SCIENCE OF CONTEMPORARY ISSUES
NATS 1200-2
Winter Quarter, 2002

INSTRUCTOR: Dr. Sheldon S. York
S.G. Mudd Building, Room 253
Telephone 303 871-2990

LECTURE TEXT: Essential Biology by Campbell and Reece, Benjamin Cummings, 2001

COURSE DESCRIPTION:

During the last forty years, our knowledge of how genetic information is stored and used to produce living organisms has grown enormously. Over the last twenty years, this has led to exciting discoveries concerning the molecular basis of cancer. One of the objectives of this quarter is 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.

LECTURE TOPICS AND READING ASSIGNMENTS:

DNA, its structure, replication, transcription and translation, and mutations	Chapter 9
Chromosomes, mitosis and meiosis	Chapter 7
Inheritance of genetic traits	Chapter 8
Genetic engineering and DNA technologies	Chapter 11
Cancer	Chapter 10

EXAMS:

There will be two 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.

Exam dates:	First Hour Exam	Wednesday, February 6
	Second Hour Exam	Wednesday, March 6
	Final Exam	Friday, March 15, 10:00 – 11:45 a.m.

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

Hour Exams	100 points each	200 points
Final Exam		100 points
Laboratory Reports		100 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

SCHEDULE OF LABORATORY EXERCISES FOR SCIENCE OF CONTEMPORARY ISSUES

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DATES	EXPERIMENT
Jan. 14-16	Isolation of DNA
Jan. 22, 23	DNA Structure, Transcription, and Translation
Jan. 28-30	Ames Test to Detect Mutagens
Feb. 4-6	Mitosis and Meiosis
Feb. 11-13	Cloning Genes
Feb. 18-20	Human Genome Project
Feb. 25-27	DNA Profiling
Mar. 4-6	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 the 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.