UNIVERSITY OF THE FRASER VALLEY

OFFICIAL UNDERGRADUATE COURSE OUTLINE (page 1)

COURSE IMPLEMENTATION DATE: September 2009
COURSE REVISED IMPLEMENTATION DATE:
COURSE TO BE REVIEWED: May 2013
(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 499	Faculty of Science	9
COURSE NAME/NUMBER	FACULTY/DEPARTMENT	UFV CREDITS

Directed Studies in Honours Biology
COURSE DESCRIPTIVE TITLE

CALENDAR DESCRIPTION:

Biology 499 is a research-based course taken over two semesters as BIO 499A and BIO 499B. Students will conduct a research project under the supervision of a faculty member or an approved off-campus supervisor. The results of the research will be written as a thesis and presented both orally and in poster format. Students will be required to present their research at an appropriate student research forum.

PREREQUISITES: Enrolment in Biology honours degree program and completion of at least 10 upper-level Biology credits.
COREQUISITES:
PRE or COREQUISITES:

SYNONYMOUS COURSE(S):
(a) Replaces:
(b) Cross-listed with:
(c) Cannot take: **BIO 408, BIO 409** for further credit.

SERVICE COURSE TO: *(department/program)*

TOTAL HOURS PER TERM: **135**

STRUCTURE OF HOURS:

Lectures:		Hrs
Seminar:		Hrs
Laboratory:		Hrs
Field experience:		Hrs
Student directed learning:	**135**	Hrs
Other (specify):		Hrs

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

OTHER:
Maximum enrolment: **12**
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): **Ron Wilen**

Department Head:	**Barbara Moon**	Date approved:	**March 2009**
Supporting area consultation (UPACA1)		Date of meeting:	**April 3, 2009**
Curriculum Committee chair:	**Norm Taylor**	Date approved:	**April 17, 2009**
Dean/Associate VP:	**Dan Ryan**	Date approved:	**May 19, 2009**
Undergraduate Program Advisory Committee (UPAC) approval		Date of meeting:	**June 26, 2009**

LEARNING OUTCOMES:

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

1. apply scientific methodology to design and carry out experiments or field projects
2. identify relative importance of different methodologies and procedures in the design of empirical projects
3. test hypotheses, analyze scientific data, and predict the reliability of conclusions drawn from such data
4. determine the cost of the research and develop a budget for conducting the research
5. write an application for additional funds if cost of project exceeds pre-determined budget
6. search for and identify primary literature to support their research and to develop appropriate experimental methods
7. express themselves clearly and professionally, both orally and in written form

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

Students will work closely with research supervisors and, where appropriate, with off-campus sponsors.

Empirical research, seminars, reading primary literature, writing thesis.

METHODS OF OBTAINING PRIOR LEARNING ASSESSMENT RECOGNITION (PLAR):

☐ Examination(s) ☐ Portfolio assessment ☐ Interview(s)

☒ Other (specify): Evaluation of equivalent work.

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

TEXTBOOKS, REFERENCES, MATERIALS:

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

The student will have the opportunity to access original literature. Literature surveys will be conducted using database searches. Web based computer software may be appropriate for many projects.

SUPPLIES / MATERIALS:

Will vary with project requirements. Instuctor fees from student tution will be used to purchase required materials for specific projects.

STUDENT EVALUATION:

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

1. Project proposal;	
Seminar	5%
Written project proposal (includes budget)	15%
2. Technical ability, organization and time management;	20%
(includes research notebook, lab and field work skills)	
3. Final seminar presentation*	15%
4. Research poster	10%
5. Final thesis**	35%

* Marked by Biology Department

** Students must hand in an acceptable thesis in order to pass the course.

COURSE CONTENT:

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

A student will be expected to spend no fewer hours on this project per semester than the time expected to complete three (3) upper level 3 credit Biology courses (135 hrs.)

The student experience may be considered to consist of several stages:

Selection of a Suitable Area

The student may already have a specific area of research in mind or a specific instructor with whom he or she would like to interact. In this case, the student and instructor will strike an agreement depending on (i) admission to honour's degree (ii) available equipment and space, and (iii) budget for consumables. Otherwise, an instructor may suggest a project that would be suitable for the student. In all cases, it will be the instructor's responsibility to ensure that the proposed project is appropriate for an honour's level student to accomplish in the proposed time. It is also the responsibility of the instructor to ensure that equipment, funding, and space are available for the project.

In some cases, students may benefit from expert advice and input in addition to that of the supervising instructor. However, it is always the responsibility of the instructor to ensure that the project conforms to UFV academic standards.

Design of Research Project

The student will survey the literature in a particular field under the guidance of the appropriate instructor. The student will be assisted to build on the literature to formulate a testable hypothesis and design an appropriate experimental approach. The student will address questions such as: novelty of the approach, statistical analysis to be carried out, use of controls, and use of replicates.

The student will write a research proposal and present the project proposal in a departmental seminar.

Carry out Research

The instructor will aid the student in attaining mastery of the techniques necessary to carry out the research. The student will be responsible for scheduling time for the various stages of the project, making sure equipment is available, reporting to the instructor and off-campus sponsor where appropriate. Regular meetings of student and instructor are required for all projects. A lab or field notebook will be maintained by the student and submitted as part of the evaluation of the course

Production of Thesis, Poster, and Final Seminar

The student will produce a thesis that is clear and scholarly and written in the style that is appropriate for the area of study. The instructor will aid the student in producing a high quality piece of science communication.

The student will present a research poster to be presented at an undergraduate student research forum.

The student will defend their thesis in a final seminar to the Biology Department.

All students registered in BIO 499 are expected to attend all proposal and final defense seminars in the semesters they are registered.