Guide for the Biology Honours Research Report Project (BIO4004)

What is an Honours research report project?
The Honours research report project is an optional 3 credit course that is undertaken during the 4th year of study. Under the supervision of a principal investigator, the student will conduct a project designed to broaden her or his general knowledge of a selected field of biology. Projects could include, but are not limited to, either an extensive literature review of a selected topic or a small laboratory or field project. The student will present a detailed research report or comprehensive paper.

Should I do an Honours research report project?
Yes, if I:

- Am in an Honours program.
- Am willing to devote an average of 5-6 hours per week to my project.
- Am self-motivated and can manage my time.
- Wish to significantly enhance my qualifications for graduate school or acquire pertinent work experience to showcase during my job search.
- Am interested or curious about becoming a researcher.
- Have a natural curiosity and desire to contribute towards the advancement of knowledge in a field of my interest.

What are the requirements to do an Honours research report project?

- Be registered in an Honours program in the Faculty of Science.
- Be in your 4th year of study.
- Have successfully completed a minimum of 81 university credits in your study program.
- Have a minimum CGPA of 4.5.
- Have a Faculty member willing to supervise or co-supervise your research report project.

General expectations of the Honours research report project supervisor

- Develop in collaboration with the student a topic for the research project that is appropriate in scope and character.
- Direct the student to the relevant literature and resources.
- Make the student aware of relevant university and faculty policies and procedures.
- Be aware that Honours students will spend on average 5-6 hours per week on their project, and that they have other courses and duties.
- Establish with the student mutual expectations and establish clearly the objectives.
- Meet at regular intervals with the student to discuss the progress of the literature search or research. If necessary, redirect the student to more pertinent areas.

General expectations of the Honours research report project student

In collaboration with your supervisor and co-supervisor, if any, you are expected to choose a topic of interest for the proposed research report project. There are many different forms of projects, but in general this project requires you to perform an extensive review of the recent scientific literature. The work should be original and be presented in its final form as a report suitable to be submitted as a review article to a journal within the field of study. For example, the review could deal with a controversial topic where different points of views are presented.

Timeline and requirements *(Check the BIO4004 website for specific dates)*
Registration
During the first weeks in September, you should obtain a registration form from the Faculty of Science for the Honours research report project. Fill out the form, with the name of the supervisor and co-supervisor (if any), her or his affiliation (ex. Bio Department) and the proposed title of your project.

N.B.: Any other specific timeline is to be discussed between the student and the supervisor/s before the beginning of the project.

Honours research project outline
The first couple of months in your Honours project is generally spent reviewing pertinent literature, familiarizing yourself with the resources available to you in the lab, experimenting with the techniques you will be using, and developing an outline (essentially, a game plan) of the proposed research project. The outline must be approved and signed by your supervisor. Once this is done, you must submit a pdf file of your outline to the department of Biology.

The outline should not exceed one page and should be written in the format as follows:

**Title.** The title of your proposal should be informative.
**Background and rationale.** Summarize existing published work on the topic you propose to explore (be sure to cite your sources) and briefly explain how your proposed project relates to published research.
**Purpose and specific objectives.** State the purpose of your project, including the central question you intend to answer through your research. List the specific objectives that will be addressed by each part of your research project.
**Materials and methods.** In general, what methods will you use? Describe your experimental design. What kind of data will you collect? How will you analyse these data? Describe the statistical analyses you will use.
**Expected results.** What information do you expect to gain by doing this project and how will it move the research area forward?
**Literature references.** List the publications you have cited in your proposal.

Progress research report
At the beginning of the second semester, you must complete a progress report of your research project that will be evaluated by your supervisor and submitted to the Department in a pdf file. This report must not exceed two pages and should conform to the following format:

- Student’s name
- Supervisor’s name and co-supervisor’s name if any
- Thesis title
- Specific objectives indicated in the proposal that were accomplished, including a brief summary of the results obtained.
- Specific objectives indicated in the proposal that remain to be accomplished.
- Any objectives that have been removed, added, or changed.
- Comments from the supervisor as to the level of satisfaction with the progress of the research including any suggestions for improvement.

The progress report will be assigned a grade of Pass or Fail by the supervisor. In the case of ‘Fail’ you will have to improve your report.

Honours thesis
Students must present the results of their research in a written thesis. The final copy of your thesis must be submitted to the Department of Biology in a pdf file. The thesis will be evaluated by your supervisor (70%) and by one external examiner (30%).

No extension on the deadline will be given without submission of a doctor’s note.

The thesis should be prepared either in the format of a journal article from a prominent journal in your field, or in the format of a formal master’s thesis, at the discretion of the thesis supervisor. If the supervisor and student

Formats for journal articles vary considerably. Consult the “Instructions for Authors” or “Author guidelines” on the relevant journal web site for details. A typical, general format of a published article would include the following:

**Cover page**
- Title of the project. This is to be informative and yet concise (not more than 15 words).
- Full name of the author
- Supervisor(s) and co-supervisors (if any)
- The day, month and year of submission

**Abstract**
The abstract summarizes the rationale for the study, the main methods, results, and the conclusion that you draw from the work. The abstract must stand alone, without reference to the main text. It is entirely uninformative to say things like “Implications of the work are discussed”.

