the questions very carefully to make sure that you are starting the problem correctly!

If you need any technical assistance with Blackboard, please visit the IVC Blackboard Support website at:

<http://www.imperial.edu/students/blackboard-support/>

Disabled Student Programs and Services (DSPS)

Any student with a documented disability who may need educational accommodations should notify the instructor or the Disabled Student Programs and Services (DSP&S) office as soon as possible. The DSP&S office is located in Building 2100, telephone 760-355-6313, if you feel you need to be evaluated for educational accommodations.

Student Counseling and Health Services

Students have counseling and health services available, provided by the pre-paid Student Health Fee. We now also have a fulltime mental health counselor. For information see <http://www.imperial.edu/students/student-health-center/>. The IVC Student Health Center is located in the Health Science building in Room 2109, telephone 760-355-6310.

Student Rights and Responsibilities

Students have the right to experience a positive learning environment and due process. For further information regarding student rights and responsibilities, please refer to the IVC General Catalog available online at http://www.imperial.edu/index.php?option=com_docman&task=doc_download&gid=4516&Itemid=762

Information Literacy

Imperial Valley College is dedicated to helping students skillfully discover, evaluate, and use information from all sources. Students can access tutorials at <http://www.imperial.edu/courses-and-programs/divisions/arts-and-letters/library-department/info-lit-tutorials/>

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Anticipated Class Schedule

Week	Tuesday	Thursday
Feb 16-18	Introduction to the class	Chapter 1 – Overview of Genetics
Feb 23-25	Chapter 2 – Cells	Chapter 2 – Cells / HW 1 due
Mar 1-3	Chapter 3 – Meiosis and Development	Chapter 3 – Meiosis and Development
Mar 8-10	Chapter 9 – DNA Structure and Replication / HW 2 due	Chapter 10 – Gene Action: From DNA to Protein
Mar 15-17	Chapter 4 – Single-Gene Inheritance / HW 3 due / Exam 1 review due	Exam 1 (Ch. 1-3, 9, 10)
Mar 22-24	Chapter 4 – Single-Gene Inheritance	Chapter 4 – Single-Gene Inheritance
Mar 29-31	Spring Break	Spring Break
Apr 5-7	Chapter 5 – Beyond Mendel’s Laws / HW 4 due	Chapter 12 – Gene Mutation
Apr 12-14	Chapter 6 – Matters of Sex / HW 5 due	Chapter 13 – Chromosomes
Apr 19-21	Chapter 7 – Multifactorial Traits / HW 6 due / Exam 2 review due	Exam 2 (Ch. 4-6, 12, 13)
Apr 26-28	Chapter 7 – Multifactorial Traits / Chapter 8 – Genetics of Behavior	Chapter 8 – Genetics of Behavior
May 3-5	Chapter 14 – Constant Allele Frequencies / HW 7 due	Chapter 15 – Changing Allele Frequencies
May 10-12	Chapter 18 – Genetics of Cancer / HW 8 due	Chapter 19 – Genetic Technologies / Practice problems 1 due / Exam 3 review due
May 17-19	Exam 3 (Ch. 7, 8, 14, 15, 18)	Chapter 19 – Genetic Technologies
May 24-26	Chapter 21 – Reproductive Technologies / HW 9 due	Chapter 20 – Genetic Testing and Treatment / Practice problems 2 due
May 31 – Jun 2	Chapter 20 – Genetic Testing and Treatment	Chapter 22 – Genomics / HW 10 due
Jun 7-9	Chapter 22 – Genomics / Practice problems 3 due / Exam 4 review due	Exam 4 (Ch. 19-22)