

**Grande Prairie Regional Regional College  
Department of Science**

SEP. 10 2002

**Course Outline :** BI 2070 Molecular Genetics and Heredity Fall 2002

**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)  
518-3764 (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. 2001-2002 BI 2070 Lab Manual

**Lectures :** Place: J 203  
Time: M, W, 8:30- 9:50

**Labs :** Place: J 126  
Time: Tues. and Thurs. : 10:00 - 12:50

**Evaluation :**

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

**Office Hours :** Monday - 10:00 - 11:20 am  
Wednesday - 13:00 - 14:20 pm  
Friday -10:00 - 11:20 am  
Also by appointment

## Course Outline

Lect.	Date	Topic	Chapter
1	Sept 4	Introduction / Important Experiments	2.1 – 2.3
2	Sept 9	DNA / Chromosome Replication	2.4, 2.5
3	Sept 11	Genes and Proteins	6.3
4	Sept 16	Mutation	5.1 – 5.3
5	Sept. 18	Prokaryotic Genes and Operons	7.2, 8.1, 8.2
6	Sept. 23	Eukaryote Genes and Globin Genes	10.1,10.3, 8.5, 8.6,6.1
7	Sept 25	Genome Organization and Life Cycles	11.1, 11.4
8	Sept 30	Chromosome Behaviour in Meiosis	11.2, 11.3, 12.2
9	Oct. 2	Segregation and Independent Assortment	12.1, 12.3, 12.4, 12.6
10	Oct. 7	Sex Chromosomes and Sex-linkage	14.1 – 14.6
11	Oct. 9	Pedigree Analysis	12.5, 14.4
	Oct. 14	Thanksgiving	
12	Oct. 16	Gene Interactions	13.1- 13.3
13	Oct. 21	Linkage	15.1, 15.2
14	Oct. 23	Midterm I	
15	Oct. 28	Mapping Genes on Chromosomes	15.3, 15.4
16	Oct. 30	Mapping the Internal Structure of Genes	16.6
17	Nov. 4	Changes In Chromosome Number and Structure	17.1 – 17.4
18	Nov. 6	Physical Mapping of Genes	15.7, 9.1
	Nov. 11	Remembrance Day	
19	Nov. 13	Clones and Libraries	9.2 – 9.4
20	Nov. 18	Identifying Genes I	9.4, 9.8
21	Nov. 20	Identifying Genes II	16.5, 15.8
21	Nov. 25	RFLP I	13.4, 26.3
22	Nov. 27	RFLP II	15.8, 26.2
26	Dec. 2	Selected Topic	
27	Dec. 4	Review	