

Biological Sciences 105: Human Biology

Fall Semester 2006

Prof. Carl Johnson
BSB/MRB III room U-8211
Office hrs: TTh 1:30-2:30
322-2384

Lecture material T.A.: Elizabeth Claydon
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Bioethics paper grader: Scott Zeman (hours to be arranged)
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Course Description:

The course catalog description for this course is:

105. Human Biology. An overview of the biology of humans with special emphasis on recent advances in genetics, reproduction, and biotechnology. The social, legal, and ethical implications of these advances will be explored. Not intended for students majoring in the biological sciences. Students who take BSci 110a/b may not receive credit for BSci 105.

This course is designed to introduce you to some important concepts in biology and to apply those concepts in situations that may be or may become relevant for you. The course is divided into three parts. The first part will provide a foundation in development and genetics. The second section will build on this foundation with ramifications of genetics to health and medicine. Several of the lectures in this second part will be given by guest speakers. The final section will branch out to the related topics of population genetics/evolution/ecology.

Grading Policy:

There will be five multiple-choice quizzes, a paper, and a final. The multiple-choice quizzes will be short 20-minute quizzes during the class periods indicated on the syllabus. The quizzes will cover the course material (lectures and reading) since the last quiz. The quizzes from a previous year's class are in the ClassPak, so that you can get an idea of the quiz format. You will be able to drop your lowest quiz score. There will be **no makeup quizzes**. If you miss a quiz, that will count as the dropped quiz. I **strongly** encourage you to take every quiz. In the paper, you will be asked to address some ethical issues raised by the new biotechnology. The paper will be graded on the basis of both content and writing style, and will be six pages long.

There will be a final exam on Monday, December 11 at 3:00 pm in Buttrick 102. The final will be cumulative. **No alternate final** will be given, so please put this date/time in your December schedule now. In computing the final grade, the lowest quiz will be dropped, and the remaining four quiz scores will be used. The paper's score will count as the equivalent of two quizzes in the computation of the final grade. The final grade will be computed from these six scores (i.e., the 4 quiz scores, each worth 12 %, the paper's score, worth 24 %) added together (72 % of final grade) and from the final exam score (28 % of final grade). The final grades will be adjusted so that the final distribution of grades in the class is approximately 25% A's, 40% B's, 30% C's, and 5% D's/F's. In past years, this adjustment has added a few points to the final computed score before the letter grade was assigned. Pluses and minuses will be assigned to the letter grades. You will be expected to observe the Vanderbilt Honor Code for all assignments, quizzes, and exams.

Syllabus

Biological Sciences 105 (Human Biology) Fall 2006

<u>Date</u>	<u>Quiz?</u>	<u>Lecturer</u>	<u>Topic</u>
Aug. 24		CJ	Intro/Scientific Method
29		CJ	Basic Genetics–Mendel
31		CJ	Basic Genetics–Humans
Sept. 5		CJ	Basic Genetics–Chromosomes
7	Quiz #1	CJ	Basic Genetics–Chromosomal Anomalies
12		CJ	Basic Genetics–Sex
14		CJ	Reproductive Cycles
19		CJ	Gametogenesis/Fertilization
21		Weitzman	Fertility, <i>in vitro</i> Fertilization
26	Quiz #2	CJ	Development I
28		CJ	Development II (esp. humans)
Oct. 3		CJ	Molecular Genetics I/Inborn Errors
5		CJ	Molecular Genetics II
10	Quiz #3	CJ	Genetic Engineering
12		CJ	Diseases–Bacteria/Viruses/Bioterrorism
19		Clayton	Legal Aspects of Genetic/Reprod. Tech
–Fall Break (October 16-17)–			
24		Finder	Biomedical Ethics
26		CJ	Immune System
31	Quiz #4	CJ	Diseases–Cancer
Nov. 2		Summar	Genetic Screening/Therapy
7		Cohen	Genetic Counseling
9		CJ	Evolution
9			9—Bioethics paper due
14		CJ	Population Genetics
16	Quiz #5	CJ	Demography/Ecology
–Thanksgiving Break (November 18-26)–			
28		TBA	Environment
30		CJ	Biological Clocks/Jet Lag
Dec. 5		TBA	AIDS
7		CJ	Genetic Determinism
10			Review Session (7:00 pm, Buttrick 102)
11			Final Examination (3:00 pm; Buttrick 102)

Reading List

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Fall 2006

Three textbooks are required for this course: THE CARTOON GUIDE TO GENETICS (CGG), THE FUTURE OF LIFE (FL), and HUMAN BIOLOGY, 4th Edition (HB). These can be purchased in the bookstore (all are paperbacks). There is also a ClassPak (CP), which is available at Campus Copy. The readings from these books are required and will appear on quizzes and the final exam. In the reading list below, the page numbers from each of these sources are organized by lecture topic. Please do the reading **BEFORE** each lecture!

<u>TOPIC</u>	<u>CGG</u>	<u>HB</u>	<u>CP</u>	<u>FL</u>
Introduction		2-21		
Basic Genetics	1-96	156-165, 344-352 365-388	16-24	
Reproductive Cycles		88, 321-329 429-458	25-35	
Fertil./Develop.	97-113	40-62, 462-475	40-84	
Mole. Gen./Inborn Err.	114-178	25-36, 394-411	85-98	
Genetic Engineering	179-209	415-426	99-115	
Diseases–Bact./Viruses		169-172	116-131	
Legal Aspects/Ethics			97-98, 132-138,146	
Immune System		172-198	139	
Diseases–Cancer		35-6, 216-17, 353-362 406-411, 448-449	140-145	
Genetic Counseling			132,146	
Pop. Genetics/Evolution		485-519	21-23 147-169	
Demography/Ecology		523-566	-----	103-189
Biological Clocks/Jet Lag		94-97, 323-324		
AIDS		190-197	170-181	
Genetic Determinism			97,182-184	