



## **Biology Department**

### **Biology 491 – Presentation/Proposal/Report Guidelines**

#### **Oral Presentations:**

Students enrolled in Biology 491 (Undergraduate Research Project) are required to give two oral presentations of their research project. These are both **PowerPoint presentations** in one of the lecture theatres. The first is presented in November and is a **10-minute** presentation (8 minute talk with 2 minutes questions) of the proposed research project. The second, to be presented in late March, is a final presentation of the research project and is **15 minutes** in length (12 minute talk with 3 minutes questions). All biology faculty mark these oral presentations based on criteria such as clarity, organization, confidence and depth of knowledge.

#### **Research Proposal Guidelines:**

Biology 491 students are required to hand in a research proposal in early December. The report consists of three sections: (1) Title Page, (2) Introduction, and (3) Materials and Methods. The Introduction section of the proposal provides the introduction and background to the research project, as well as clearly stated objectives or hypotheses to be tested. The proposed methodology are then clearly described in the Materials and Methods section of the proposal. For correct formatting (e.g., page numbers placement, fonts, etc.), and for title page and references format, use the same as described for preparing the final research report (see below).

#### **Research Progress Reports:**

Each student must submit two progress reports to his/her research advisor throughout the year (see marking scheme and milestones). The progress reports provide a mechanism for the research advisor to judge the progress made on the independent research project. These reports should be a minimum of one typewritten page containing details of student planning, research activities, field work, experiments, collecting, etc. At the discretion of the supervisor, an up-to-date laboratory notebook may be handed in rather than the typewritten Progress Report.

## **Biology 491 Final Research Report Guidelines**

### **Purpose:**

Students are required to hand in three copies of the final research paper by the deadline date. One of these copies is to be bound in presentation binders for use by future students, faculty and potential external research supervisors. The purpose of this document is to provide consistency among student reports in terms of style, formatting and data presentation. This consistency will ensure a more professional-looking presentation of student projects. In lieu of this, after the research supervisor and external reviewer grade the report, it is hoped that students will take into account their minor typographical and grammatical corrections suggested and make the corrections prior to binding of the reports. In addition, there is an opportunity for those students who wish to put the extra effort to submit their report to the Malaspina University-College library. These are to be signed by the advisor and then presented to the Department Chair by the due date.

### **Overall Preparation Guidelines:**

1. The final manuscript will be typed in 12-point font and double-spaced throughout using 'Times New Roman'. Use 2.5 cm (one-inch) margins. Genus and species epithets to be in *italics* throughout manuscript (not underlined). Indent new paragraphs 5 spaces.
2. Page numbers will be inserted on every page except the title page. Page numbers will be centered and at the bottom of the page.
3. The body of the report will consist of 8 (or more, if using appendices) sections in sequence (see below). With the exception of the title page, each of these headings is in bold, in CAPITALS and is centered at the top of the page.

## **Biology 491 Final Report Contents and Grading**

Students should be aware that there are clear differences between disciplines with respect to writing styles, and it is the responsibility of the student to ascertain from their advisor what would be an appropriate style for his/her research report. All reports must contain the following parts, but be aware that the content of each may differ with discipline. For example, the Materials and Methods section is quite different between reports in Molecular and Cellular biology from that seen in reports in Ecology and Organismic biology. An outline with general content requirements and marking breakdown for each section is given below.

**Title Page:** The title page should include a clear title of the project, student name, date, advisor's name and affiliation and copyright permission (in the format required). See an example at the end of these guidelines

**Abstract:** (10%) The abstract should be a clear and concise summary of the objectives, methods, results (including summary data) and conclusions. The abstract should be no more than one page.

**Introduction:** (20%) The introduction should clearly introduce the general area of study related to the research. It should provide the reader with pertinent and relevant background information on the topic and include citations to the most appropriate literature reviewed. Once the background is provided, the introduction should establish the importance of the study and state objectives/hypotheses clearly.

**Materials and Methods:** (10%) Procedures and experimental design should be described clearly. Study sites, methods of data manipulation and statistical analyses should also be included, if appropriate to the study in question.

