

UNIVERSITY COLLEGE OF THE FRASER VALLEY

COURSE INFORMATION

DISCIPLINE/DEPARTMENT: BIOLOGY

IMPLEMENTATION DATE: Nov. 1994

Revised: May 1999

Biology 408

Directed Studies in Biology I

3

SUBJECT/NUMBER OF COURSE

DESCRIPTIVE TITLE

UCFV CREDITS

CALENDAR DESCRIPTION: The course is designed for a Biology major or minor. Students will have an opportunity to apply scientific principles in a creative hands-on research experience outside the usual course format. Students will develop their own projects in biology under the supervision of a faculty member with expertise in the field. Biology 408 is designed to accommodate projects that are equivalent in weight and difficulty to a single upper-level course.

RATIONALE:

COURSE PREREQUISITES: B+ average in BIO 202, 210, 220, and permission of instructor

COURSE COREQUISITES: None

HOURS PER TERM FOR EACH STUDENT	Lecture	hrs	Student Directed Learning Other - specify: <hr/>TOTAL	105 hrs hrs 105 HRS
	Laboratory	hrs		
	Seminar	hrs		
	Field Experience	hrs		

MAXIMUM ENROLMENT: _____

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

AUTHORIZATION SIGNATURES:

Course Designer(s): Edith Camm, Ph.D.

Chairperson:
Curriculum Committee

Department Head: Ernest Kroeker, Ph.D.

Dean: K. Wayne Welsh

PAC: Approval in Principle

(Date)

PAC: Final Approval: May 5, 1999

(Date)

Biology 408
NAME & NUMBER OF COURSE

SYNONYMOUS COURSES:

(a) replaces N/A
 (course #)

(b) cannot take BIO 409 for further credit
 (course #)

SUPPLIES/MATERIALS:

TEXTBOOKS, REFERENCES, MATERIALS (List reading resources elsewhere)

The student will have the opportunity to access original literature. Literature surveys will be conducted using database searches at UCFV, UBC and SFU libraries.

OBJECTIVES:

Students will have an opportunity to:

1. exercise creativity in science
2. explore a specific area in depth
3. practice the clear formulation of answerable questions
4. express themselves clearly and professionally, both orally and written
5. in some cases, make industrial contacts which might lead to employment

METHODS:

Students will work closely with college supervisors and, where appropriate, with industrial sponsors.

Lectures, demonstrations, small group practice, discussion, audio-visual presentations, use of models and charts.

STUDENT EVALUATION PROCEDURE:

All students will be required to deliver an interim report or presentation to the supervising instructor. The final report will be delivered to a committee consisting of the supervisor and a minimum of one other instructor, and the industrial partner if one exists. This committee will be responsible for assigning the final grade.

COURSE CONTENT

A student will be expected to spend no fewer hours on this project than on any other upper level 4 credit Biology course with a laboratory component (100 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) available equipment and space, (ii) budget for consumables and (iii) availability of appropriate faculty and staff. Otherwise, an instructor may suggest a project to a suitable student. In all cases, it will be the instructor's responsibility to ensure that the proposed project is appropriate for an upper 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 (for example, see Industrial Partners, below). However, it is always the responsibility of the instructor to ensure that the project conforms to UCFV 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, use of replicates.

Because of the nature of biological science, not all projects will fit neatly into one semester. Student and instructor will have the option of extending the course into a second semester, although the credit value of the course will remain 4 credits.

Carry out Research

The instructor will aid the student in 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 industrial sponsor where appropriate. Regular meetings of student and instructor are required for all projects.

Production of Research Paper

The student will be expected to produce a research paper that is clear and scholarly and written in the style of a major journal. The instructor will aid the student in producing a quality piece of science communication.

COURSE CONTENT (cont'd)

Industrial Partners

An industrial partner may, if desired, be built into this project in one of several ways. In these cases, expenses and/or a salary may be underwritten by an industrial sponsor. The instructor remains the judge of the academic quality of the work.

1. The Biology 408 project may be accomplished through a part-time job. A student who expects to gain relevant science experience through a part-time job may wish to use the project as the basis for a Biology 408 report. A guidance/evaluation committee will be struck, consisting of the principal instructor and the industrial sponsor, plus at least one additional instructor. The student must have prior approval before registering in Bio 408.
2. The Biology 408 project may arise out of summer work or work undertaken in a semester that the student is away from the college. Such an arrangement must be set up in advance of the time away from UCFV. The student must obtain approval from a supervising instructor before a project undertaken in a semester away from campus can be considered for Bio 408. In this case, the student, instructor and employer must remain in contact for the duration of the project.
3. The expenses incurred in a Biology 408 project may be supported by an industrial sponsor. Such an arrangement may be fostered by the proposed Science Council of British Columbia Skills Partnership program.

In all cases, the report produced by the student remains the property of the University College of the Fraser Valley.

LABORATORY EXPERIMENTS

Appropriate experiments will be determined by the supervising instructor and student. Cost and space considerations will be considered on an ad hoc basis.