UNIVERSITY COLLEGE of the FRASER VALLEY

COURSE IMPLEMENTATION DATE: January 2007
COURSE REVISED IMPLEMENTATION DATE: September 2009
COURSE TO BE REVIEWED: March 2010
(Four years after UPAC final approval date) (MONTH YEAR)

OFFICIAL COURSE OUTLINE INFORMATION

Students are advised to keep course outlines in personal files for future use.
Shaded headings are subject to change at the discretion of the department and the material will vary - see course syllabus available from instructor

FACULTY/DEPARTMENT: **Faculty of Science, Health & Human Services/Biology**

BIO 350		**3**
COURSE NAME/NUMBER	FORMER COURSE NUMBER	UCFV CREDITS

Medical Genetics
COURSE DESCRIPTIVE TITLE

CALENDAR DESCRIPTION:

In this course we will be studying the inheritance of diseases in human families and analyzing molecular mechanisms through which genetic changes cause disease. We will also discuss aspects of genetic counselling and bioethics related to medical genetics.

PREREQUISITES: **BIO 201, BIO 202, and BIO 220.**
COREQUISITES:

SYNONYMOUS COURSE(S)
(a) Replaces: **n/a** *(Course #)*
(b) Cannot take: **n/a** *(Course #)* for further credit.

SERVICE COURSE TO: *(Department/Program)* *(Department/Program)*

TOTAL HOURS PER TERM: **45**
STRUCTURE OF HOURS:

Lectures:	**45**	Hrs
Seminar:		Hrs
Laboratory:		Hrs
Field Experience:		Hrs
Student Directed Learning:		Hrs
Other (Specify):		Hrs

TRAINING DAY-BASED INSTRUCTION
LENGTH OF COURSE:
HOURS PER DAY:

MAXIMUM ENROLLMENT: **24**
EXPECTED FREQUENCY OF COURSE OFFERINGS: **annually**

WILL TRANSFER CREDIT BE REQUESTED? (lower-level courses only)	☐ Yes	☐ No
WILL TRANSFER CREDIT BE REQUESTED? (upper-level requested by department)	☐ Yes	☒ No
TRANSFER CREDIT EXISTS IN BCCAT TRANSFER GUIDE:	☐ Yes	☐ No

AUTHORIZATION SIGNATURES:

Course Designer(s): Ernest Kroeker
Chairperson: Gillian Mimmack *(Curriculum Committee)*
Department Head: Barbara Moon
Dean: Wanda Gordon
UPAC Approval in Principle Date:
UPAC Final Approval Date: May 23, 2008

LEARNING OBJECTIVES / GOALS / OUTCOMES / LEARNING OUTCOMES:

Upon successful completion of this course students should be able to:

a) describe a normal human karyotype

b) explain how abnormalities in chromosome number and structure can cause abnormal phenotypes and/or infertility in humans

c) describe how point mutations in genes can cause variants and defects in metabolic processes

d) explain the principles of multifactorial inheritance as they relate to specific and common diseases in humans.

e) identify methods used for screening and diagnosis of genetics disorders and congenital defects both pre-and postnatal

f) identify potentially sensitive issues and explain basic principles of ethical practice when engaging in the discussion of medical genetics with peers as well as affected individuals and their families.

METHODS:

This course will involve a standard lecture approach to cover basic information and student projects involving actual case-studies which will be presented in class by the students and then discussed in class.

PRIOR LEARNING ASSESSMENT RECOGNITION (PLAR):

Credit can be awarded for this course through PLAR (Please check:) ☒ Yes ☐ No

METHODS OF OBTAINING PLAR:

Course examination: The student must challenge the course by writing an examination.

The student will be provided with a copy of the syllabus and information how to obtain a copy of the current text and.

The student will also be given information about exam style and expected standards.

The student can sit the examination for the lecture portion of the course at a time convenient to both student and instructor.

TEXTBOOKS, REFERENCES, MATERIALS:

[Textbook selection varies by instructor. An example of texts for this course might be:]

Medical Genetics 3rd ed. by LB Jorde et al , 2006-2007

Selected readings from Human Molecular Genetics, 2nd ed. by Strachan and Read,1999

SUPPLIES / MATERIALS:

Library access to PubMed

STUDENT EVALUATION:

[An example of student evaluation for this course might be:]

Midterm	25%
Project	35%
Final exam	40%

COURSE CONTENT:

[Course content varies by instructor. An example of course content might be:]

Review of basic concepts of genetics; autosomal vs sex-linkage, dominance vs recessive, sex-limited traits and mitochondrial inheritance – approx. one week

Clinical cytogenetics; human karyotypes and abnormalities in chromosome structure and number – approx. 1 week

Disorders of metabolism; biochemical basis for defects and variation in metabolic processes and the link with genetic changes – approx. 2 weeks

Multifactorial inheritance as it relates to congenital malformations, heart disease, stroke, hypertension, diabetes, obesity, alcoholism,

and Alzheimer's. approx 3 weeks

Molecular tools for screening and diagnosis approx. 1 week

Genetic counseling and bioethics – approx 1 week

Student presentations – approx. 4 weeks