UNIVERSITY OF THE FRASER VALLEY

OFFICIAL UNDERGRADUATE COURSE OUTLINE (page 1)

COURSE IMPLEMENTATION DATE: Fall 1988
COURSE REVISED IMPLEMENTATION DATE: September 2010
COURSE TO BE REVIEWED: January 2014
(four years after UPAC approval) *(month, year)*

OFFICIAL UNDERGRADUATE 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 – see course syllabus available from instructor

BIO 093	Faculty of Science/Biology	4
COURSE NAME/NUMBER	FACULTY/DEPARTMENT	UFV CREDITS

Pre-College Biology II
COURSE DESCRIPTIVE TITLE

CALENDAR DESCRIPTION:

Mammalian organ systems will be studied in detail. Organic molecules and basic chemical processes will be used as a basis of study for the organ systems investigated as well as cell structure, cell membrane structure, and energy transformations in cells. Enzyme function, DNA structure, and protein synthesis are introduced. Mitosis, meiosis, and genetics will be used to introduce genetic diseases and cancer. Laboratory skills are developed in a series of laboratory sessions designed to enhance the learning outcomes associated with the lecture material.

PREREQUISITES: Biology 12 with a C- or better; or BIO 083 or BIO 11 with a C+ or better.

Chemistry 11 or CHEM 083, and/or Principles of Math 11 or Applications of Math 11 or MATH 085 are highly recommended.

COREQUISITES:
PRE or COREQUISIT

SYNONYMOUS COURSE(S):
(a) Replaces:
(b) Cross-listed with:
(c) Cannot take: for further credit.

SERVICE COURSE TO: *(department/program)*

TOTAL HOURS PER TERM: 90

STRUCTURE OF HOURS:

Lectures:	45	Hrs
Seminar:		Hrs
Laboratory:	45	Hrs
Field experience:		Hrs
Student directed learning:		Hrs
Other (specify):		Hrs

TRAINING DAY-BASED INSTRUCTION:
Length of course:
Hours per day:

OTHER:
Maximum enrolment: **24**
Expected frequency of course offerings: Every semester
(every semester, annually, every other year, etc.)

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

Course designer(s): **Beth Gillespie**

Department Head:	**Sharon Gillies**	Date approved:	**December 2009**
Supporting area consultation (Pre-UPAC)		Date of meeting:	**December 11, 2009**
Curriculum Committee chair:		Date approved:	**January 2010**
Dean/Associate VP:	**Dan Ryan**	Date approved:	**January 2010**
Undergraduate Program Advisory Committee (UPAC) approval		Date of meeting:	**January 29, 2010**

LEARNING OUTCOMES:

Upon successful completion of this course, students will be able to:

a) Describe major cell structures and their functions
b) Explain the role of important molecules including: water, carbohydrates, proteins, lipids, nucleic acids in cell function
c) Describe the basic mechanism of protein synthesis
d) Explain the role of enzymes and their importance to cellular processes
e) Explain and compare mitosis and meiosis
f) Outline the processes used in energy transformation in cells and their relationship to one another
g) Explain the principles of inheritance
h) Solve basic genetic problems
i) Discuss the structure and function of DNA
j) Explain the concept of homeostasis
k) Demonstrate knowledge of integration of tissues, organs and organ systems
l) Identify structures and describe functions of eight mammalian organ systems

Additional skills developed in the laboratory will include:

a) Working effectively with microscopes
b) Collection, recording and graphing data in an effective manner
c) Safe lab procedures
d) Interpretation of data collected

METHODS: *(Guest lecturers, presentations, online instruction, field trips, etc.)*

Lectures, demonstrations, small group discussion, student participatory activities, laboratory sessions (3hrs/week), MS PowerPoint slides, overhead transparencies, and audiovisual presentations will be used to present the course material.

METHODS OF OBTAINING PRIOR LEARNING ASSESSMENT RECOGNITION (PLAR):

☒ Examination(s) Lecture and lab ☐ Portfolio assessment ☐ Interview(s)

☐ Other (specify):

☐ PLAR cannot be awarded for this course for the following reason(s):

TEXTBOOKS, REFERENCES, MATERIALS: *[Textbook selection varies by instructor. An example for this course might be:]*

TEXT: Mader, Sylvia. 2010. Inquiry into life. McGraw Hill Companies, New York.
LAB MANUAL: Produced in-house

SUPPLIES / MATERIALS:

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

Laboratory	35%
Quizzes and assignments	15%
Mid-term examinations	20%
Final examination	30%

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

Lecture Topics:
Scientific Method
Classification of Life
Energy and laws of thermodynamics
Measurement and the metric system
Basic Chemistry

Lecture Topics cont.:
Organic Chemistry (the 4 basic types of macromolecules)
Cell Structure and Function
Cell Membranes
Cell cycle and Mitosis
Photosynthesis
Enzymes
Cellular Respiration
Human Organization
Homeostasis
Musculoskeletal System
Digestion
Nutrition
Cardiovascular system
Blood
Respiratory System
Excretory System
Immune System
Meiosis
Genetics, including basic problem solving
DNA Structure and Protein Synthesis
Cancer

Laboratory Topics:
Microscopy and measurement
pH and Buffers
Osmosis
Cell Structure
Organic Chemistry
Cell cycle and Mitosis
Mammalian Tissues
Digestive and Skeletal Systems
Blood and Circulatory System
Respiratory, Reproductive and Excretory Systems
Meiosis and Genetics