Registrar

GRANDE PRAIRIE REGIONAL COLLEGE
DEPARTMENT OF SCIENCE
GENETICS OF EUCARYOTES AND CYTOGENETICS
COURSE OUTLINE: GN2750 923Q

COURSE OBJECTIVES:

The principle objective of the course is to present students with a survey of the principles of eucaryotic genetics. Students should gain a strong understanding of the complexity of the genetic apparatus in eucaryotes.

INSTRUCTOR:	Dr. David C. Creasey office: J223 phone: 539-2860
PREREQUISITE:	GN1970 Heredity
TEXTBOOK:	P.J. Russell, Genetics, 3rd edition, Harper Collins Publishers Inc., New York, 1992.
STUDY GUIDE:	G. Patt, Problem Solving Guide and Solutions Manual to accompany Russell's "Genetics" 3rd edition, Harper Collins Publishers Inc., New York, 1992.
LAB MANUAL:	Genetics 275, 1992-93, Genetics of Higher Organisms Laboratory Manual, Department of Genetics, University of Alberta.
LECTURES:	PLACE: J101 TIME: Tuesdays & Thursdays 13:30-14:50
LABORATORIES:	PLACE: J126 (Blue Lab) TIME: L1: Thursdays 08:00-10:50

EVALUATION:		
	Assignments, Labs, Quizzes	30%
	Mid-Term Test	25%
	Term Paper and Seminar	15%
	Final Course Examination	30%

Assignments and lab reports are due at specific times and dates. Late submissions are allowed, but will be docked 25% per day (or part day) beyond the specified time and day of submission.

COURSE DESCRIPTION

GN2750 presents a comprehensive survey of the principles of eucaryotic genetics. Students should have a strong command of the material presented in GN1970 before entering the course.

A laboratory component accompanies the lectures and is an integral component of the course. The course is comprised of 3 hours of lecture material and 3 hours of laboratory participation each week. A tentative list (and order) of topics discussed includes:

1. tetrad analysis,
2. mapping human genes by recombination analysis and somatic cell hybridization
3. karyotype analysis and methodology
4. molecular structure of eucaryotic chromosomes
5. sequence complexity of eucaryotic DNA
6. the C-value paradox
7. denaturation-renaturation analysis
8. studies on CEN, TEL, and ARS elements
9. genetics of the eucaryotic cell cycle
10. models of DNA recombination
11. processing of eucaryotic RNA
12. regulation of transcription and translation and overall gene expression
13. tests for mutagens and carcinogens
14. changes in chromosome number and structure
15. mobile genetic elements, retroviruses, oncogenes, neoplastic transformation
16. organization and genetics of extranuclear genomes
17. aspects of quantitative and population genetics

Additional topics may be discussed.

Owing to the comprehensive nature of the course and the broad concepts and topics involved, STUDENTS ARE REQUESTED TO READ TEXT AND ASSIGNED MATERIALS IN ADVANCE OF LECTURES AND LABS.

A term paper and student seminar presentation will be required from all students. A choice of topics will be provided early in the semester. Your instructor will provide you with a list of suggested topics. Your specific topic should be chosen before the end of January and literature searches completed by the end of February (you may need to use interlibrary loans). Students should expect to incur some costs in the preparation of their term papers and seminars for such things as literature searches, photocopying, and transparencies. Term papers will be due one week before the seminar presentation. Each student will be expected to provide each other student and the instructor with an abstract of the seminar presentation one week in advance.