UNIVERSITY COLLEGE OF THE FRASER VALLEY

COURSE INFORMATION

DISCIPLINE/DEPARTMENT: Biology **IMPLEMENTATION DATE:** Fall 1992

Revised:_____

Biology 401	Molecular Biology I	3
SUBJECT/NUMBER OF COURSE	**DESCRIPTIVE TITLE**	**UCFV CREDITS**

CALENDAR DESCRIPTION: A study of advanced problems and concepts on topics such as cell organization, cell function, and the control of cell division and growth. Students will be required to participate in class seminars designed to analyze the recent scientific literature on topics related to the molecular biology of cells.

RATIONALE:

COURSE PREREQUISITES: BIO 201 and 202, BIO 220, CHEM 211 and 212

COURSE COREQUISITES: None

HOURS PER TERM FOR EACH STUDENT	**Lecture**	**60**	**hrs**	**Student Directed Learning**	**hrs**
	Laboratory		**hrs**	**Other - specify:** _____	
	Seminar	**45**	**hrs**		
	Field Experience		**hrs**		
				TOTAL	**105 HRS**

MAXIMUM ENROLMENT: 24

Is transfer credit requested? **9** **Yes** **:** **No**

AUTHORIZATION SIGNATURES:

Course Designer(s): Terry V.B. Starr, Ph.D.

Chairperson: Curriculum Committee

Department Head: Ernest Kroeker, Ph.D.

Dean: K. Wayne Welsh

PAC: Approval in Principle **(Date)**

PAC: Final Approval: Sept 28, 1998 **(Date)**

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SYNONYMOUS COURSES:

(a) replaces N/A
(course #)

(b) cannot take N/A for further credit
(course #)

SUPPLIES/MATERIALS:

TEXTBOOKS, REFERENCES, MATERIALS (List reading resources elsewhere)

Molecular Biology of the Cell, Alberts, Bray, Lewis, Raff, Roberts and Watson
Supplemented with current research papers.

OBJECTIVES:

The overall emphasis is to give the student a foundation in molecular biology while emphasizing the molecular organization of cells. In addition, students will be required to participate in a weekly seminar series. The critical analysis of current scientific literature related to cell molecular biology is a major theme of this course.

METHODS:

Lecture, demonstration, small group practice, discussion, audio-visual presentation, use of models and charts.

STUDENT EVALUATION PROCEDURE:

Midterms	2 x 15%	30%
Lecture final		40%
Seminar final		30%

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COURSE CONTENT

The course consists of 30 two hour lecture periods per semester. A weekly three hour period will be used for student seminars. These seminars will analyze key scientific papers pertaining to the molecular biology of cells.

Part I Introduction

- chemical principles
- macromolecules

Part II Cell Organization

- plasma membrane
- cytoplasm
- mucleus
- mitochondria
- endoplasmic reticulum
- Golgi apparatus
- chloroplasts

Part III Cell Function

- transport across membranes
- cytoskeleton
- control of cell division and growth
- determination and differentiation
- chemical signalling
- energy production
- photosynthesis

Part IV Student Seminars

- weekly student seminar presentations
- analysis of seminar material

Laboratory Experiments

Not required for this course

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LIBRARY RESOURCES:

Molecular Biology of the Gene	Watson et al 4th Ed.
Principles of Gene Manipulation	Old and Primrose
Introduction to Molecular Neurobiology	Zack Hall
Molecular Cell Biology	Darnell, Lodish and Baltimore
Immunology	Roitt, Brotsoff and Male
Annual Reviews of Biochemistry	
Annual Reviews of Genetics	
Annual Reviews of Cell Biology	
Science	
Nature	
PNAS	
Journal of Biological Chemistry	
Journal of Cellular Biochemistry	
Trends in Biotechnology	
Trends in Genetics	
Trends in Endocrinology and Metabolism	