

GUIDELINES FOR BIOL/OEVI 4F92 - LIBRARY RESEARCH ESSAYS

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1. NATURE OF BIOLOGY 4F92

Each student, under faculty supervision, will carry out two detailed studies of the scientific literature relating to specific topics. It is not necessary for the topics to be related, or that the same faculty member supervise both studies.

Topics chosen for Biology 4F92 must be sufficiently narrow in scope to warrant students having to undertake a critical evaluation of the topic through study of the original literature. This is to deter students from producing only a precis of a review article or text. It will be the responsibility of the course coordinator **and supervisor(s)** to ensure that topics fulfill this objective.

The essay should *not* consist of a large survey of the literature. It should consist of a critical, in-depth analysis of a **limited** number of original research articles. Students must be critical in evaluating the selected papers and should point out any limitations in the rationale, methodology, data analysis or conclusions. They must also display some knowledge of statistical procedures used. When the evidence or conclusions described in different papers conflict, an attempt must be made to explain or resolve such differences **in the form of a brief research proposal**.

Each member of the Department is expected to participate in the Biology 4F92 program, and will therefore be expected to indicate the areas of biology in which he or she will provide supervision. In addition, those areas that have been designated should be supported by a few example titles. The list of areas and possible titles will be available to students in the Biology Office.

Each student participating in the program will be required to make his or her arrangements with a supervisor, and with the coordinator of the course within seven days of the first day of classes each academic term. **Once a supervisor and student have arranged to work together on a topic, each should sign the appropriate form (see last page of guidelines) to be submitted to the course coordinator no later than seven days after the first day of classes.**

2. ADMISSION TO BIOLOGY 4F92

All students admitted to the Year IV Honours program are eligible for this course. However, Biology 4F92 may not be taken by a student who is registered for Biology 4F90 and 4F91.

3 . RESPONSIBILITIES OF THE SUPERVISOR

- (a) Supervisors are to ensure that the topic chosen is not too broad in scope, thus causing a student to take a general approach rather than a more penetrating and detailed study. The essay should focus on a relatively small number of key papers (e.g., 5 or less) in a specific area. This is not intended to discourage the students from reading a larger number of papers. In fact, such reading will probably be necessary to provide a sufficient background for understanding and to help the student identify the most important or relevant articles. Supervisors are to assist the students in selecting a *core of key papers* which, together, will form the theme of the essay. These papers should be primary research articles rather than reviews.
- (b) Supervisors are to assist the student in developing a critical and logical approach to the analysis of scientific literature and methodology. This should be done by discussion of papers from scientific journals, so that the student becomes familiar with the current ideas and techniques of the subject. A rewriting of textbook chapters or review articles is not **acceptable**.
- (c) Supervisors, in consultation with the course coordinator, are to assist the students in the organization of the essay, and to ensure that the drafts are of a reasonable quality with respect to style, organization, and length before final typing.

4 . RESPONSIBILITIES OF THE STUDENT

- (a) Students must meet all deadlines set by their supervisors and by the course coordinator. This includes all meetings with the supervisor, reading assignments, written assignments (e.g., outlines), group meetings with the coordinator and all other deadlines (see section 8).
- (b) Although the supervisor assists in selecting a topic and identifying key references, the student is ultimately responsible for reading and understanding the literature, for extracting relevant information from the literature, for synthesizing that information and placing it in the context of the essay and for identifying limitations in the published literature. The student is also expected to have sufficient background knowledge to be able to read the literature with reasonable understanding. If background knowledge is lacking, it is the student's responsibility to bring background knowledge to a level of competency through extra reading.
- (c) The student is ultimately responsible for composing the essays. Essays must incorporate the student's original ideas and must reflect the student's comprehension and writing skills.

