Isla’s working Dissertation suggestions – these are in progress revisions based on the guidelines, but have not been approved by other staff members, so they are just my suggestions and are NOT official guidelines

## Length of Dissertation

The dissertation should be as concise as possible consistent with inclusion of all the essential information and a clear presentation of the arguments. The length of dissertation should not normally exceed 10,000 words, excluding references and any appendices. Theses that are unnecessarily long will receive lower marks. The best theses are often less than 5000 words. Reference list, title page, acknowledgements and appendices do not count toward word limit.

## The Parts of a Dissertation

The following scheme is appropriate for nearly all dissertations and can also be applied to reports and other types of scientific writing. You should also consider following the ‘instructions to authors’ of a reputable scientific journal like *Journal of Ecology*:

<http://www.journalofecology.org/view/0/authorGuideline.html>

Consult your supervisor if you intend to deviate significantly from the scheme below.

1. **Title Page**

The title page should comply with the format prescribed for all honours dissertations (example attached).

Type the title of the dissertation slightly above the centre of the page using capital letters and double-spacing if two or more lines are necessary. The first line should not exceed 14 cm. Centre the word '*by*' four spaces below the title and the author's name two spaces below that.

1. **Summary**

A single-spaced summary of not more than 250 words, which will also appear in the programme of the Dissertation Conference held towards the end of the second semester after the dissertation has been handed in. It should contain a description of the research question/knowledge gap – what we know and what we don’t know, and how your research will fill this gap (1 – 3 sentences), brief description of the methods (one sentence), brief results (1 – 3 sentences) and conclusions that put the research into a larger context (one sentence). See nature guidelines for abstracts:

http://www.nature.com/nature/authors/gta/Letter\_bold\_para.doc

1. **Table of Contents**

Chapter headings and sub-headings. Chapters should be numbered, but not sub-headings.

1. **Acknowledgements**

You must acknowledge all help received, e.g. data given to you, statistical advice given or analysis

carried out, so that the markers and External Examiner knows exactly what your contribution has been. Students are encouraged to seek out expertise, and you will not be marked down for reaching out to experts such as PhD students, postdocs, academic researchers or external scientists for advice, assistance with data collection or statistical analyses (see guidelines on input from supervisors).

1. **List of Abbreviations**

If appropriate.

1. **Introduction**

The dissertation comprises an introduction discussing the research question, reviewing the relevant literature, and setting out the research questions and hypotheses to be tested. The introduction should introduce the reader to the subject area and clarify the knowledge gap that the dissertation research will fill. The *Introduction* must set the context for the dissertation by reviewing the relevant literature. The primary research questions and hypotheses should be listed in the final paragraph of the introduction. The introduction should not be just a ‘Literature Review’ but should include relevant references to general (theoretical papers and reviews) and specific (specific to the particular question addressed) literature, to justify the research that has been undertaken and define the question being addressed.

1. **Objectives**

This should be a concise statement of the objectives, research questions and hypotheses of the study. You may also include in this section if you wish. Hypotheses should be explicitly and outline the anticipated results should be discussed: “If hypothesis H1 is supported than this will indicate… However, if H2 is supported that this will suggest…”.

1. **Materials and Methods**

The methods should explain as concisely as possible where you worked and what you did. Only include the required methods to repeat your study, do not include methods for data you do not present in the dissertation. Standard analyses or techniques need only be given a reference to published accounts or protocols. Use clear subheadings to structure your methods for the reader. Discuss data manipulations, statistical approaches used and the statistical software in a statistical analysis section.

1. **Results**

The *Results Section* contains text that summarises the findings of the research referring to all figures, tables and statistical results. Include the primary results, ordered logically (often from most important to least works well). Maintain the order that you present your results through out all parts of the dissertation. Data should only be presented once in either tables or figures in the main text or appendix. Often, it is recommended to write the results section first, so that you can write the methods that are appropriate to describe the results presented, then you can write the discussion next about these results, the introduction to introduce the relevant literature for the scientific story that you are telling and finally the conclusions and abstract – this approach is called writing backwards.

