

SEP 08 2000

Grande Prairie Regional College  
Department of Science

Course Outline : BI 2070 Molecular Genetics and Heredity Fall 1999

**BI 2070 Molecular Genetics and Heredity 3(3-0-3)**

Biology 2070 is a course dealing with both classical and molecular genetics. The chromosomal and molecular basis for the transmission and function of genes will be covered as well as the construction of genetic and physical maps of genes and genomes. Molecular biology strategies for isolation of specific genes and examples of regulatory mechanisms for the expression of the genetic material in both prokaryotes and eukaryotes will also be discussed.

**Instructor :** Dr. Sean Irwin  
Office: J223  
Phones: 539-2860 (Office)  
538-1278 (Home)

**Prerequisite :** BI 1070

**Required Text :** Fairbanks, D.J. and Andersen, W.R., Genetics: The Continuity of Life, International Thompson Publishing Company, New York, 1999.

**Lab Manual :** U. of A. 1999-2000 BI 2070 Lab Manual

**Lectures :** Place: J 204  
Time: M, W, 10:00-11:20

**Labs :** Place: J 130  
Time: Thursday, 14:30-17:20

**Evaluation :**

Lab Assignments/Problem Sets	- 25%
Midterm Exam	- 25%
Final Lab Exam	- 10%
Final Exam	- 40%

**Office Hours :** Tuesday - 11:30 - 12:30 pm  
Wednesday - 11:30 - 12:30 pm  
Thursday - 10:00 - 11:00 am  
Also by appointment

## Course Outline

Lect.	Date	Topic	Chapter
1	Sept 8	Introduction / Important Experiments	2.1 – 2.3
2	Sept 13	DNA / Chromosome Replication	2.4, 2.5
3	Sept 15	Genes and Proteins	6.3
4	Sept 20	Mutation	5.1 – 5.3
5	Sept 22	Genome Organization and Life Cycles	11.1, 11.4
6	Sept 27	Chromosome Behaviour in Meiosis	11.2, 11.3, 12.2
7	Sept 29	Segregation and Independent Assortment	12.1, 12.3, 12.4, 12.6
8	Oct. 4	Sex Chromosomes and Sex-linkage	14.1 – 14.6
9	Oct. 6	Pedigree Analysis	12.5, 14.4
	Oct. 11	Thanksgiving	
11	Oct. 13	Gene Interactions	13.1- 13.3
12	Oct. 18	Linkage	15.1, 15.2
13	Oct. 20	Midterm I	
14	Oct. 25	Mapping Genes on Chromosomes	15.3, 15.4
15	Oct. 27	Mapping the Internal Structure of Genes	16.6
16	Nov. 1	Changes in Chromosome Number and Structure	17.1 – 17.4
17	Nov. 3	Physical Mapping of Genes	15.7, 9.1
18	Nov. 8	Clones and Libraries	9.2 – 9.4
19	Nov. 10	Identifying Genes I	9.4, 9.8
20	Nov. 15	Identifying Genes II	16.5, 15.8
21	Nov. 17	RFLP I	13.4, 26.3
22	Nov. 22	RFLP II	15.8, 26.2
23	Nov. 24	Gene Regulation and Operons	8.1, 8.2
24	Nov. 29	Structure and Expression of Eukaryote Genes	10.1, 10.3, 8.5, 8.6
25	Dec. 1	Regulation of Globin Genes	6.1
26	Dec. 6	Selected Topic	
27	Dec. 8	Review	