5 . COURSE REQUIREMENTS

- (a) The student should have regularly scheduled meetings with his or her supervisor. **The number and length of such meetings will vary, although weekly meetings of at least one hour are strongly recommended.** The time should be used to discuss the progress of the project and for an in-depth discussion of the topic.
- (b) **All students enrolled in Biology 4F92 will meet, as a group, with the course coordinator on at least two occasions. Within the first two weeks of each semester, the coordinator will hold an orientation meeting with all new students to review the course guidelines and to ensure that students/supervisors have met the requirements outlined in section 3a above. In addition, a general progress meeting will be held at the end of six weeks. At this meeting, each of the students will make a brief oral presentation regarding the progress of their library research, and will discuss some specific studies pertinent to their essay topic.**

- (c) Each term, an essay on the chosen library research topic is to be written and submitted to the course coordinator **on** the last day of classes of the term. The essay will normally be a synthesis of the literature relevant to the topic, and can be expected to be at least 20 pages in length. The essay format should adhere *somewhat* to the following:

- (i) Title page
- (ii) Abstract
- (iii) **Objective(s) of the essay**
- (iv) Introduction
- (v) Review and Analysis of the Literature
- (vi) **Brief Research Proposal**
- (vii) Conclusions
- (viii) Literature Cited
- (ix) Appendices (if any)

The essay should include an experimental proposal where the student has identified questions not resolved by the literature. The student will be expected to provide details of the experimental design, and to defend the design of, and feasibility of the proposal.

There may be topics in which the format of the essay should follow an accepted outline for a journal in the field covered by the research project. A copy of the *Style Manual for Biological Journals* is available in the Departmental Office.

- (d) Each term, a final seminar will be scheduled for a one-hour period during the examination period. The student is to formally present the findings from the literature study in a well organized fashion, lasting about **30** minutes. **The use of visual aides is encouraged.** The seminar is open to the Department and a question period will immediately follow the presentation.
- (e) A student is **normally** only permitted to undertake one essay topic per term, and the two essays that comprise credit for the course must be completed in **consecutive** terms. **Under special circumstances, the course may be taken during a single term. In this case, the student must have the approval of the Departmental Chair, coordinator and the supervisors involved before enrolling in the course. Since the course, in this case, will occupy 40% of the student's time, the student shall not have another commitment (job or course) involving more than 20 hours per week.**

6 . EVALUATION

(a) Essays

Each of the two essays will have a value of 30% of the final grade. It is therefore in the interest of the student that the supervisor be given a preliminary draft of the essay well in advance of the final submission date, and that he/she examine the final draft prior to typing. Upon submission of an essay in final form, the Course Coordinator, in consultation with the Chair of the Department, will then appoint an Examination Committee **consisting of the supervisor and a reader, who will serve as Chair of the Committee.** Once an essay is submitted, no further revisions will be permitted. The Examination Committee will then examine and evaluate the essay, as submitted. The coordinator (**or Examination Committee Chair designate**) will be in charge of the final essay presentation and defense, and the coordinator will be responsible for collating and returning the final grades assigned, to the Chair.

Note: *Failure to submit the essay on the deadline date will ordinarily carry the penalty of a reduced grade unless there are documented medical or comparable reasons justifying late*

*submission or unless, **under rare and exceptional circumstances**, the Chair of the Department exercises his or her discretionary powers.*

(b) **Final Seminar**

Each of the final seminar presentations will have a value of 10% of the final course mark. The seminar will be judged on criteria such as: organization, comprehensibility, smoothness of presentation, degree of familiarity the candidate shows with the topic and literature, quality of illustrative material both prepared and blackboard, and the fielding of questions during the question period.

(c) **Oral Examinations**

Each oral examination of the candidate will have a value of 10% of the final course mark. This will be held as soon as practical immediately following the seminar presentation and **should not exceed one hour** in duration. Questioning by committee members will normally pertain to the thesis topic, but students should anticipate questions on the theoretical bases and the appropriateness of methodology used and also on the broad ramifications and significance of their topic.

(d) **Assignment of Grades and Submission of Thesis**

Marks assigned to the essay and seminar by each examiner are to be given, in writing, to the coordinator following termination of the seminar. The course coordinator will calculate the average mark and recommend the overall grade for the course to the Chair.

Prior to submission of the final grades for Biology 4F92, the faculty of the Department, acting as a Committee of the Whole, will review all results.

