Biology 125 – Genes, Evolution, & Development
Winter 2006

INSTRUCTORS:

Mark McKone (lecture and lab instructor), Hulings 332, x4393, e-mail: mmckone. Office hours: Wednesdays from 1:30 to 3:00 PM (except 18 Jan. & 8 Feb.), Thursdays from 9:30 to 10:30 AM (except 2 Feb.).

Stephan Zweifel (lecture instructor), Hulings 309, x4385, e-mail: szweifel. Office hours: Mondays from 1:00 to 2:00 PM, Thursdays from 12:00 to 1:00 PM.

Sarah Deel (lab instructor, lab coordinator), Hulings 102, x5754, e-mail: sdeel.

GRADE DETERMINATION: 25% of the course grade is based on laboratory work (see front of the lab manual for breakdown) and 75% on lecture material. There will be three lecture exams (22% each, total of 66%), and various homework assignments given throughout the term (9%).

LECTURE TEXT: Raven, P.H., Johnson G.B., Losos, J.B., and S.R. Singer. 2005. Biology, 7th edition. McGraw-Hill.

Introduction (MM & SZ)

Date	***Topic***	***Reading in Raven & Johnson***
Wednesday, 4 Jan.	The nature of biological information	15-16, 282-3

Propagation of Genetic Information: Phylogeny, Life Cycles, and Sex (MM)

Friday, 6 Jan.	Diversity and the Tree of Life: the use of phylogenetic information	509-517
Monday, 9 Jan.	Prokaryotes: Bacteria and Archaea	Chapter 27; 208, 407, 499-500, 519-525,
Wednesday, 11 Jan.	Eukaryotes: origins and phylogeny	96-97, 562-563
Friday, 13 Jan.	Life cycles and ploidy in eukaryotes	Chapter 12
Monday, 16 Jan.	Sexes and sex determination	270, 1062-1063

The Molecules of Information: Maintenance, Expression, and Regulation (SZ)

Wednesday, 18 Jan.	Proteins, nucleic acids: structure/function	35-51, 283-287, 492-6
Friday, 20 Jan.	Genes and genomes, Recombinant DNA	210-12, 319-21, 331-2
Monday, 23 Jan.	DNA replication and repair	288-295, 329, 410-12

Wednesday,25 Jan	**Lecture Exam 1**

Friday, 27 Jan.	The cell cycle and cancer regulation	213-224, 413-8
Monday, 30 Jan.	Transcription and RNA processing	301-3, 306-9, 313-6, (arrays?)
Wednesday, 1 Feb.	Regulation of gene expression	361-3, 366-73
Friday, 3 Feb.	Translation and the genetic code	304-5, 310-12, 374-5
Monday, 6 Feb.	MIDTERM BREAK	
Wednesday, 8 Feb.	Famous Bio 125 movie; Gene regulation in	381-385, 398-400, 424-430

	development	

Transmission of Genetic Information (SZ)

Friday, 10 Feb.	Meiosis and chromosome nondisjunction	Chapter 12, 272-274
Monday, 13 Feb.	Mendel and the gene	Chapter 13
Wednesday, 15 Feb.	Sex linkage and genetic mapping	Chapter 13
Friday, 17 Feb.	Human molecular genetics	Assigned article

Monday, 20 Feb.	**Lecture Exam 2**

Evolution: Change of Genetic Information through Time (MM)

Wednesday, 22 Feb.	Microevolution: genes in populations	433-437
Friday, 24 Feb.	Selection, mutation, drift, and gene flow	438-443
Monday, 27 Feb.	The nature and origin of species	Chapter 23
Wednesday, 1 Mar.	Macroevolution	
Friday, 3 Mar.	Molecular evolution and comparative genomics	

Development and Macroevolution (MM)

Monday, 6 Mar.	Development in plants and animals	755-760, 1084-1093
Wednesday, 8 Mar.	Macroevolution as a change in the developmental program	501-503, 1094-1095

Special Topic (MM)

Friday, 10 Mar.	Human evolution and genetics	

13 – 15 March	**Lecture Exam 3. Self-scheduled only, during final exam period**

A note on the reading assignments. Textbook chapters are assigned for the different subjects covered in the course. These provide an introduction to the subjects, and you are encouraged to read them either before or after the related lecture. You should expect that some lecture material will not be covered in the text at all, and that many topics in the text will not be in the lectures. However, for the purpose of the exams you will be responsible for material presented in lecture. In other words, coming to class, staying awake, and taking good lecture notes is a recipe for success.