**Results:** (20%) The results section should contain a clear and concise description of the results of the study. This description should refer to all tables and figures, in sequence. Tables and figure should be able to stand-alone and should therefore include concise but descriptive legends, clearly labeled columns and rows, well defined axes, etc. No attempt should be made to interpret results in this section. Table captions appear above the tables. Figure captions appear below figures. Figures and tables can be on separate pages or embedded into the results section of the text where appropriate.

**Discussion:** (20%) The discussion should be a clear and concise explanation and interpretation of the results. It should discuss these results in the context of the questions or objectives posed in the introduction and should compare these results with the literature. The discussion should end with justified conclusions and the biological significance of the study. New questions and suggestions for future research can also be addressed.

**Acknowledgements:** This section summarized the people who assisted you with aspects your project. Any financial assistance must be acknowledged.

**Literature Cited:** (10%) The literature cited section should contain accurate citations of all references used. All references cited in the text must appear in the literature cited section and all items in this section must be cited in the text. The format in the text and in the reference section (for books, journal articles and edited chapters) should follow exactly that described below.

**Formatting Style for Text Citations and Literature Cited Section**  
(borrowed from Instructions to Authors for Journal of Parasitology)

**Style in the text:**

(Allen, 1999) – 1 author.

(Allen and Smith, 1999) – 2 authors.

(Allen et al., 1999) – 3 or more authors.

(Jones, 1998; Allen, 1999) – chronological order of publication.

(Jones 1997 a, b; Allen, 1998; Smith, 1999) – chronological and alphabetical order within year.

**Style in the Literature Cited section:** (note double space and indents)

**Journal article, 1 author:**

Schluter, D.R. 1996. Adaptive radiation along genetic lines of least resistance. *Evolution* 50: 1766-1773.

**Journal article, 2 or more authors:**

Kiesecker, J.M. and A.R. Blaustein. 1997. Population differences in responses of red-legged frogs (*Rana aurora*) to introduced bullfrogs. *Ecology* 78: 1752-1760.

**Edited chapters in books:**

Hickman, C.S. 1999. Larvae in invertebrate development and evolution. In *The origins and evolution of larval forms*, B.K. Hall and M.H. Wake (eds.). Academic Press, San Diego, p. 22-55.

**Book:**

Van Dover, C.L. 2000. *The ecology of deep-sea hydrothermal vents*. Princeton University Press, Princeton, New Jersey. 424 p.

**Citation of Internet Resources:**

The format for citing electronic print material correctly can be found at the following URL: <http://www.apastyle.org/electsource.html>

For example, for citing an electronic journal article:

VandenBos, G., S. Knapp and J. Doe. 2001. Role of reference elements in the selection of resources by psychology undergraduates. *Journal of Bibliographic Research* 5: 117-123. Retrieved October 13, 2001, from <http://jbr.org/articles.html>

**Writing Style:** (10%) The research report has been carefully organized and the required format has been adopted throughout. Topics should be organized into clear paragraphs and flow together well. Grammar and spelling should show evidence of careful editing. Appropriate and consistent terminology must be used.

**Biology 491 Letter Grade Breakdown:**

Letter Grade	Percentage Range
A+	95+
A	90-94
A-	85-89
B+	80-84
B	75-79
B-	70-74
C+	65-69
C	60-64
C-	55-59
D	50-54
F	<50

Example of correct format for Title Page for final 491 student reports:

Population dynamics of the symbiotic pea crab, *Pinnixa* sp., within the  
introduced varnish clam, *Nuttallia obscurata*

An undergraduate research project

by Shawn Stenhouse

Submitted in partial fulfillment of the requirements for the Bachelor of Science  
degree at Malaspina University-College, Nanaimo, British Columbia

April, 2002

Approved by:

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Research Advisor: Tim Goater, Biology Department, Malaspina University-College

I hereby grant permission for this research report to be bound and displayed in the  
Biology Department at Malaspina University-College.

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