**Introduction**
The purpose of the introduction is to involve the reader in the subject matter of the project and explain the reasons for undertaking the study. The aim and the objectives of the project should be clearly specified. Also, the Introduction should be used to relate the work to earlier work or similar studies.

**Materials and Methods**
This section should contain the minimum amount of information needed to fully understand how you produced your thesis, such that someone could duplicate your project after reading it.

**Results**
This section simply states the facts of what happened; the interpretation of these facts is reserved for the next section, the discussion. The point is to convey your findings simply and clearly, referring to tables or figures, photographs, or other items of documentation that support your statements.

**Discussion/Conclusions**
This section should bring the thesis full circle, linking your results back to the objective put forth in the introduction.... do you support or not your hypothesis? Also, it should relate your results to those of other papers on the same subject... do your results agree or disagree with the literature?

**References**
Every statement of fact in your work, except for very common knowledge, must be supported either by a citation to a published work, or by citing a result that you have shown in the paper. In the text, cite sources using the format of a major journal in your field. Most typically in biology, references are cited in the text by the author’s last name and the date of publication in parenthesis. If a paper has two authors, both names are given. If there are more than two, the name of the first author is followed by ‘et al.’. Ex. (Smith 2009) or (Smith and Richards 2010) or (Smith et al. 2011b).

Present an alphabetical list of all of the sources cited in the main text. Do NOT include papers that you have read but not cited in the text. Consult the journal for the format of citations to books, book chapters, web pages, etc. A common format is as follows:

**Books:** Author(s), year, chapter title, book editors, book title, page numbers of chapter, publisher, city of publisher. Ex.:


**Journal Article:** Author(s), year, paper title, journal name, volume number, page numbers. Ex.:


**Web Site:** Author/s, year, page title, web address (http://), date accessed. Note that author/s is/are not always listed – you may have to try links such as “About us” or “Contact us” to discover who or what organization has published the site. Ex.: US Library of Congress. 1990. A Country Study: Uganda [Internet] http://lcweb2.loc.gov/frd/cs/ugtoc.html. Date accessed: 3 Dec 2007.

N.B.: Web sites vary considerably in their reliability; citations of web sites are expected to be sparse and to reliable sites. Honours students should not be citing Wikipedia in their thesis.
BIO4004 (3 credits) - Research Report - Grading Scheme

Student’s Name: _________________________________

Evaluator’s Name: _______________________________

Introduction – 20 points

_____ / 10 – Purpose of the research report

(8-10) Excellent – Stated in specific terms. It is clear which aspects of the problem will be considered. Sufficiently restricted to permit analysis in some depth.

(5-7) Good – Not stated in terms which are specific enough to define the limits of the problem. Tend to be somewhat broad (or narrow) for an Honour's research report.

(<5) Poor – Stated in terms which are very broad, abstract or vague and are inadequate to define the problem. Are too broad to treat in enough depth in an Honour's research report - or are much too limited.

_____ / 10 – Relevance of the research report topic

(8-10) Excellent – Terms and concepts clearly explained. Introduction structured to be consistent with the scope of the topic. Shows some breadth of coverage of topics; good synthesis of relevant material.

(5-7) Good – Terms and concepts not always clearly explained. Introduction fairly well structured in relation to the stated topic; however, breadth of coverage is too great, wanders from the topic, or attempts only narrow view. Moderate understanding and synthesis of material read. Some information irrelevant or used incorrectly.

(<5) Poor – Terms and concepts not explained, or incorrectly explained. Introduction badly structured in relation to stated topic and very little of it is related to the objective or purpose. Summaries tend to be disconnected, indicating lack of understanding of what was read or its relevance. Much inaccurate use of information.

Bulk of the overall information and/or description of the research topic – 50 points

_____ / 30 - Organization, interpretation and critics of the studies referred to


(<15) Poor – Over or illogical interpretation. Lack of discussion - information. Absence of concluding statements.
Sources of information (i.e. references)

(16-20) Excellent – Most appropriate for the research topic conducted. Maximum use of primary sources. Sources sufficient for the research conducted.

(10-15) Good – Generally satisfactory but selection could have been improved; could have made better use of primary sources. Missed some good sources.

(<10) Poor – Not the best of those available. Too much dependence on general or review papers, books or web sites. Should have consulted more primary sources of information.

Presentation - 10 points

(8-10) Excellent – Use of sub-headings is appropriate and effective. Skillful and pleasant to read. Ideas are developed logically. Meanings are clear. Sentence structure is concise, grammatical and cohesive. Minimum use of extraneous or repetitious material. No spelling errors. References cited correctly.

(5-7) Good – Evidence of some system, but this could be improved. Meanings are generally clear. Sentence structure grammatical but frequently incoherent or rambling. Some repetition and some extraneous material. Some spelling errors. References sometimes incomplete or inconsistent.


Comments: 
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Final Grade: ___ / 80 (this mark will be worth 70% from the supervisor and 30% from the external evaluator)