Faculty approval and disposition of the thesis after the thesis defence.

When the thesis is approved by the examining committee, **the candidate must submit all corrected copies (at least two)** of the **two essays** which will be bound as a single volume thesis, to the secretary of the department **no later than seven days** after the final date of scheduled exams. These copies must be corrected of any errors noted by the examiners and must contain all charts, maps, figures, tables, and appendices as finally approved. **One bound copy is retained by the department, and one by the student. These two copies are bound at the expense of the department. Any additional copies that either the student or supervisor wishes to have bound will be paid for by the student or supervisor at a cost of \$10 per copy (payable when the theses copies are submitted to the departmental secretary).** Any student that does not submit the final copies for binding on time will receive an "Incomplete" grade for BIOL 4F92. **Grades will not be submitted to the Office of the Registrar until the final copies of the thesis have been submitted.**

Note: *As is the case with final grades in all courses, a student may feel compelled to appeal a final mark. In such an instance, the Chair of the Department will appoint an ad hoc committee to deal with the matter.*

7. RESPONSIBILITIES OF THE COURSE COORDINATOR

- (a) The coordinator will serve as an advisor to the students and supervisors on matters pertaining to the organization and format of the essay.
- (b) The coordinator will attend and chair all the group meetings.
- (c) **The coordinator will assign membership for all the examining committees.**

- (d) The coordinator will prepare a final grade in the course for each student, and forward this grade to the Chair of the Department.

8 . DEADLINES

- (a) Choice of topic and supervisor, **including submission of Supervisor/Student Agreement Form to coordinator:** Within seven days after the commencement of classes for each term (i.e., fall, winter or spring term).
- (b) Submission of the first essay draft to the supervisor: Three weeks before the end of each term (i.e., fall, winter or spring term).
- (c) For the September - April period, final submission of the thesis (**two copies**) to the BIOL 4F92 Program Coordinator will occur **prior to 5 p.m. on the last day of classes in both December and April.** No further revisions will be permitted. This copy is to be graded, as submitted, by the Examination Committee. Failure to submit the thesis on the deadline date will carry the **penalty** of a reduced grade unless there are documented medical or comparable reasons justifying late submission or unless, **under rare exceptional circumstances**, the Chair of the Department, in consultation with the Program Coordinator, exercises his/her discretionary powers. There are no predetermined penalties. Penalties are determined by faculty of the Departmental Committee as a whole on an individual, case by case basis.
- (d) Seminar and defence: During the final examination period for each term.
- (e) Submission of **at least two copies** of the **two essays**, which will be bound as a single volume thesis, to the course coordinator: **no later** than **seven days** after the final date of scheduled exams. [see item 6(d) for complete details].

9 . BIOLOGY 4F92 TAKEN OUTSIDE THE NORMAL ACADEMIC YEAR

Normally Biology 4F92 will be taken over a two-term period, with a single essay topic being researched each term. For most students, this will involve the period of September to April.

Biology 4F92 may also be taken either during the Winter (January to August) or Spring (May to December) terms. All regulations apply with the exceptions of deadlines noted below. In the case of the **Winter term**, students would begin on **first day of classes** and submit the final submission of the thesis by **August 7th** or, if a weekend, on the following Monday. **Spring term** students would begin on **the first day of classes** and submit the final submission of the thesis by the **last day of classes in the Fall term.** The final seminar and oral defense will take place in a **one and one half** hour period within two weeks of the submission date of all theses.

STUDENT/FACULTY AGREEMENT FORM for 4F90/91 or 4F92 in BIOL, OEVI, NEUR or BTECH

We certify that we have met and discussed a mutually agreeable project for a 4F90/91 thesis or a 4F92 research essay.

Course: _____
(Stipulate BIOL, OEVI, NEUR or BTECH and whether it is 4F90/91 or 4F92)

Topic:

Faculty Member: _____

Signature:

Student: _____

Signature:

Student email address or contact address:

Date _____

Please submit to Course Coordinator within 7 days from the first day of classes.