



DEPARTMENT OF SCIENCE

COURSE OUTLINE – Fall 2010

BI 2070

Molecular Genetics and Heredity

INSTRUCTOR: Dr. Sean Irwin, Ph.D. **PHONE:** 539-2860 (W); 567-2226 (H)

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OFFICE HOURS: Mon. and Fri. 10:00 – 11:20 am
Tues. 1 – 2:20 pm

PREREQUISITES: BI 1070

REQUIRED TEXT/RESOURCE MATERIALS:

Griffith, A.J. et al., Introduction to Genetic Analysis (9th ed.),
W.H. Freeman and Company, New York, 2008.

U. of A. 2010-2011 BI 2070 Lab Manual
*You must purchase the latest version of this Lab. Manual. It will be
available from G.P.R.C. Bookstore.*

DESCRIPTION: Biology 2070 covers the chromosomal and molecular basis for the transmission and function of genes. The construction of genetic and physical maps of genes and genomes. Strategies for the isolation of specific genes. Examples of regulatory mechanisms for the expression of the genetic material in both prokaryotes and eukaryotes.

CREDIT/CONTACT HOURS: 3 Credits (3-0-3) UT

DELIVERY MODE(S): Lectures – Tues. and Thur. 10 – 11:20, Rm. J 204
Labs - Fri. 2:30 – 5:20, Rm. J130

- OBJECTIVES:**
1. Apply knowledge of the structure of molecules and cells to explain How genetic information is passed between generations.
 2. Demonstrate an understanding of molecular biology to the study of genetic analysis.
 3. Apply knowledge of laboratory skills and techniques to generate data and conduct analyses of that data.

TRANSFERABILITY: UA, UC, UL, AU, CU, KUC

EVALUATION:	Midterm Exam	- 25%
	Final Exam	- 40%
	Laboratory	- 35%

STUDENT RESPONSIBILITIES: Attend all lectures and labs.

STATEMENT ON PLAGIARISM AND CHEATING:

Please refer to pages 48-49 of the College calendar regarding plagiarism, cheating and the resulting penalties.

GRADING CRITERIA:

Alpha Grade	Approximate Percentage
A+	90 – 100
A	85 – 89
A-	80 – 84
B+	76 – 79
B	73 – 75
B-	70 – 72
C+	67 – 69
C	64 – 66
C-	60 – 63
D+	55 – 59
D	50 – 54
F	0 – 49

2010 Course Outline

Lect.	Date	Topic	Reading
1	Sept 2	Introduction	
2	Sept 7	Important Experiments	7.1 - 7.3
3	Sept 9	DNA / Chromosome Replication	7.4 - 7.7
4	Sept 14	Genes and Proteins	6.2, 9.1
5	Sept. 16	Mutation	15.1 – 15.3.
6	Sept. 21	Genome Organization and Life Cycles	2.1, 2.2
7	Sept. 24	Chromosome Behaviour in Meiosis	2.3
8	Sept. 28	Segregation and Independent Assortment	3.1, 3.2, 3.4
9	Sept. 30	Sex Chromosomes and Sex-linkage	2.5
10	Oct. 5	Pedigree Analysis	2.6
11	Oct. 7	Gene Interactions I	6.1
12	Oct. 12	Gene Interactions II	6.3, 6.4
13	Oct. 14	Linkage	4.1
14	Oct. 19	Midterm I	
15	Oct. 21	Mapping Genes on Chromosomes	4.2, 4.5
16	Oct. 26	Physical Mapping	4.3
17	Oct. 28	Changes in Chromosome Number	16.1
18	Nov. 2	Changes in Chromosome Structure	16.2, 16.3
19	Nov. 4	Prokaryotic Genes and Operons	10.1-10.3
20	Nov. 9	Eukaryote Genes and Globin Genes	8.3, 11.1, pg. 701
	Nov. 11	Remembrance Day	
21	Nov. 16	Clones and Libraries	20.1
22	Nov. 18	Identifying Genes	20.1
23	Nov. 23	PCR and DNA Sequencing	20.2, 20.3
24	Nov. 25	RFLP I	Ch.2: pg. 51-53, 4.3
25	Nov. 30	RFLP II	
26	Dec. 2	The Human Genome	13.4
27	Dec. 7	Review	