SCIENCE OF CONTEMPORARY ISSUES
NATS 1212
Winter Quarter, 2004

INSTRUCTOR: Dr. Sheldon S. York
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LECTURE TEXT: Essential Biology, 2nd Ed., by Campbell, Reece, and Simon, Benjamin Cummings, 2004

COURSE DESCRIPTION:

Our knowledge of how genetic information is stored and used to produce living organisms has grown enormously over the last forty years. Over the last twenty years this has led to exciting discoveries concerning the molecular basis of cancer. One objective of this quarter is to provide an understanding of this fascinating field of science. Along the way, we will see how genes can be isolated and cloned, how the human genome project has progressed, and how a variety of genes involved in cancer have been detected. The ability to detect genetic flaws and thereby predict the likelihood of medical problems years before they occur creates new challenges for society, e.g. how this information will be used by employers and insurance companies. You will be asked to consider issues such as these and formulate your own thoughts as to how society should deal with them.

EXAMS:

There will be three hour exams and a comprehensive final exam, each worth 100 points. If your grade on the final exam is better than on an hour exam, then your final exam grade will be counted twice and replace your lowest hour exam grade. Likewise, if you miss an hour exam, then your final exam grade will be counted twice to make up for the missed hour exam. With one exception, **THERE WILL BE NO MAKEUP EXAMS**. The only exception will be if you are a member of a University team, e.g. athletic or debate team, and you have a game scheduled away from the campus at the time of the exam. You will have to inform your instructor of this before the exam and make arrangements at that time for a make-up exam.

GRADING: Your final grade will be based on the following point distribution

Hour Exams, 100 points each	300 points
Final Exam	100 points
Laboratory Reports	135 points

These points are distributed such that three-quarters of your final grade will depend on the lecture portion of the course and one quarter will depend on the laboratory portion of the course.

LECTURE TOPICS AND READING ASSIGNMENTS:

Date	Topic	Reading
Jan 5	DNA Structure and Replication	Chapter 10, pp.171-176
7	"	"
9	"	"
12	Transcription and Translation	Chapter 10, pp. 176-186
14	"	"
16	Mutations	Chapter 10, pp. 186-187 Chapter 13, pp. 266-267
19	Martin Luther King Holiday	
21	"	"
23	Hour Exam 1	
26	Mitosis and Meiosis	Chapter 8, pp. 119-126, 128-134
28	"	"
30	Inheritance of Genetic Traits	Chapter 9, pp. 142-147, 149-153, 157-158, 163-166
Feb 2	"	"
4	Recombinant DNA Technology	Chapter 12, pp. 217-223
6	"	"
9	"	"
11	"	"
13	Hour Exam 2 Last day to drop without Instructor approval	
16	DNA Sequencing and the Human Genome Project	Chapter 12, pp. 224-233
18	"	"
20	"	"
23	DNA profiling	Article on Short Tandem Repeats
25	Cancer	Chapter 8, pp. 126-127
27	"	Chapter 11, pp. 208-212
	Last day to add or drop. Instructor approval required.	
Mar 1	"	"
3	"	"
5	Hour Exam 3	
8	"	"
10	"	"
12	Final Exam, Fri. March 12, 10:00 a.m.-11:45 a.m. This exam is comprehensive	

SCHEDULE OF LABORATORY EXERCISES FOR SCIENCE OF CONTEMPORARY ISSUES
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DATES	EXPERIMENT
Jan. 12, 13	Isolation of DNA
Jan. 20	DNA Structure, Transcription, and Translation
Jan. 26, 27	Ames Test to Detect Mutagens
Feb. 2, 3	Mitosis and Meiosis
Feb. 9, 10	Cloning Genes
Feb. 16, 17	Human Genome Project
Feb. 23, 24	DNA Profiling
Mar. 1, 2	Analysis of Genetic Defects

The only way to make up a lab is by going to another lab section that same week. You must have a good reason for missing your lab and have permission from your Teaching Assistant before going to another lab section. If you are unable to make up a lab and you have a valid excuse for missing the lab, the points for your other lab experiments will be adjusted to correct for the difference.

Unless you are told otherwise, lab reports must be turned in at the end of the laboratory exercise.