



DEPARTMENT OF SCIENCE

COURSE OUTLINE – FALL 2011

BI 2070 – MOLECULAR GENETICS AND HEREDITY

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

OFFICE: J 221 **E-MAIL:** sirwin@gprc.ab.ca

OFFICE HOURS: Mon. 10:00 – 11:20 am

Tues. 13:00 – 14:20 pm

Fri. 11:30 – 12:50 pm

PREREQUISITE(S)/COREQUISITE: BI 1070

REQUIRED TEXT/RESOURCE MATERIALS:

Deyholos, M., Open source textbook, Genetics 1.1 at –

<http://www.biology.ualberta.ca/courses/biol207/?Page=8099>

U. of A. 2011-2012 BI 2070 Lab Manual

The latest version of the Lab manual is available from G.P.R.C. Bookstore.

CALENDAR 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. 14:30 – 17:20, Rm. J126

OBJECTIVES (OPTIONAL):

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

**** Grade of D or D+ may not be acceptable for transfer to other post-secondary institutions. Students are cautioned that it is their responsibility to contact the receiving institutions to ensure transferability**

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

STUDENT RESPONSIBILITIES: Attend all lectures and labs.

STATEMENT ON PLAGIARISM AND CHEATING:

Please refer to pages 49-50 of the College calendar regarding plagiarism, cheating and the resultant penalties. These are serious issues and will be dealt with severely.

GRADING CRITERIA:

GRANDE PRAIRIE REGIONAL COLLEGE			
GRADING CONVERSION CHART			
Alpha Grade	4-point Equivalent	Percentage Guidelines	Designation
A⁺	4.0	90 – 100	EXCELLENT
A	4.0	85 – 89	
A⁻	3.7	80 – 84	FIRST CLASS STANDING
B⁺	3.3	77 – 79	
B	3.0	73 – 76	GOOD
B⁻	2.7	70 – 72	
C⁺	2.3	67 – 69	SATISFACTORY
C	2.0	63 – 66	
C⁻	1.7	60 – 62	
D⁺	1.3	55 – 59	MINIMAL PASS
D	1.0	50 – 54	
F	0.0	0 – 49	FAIL
WF	0.0	0	FAIL, withdrawal after the deadline

COURSE SCHEDULE/TENTATIVE TIMELINE:

Lect.	Date	Topic	Reading
1	Sept 8	Introduction	
2	Sept 13	Review and Overview	Ch. 1
3	Sept 15	Chromosomes and Mitosis	Ch. 2
4	Sept 20	Meiosis and Ploidy	Ch. 2
5	Sept. 22	Mendel's 1 st Law	Ch. 3
6	Sept. 27	Allelic Relationships and Sex Linkage	Ch. 3
7	Sept. 29	Mutation and Pathways	Ch. 4
8	Oct. 4	Mutant Screens and Transposable E's	Ch. 4
9	Oct. 6	Pedigree Analysis	Ch. 5
10	Oct. 11	Population Genetics	Ch. 5
11	Oct. 13	Mendel's 2 nd Law	Ch. 6
12	Oct. 18	Epistasis and Gene Interactions	Ch. 6
13	Oct. 20	Linkage and Mapping	Ch. 7
14	Oct. 25	Midterm I	
15	Oct. 27	Linkage and Mapping	Ch. 7
16	Nov. 1	Molecular Techniques	Ch. 8
17	Nov. 3	Molecular Techniques	Ch. 8
18	Nov. 8	Quantitative Genetics	Ch. 9
19	Nov. 10	Quantitative Genetics	Ch. 9
20	Nov. 15	Genomics and Systems Biology	Ch. 10
21	Nov. 17	Lac Operon	Ch. 11
22	Nov. 22	Eukaryotic Gene Regulation	Ch. 11
23	Nov. 24	Epigenetics / Development	Ch. 11
24	Nov. 29	Cancer Genetics	Ch. 12
25	Dec. 1	Forensics	
26	Dec. 3	Special Topic	
27	Dec. 8	Review	