Grande Prairie Regional College
Department of Science and Technology

Course Outline : Genetics 2700 - Foundations of Molecular Genetics Winter 1997

Description : Genetics 2700 is a course dealing with the molecular genetics of prokaryotes. Basic concepts on the organization of genetic material and its expression will be developed from experiments on bacteria and viruses.

Instructor :
Dr. Sean Irwin
Office - J223
Telephone - 539-2860 (office)
- 538-1278 (home)

Prerequisites : BI 2070 or GN 1970

Required Text : Selected readings in Molecular Genetics, University of Alberta Department of Biological Sciences, 1995-96

Lectures :
Place : E305
Time : MWF 12:00-12:50

Seminar :
Place : J226
Time : Tues. 8:00 – 9:20

Evaluation :

Assignments/Quizzes	- 15%
Midterm Exam I	- 20%
Midterm Exam II	- 25%
Final Exam	- 40%

Students are advised to attend all lectures and seminars as they will be responsible for all course material presented in the lectures and seminars.

Office Hours :
Monday - 10:00 - 11:00 am
Wednesday - 1:00 - 2:00 pm
Friday -10:00 - 11:00 pm

GN 2700 Course Outline

Lecture	Date	Topic
1.	Jan. 6	Introduction
2.	Jan. 8	DNA : The Genetic Material
3.	Jan. 11	T4 Phage
4.	Jan. 13	E. coli Bacteria
5.	Jan. 15	Mutants in Bacteria and Phage
6.	Jan. 18	Missense, Nonsense, and Complementation
7.	Jan. 20	Genetic Mapping with Mutants
8.	Jan. 22	Relationship between genetic and physical maps
9.	Jan. 25	DNA Structure
10.	Jan. 27	Replication Models
11.	Jan. 29	DNA Replication
12.	Feb. 1	DNA Replication
13.	Feb. 3	Mutation - Base substitutions
14.	Feb. 5	Midterm I
15.	Feb. 8	Mutation – Frameshift
16.	Feb. 10	Mutation – Genetic Code
17.	Feb. 12	Mutation – Genetic Code
	Feb. 15	Family Day
18.	Feb. 17	Ames test and SOS repair
19.	Feb. 19	DNA Repair
	Feb. 22	Winter Break
	Feb. 24	Winter Break
	Feb. 26	Winter Break
20.	Mar. 1	Recombination
21.	Mar. 3	Recombination
22.	Mar. 5	Recombination
23.	Mar. 8	The *lac* operon - Basic regulatory elements
24.	Mar. 10	The *lac* operon - Operon fusions/ Polarity
25.	Mar. 12	Midterm II
26.	Mar. 15	The *lac* operon - The promoter
27.	Mar. 17	The *lac* operon - The represssor
28.	Mar. 19	The *lac* operon - The operator
29.	Mar. 22	The *lac* operon - Expression
30.	Mar. 24	Restriction and modification
31.	Mar. 26	Restriction analysis
32.	Mar. 29	DNA cloning
33.	Mar. 31	DNA cloning
	Apr. 2	Good Friday
34.	Apr. 5	DNA sequencing, polymerase chain reaction
35.	Apr. 7	Applications of DNA Technology
36.	Apr. 9	Applications of DNA Technology
37.	Apr. 12	Asking Questions
38.	Apr. 14	Review
39.	Apr. 16	Review