Statistical results when reported in the text, tables or figure captions must include the test used (ANOVA, Linear model, Linear mixed effects model, GLM, etc.), sample size (N) or degrees of freedom, effect size and error (e.g., slope and error around the slope), test statistic (t-value, F statistic, etc.), model fit (R2, pseudo R2, etc.) if appropriate and p-value. P-values alone are incomplete statistical reporting (see <http://www.nature.com/news/statisticians-issue-warning-over-misuse-of-p-values-1.19503)>. Full statistical results, additional figures or tables and raw data can be included in an Appendix. For guidelines on how to report specific statistical tests refer to the scientific literature and discuss you're your supervisor. All code for statistical analyses should be included in the appendix for students that are using coding based statistical software such as R.

1. **Tables**

Tables should be simple and few as figures usually do a better job of communicating your results. Every table should be given a number and a title. Tables should be placed as near as possible to that part of the text in which they are mentioned and must be referred to explicitly in the text, e.g. '.... the data summarised in Table 3'*.* Tables should always use appropriate significant digits, should be carefully formatted like found in international journals. The table caption should provide all the information necessary to interpret the table. The first sentence of the table caption should explain the main/analysis result being presented.

1. **Figures, Diagrams and Illustrations**

Figures should summarise your main results in as clear and concise a way as possible. A figure says at least ‘a 1000 words’ if designed well, so do use figures, particularly instead of tables if you can. Use creativity when designing your figures and think about how you can present your results most clearly, the statistical analyses you have conducted and any additional information that your reader might require. Put key statistical results in the figure if appropriate or in the figure caption so that the reader can interpret the figure without having to refer back to the text. Use colour and multiplot figures when appropriate. Try to keep colour schemes and figure formatting consistent throughout the thesis. Use Arial font in all figures and make sure that size of the the figure axes labels, legends and all other text is clearly readable. Try to avoid using excel of R (ggplot) default formatting and format your figures like figures found in international journals. Ideally, you should have one main figure for each specific hypothesis or research question that you test. The figure caption should provide all the information necessary to interpret the table. The first sentence of the figure caption should explain the main result being presented.

1. **Discussion**

The object of the discussion is to summarise your major findings and place your findings in the context of previous studies current state of knowledge in the literature. When you discuss your own work and that of others, back up your opinions with evidence and citations. The first paragraph of the discussion should contain a summary of your major findings (usually 2 – 4 points) and a brief summary of the implications of your findings and should make reference to whether you found support for your hypotheses or how you answered your research questions. The following paragraphs will usually describe each of these findings in greater detail making reference to previous studies. Often the discussion will include a paragraph describing the limitations of your study and the potential for future research.

1. **Conclusions**

The conclusion paragraph should put your findings into the broader context of the literature and explain how you have filled the knowledge gap that you have identified in the introduction. This is your chance to present to your reader the major take-home messages of your dissertation research. It should be similar in content to the last sentence of your summary abstract.

1. **References**

All publications referred to in the dissertation should be included here and all references listed here should be mentioned in the text. See below for guidance on the format for references. Use a referencing/citation software such as Zotero (<https://www.zotero.org/)> to insert and format your references.

1. **Appendices**

Note that an appendix is defined as an addition to a book or document containing explanatory matter, but not essential to its completeness, i.e. one need not consult the appendix to follow the text. However, appendices provide space to allow you to keep your main dissertation text as concise as possible, to include the code statistical analyses, to present additional figures, tables and text that is not essential to the main text, and to make your data publically available following Open Science practices (<https://en.wikipedia.org/wiki/Open_science>).

### Method of Citing References

When you use information from another author's work or quote their words you must acknowledge the source properly in your text (see section on Plagiarism) and end with an alphabetical list of the papers and books that you have used for reference (this is not included in the word limit). We recommend the use of referencing/citation software such as Zotero for adding and formatting citations (<https://www.zotero.org/)>.

There are many acceptable styles for citing and listing references. Most of these are based on the Harvard System (see <http://www.bournemouth.ac.uk/library/using/harvard_system.html>) with minor differences in punctuation. We recommend you adopt the style used in the British Ecological Society journals such as Journal of Ecology (<https://www.zotero.org/styles?q=Journal%20of%20Ecology>). Examples are given below. You should read the complete instructions to authors on the Blackwell Publishing website (<http://www.journalofecology.org/view/0/authorGuideline.html>). Whichever style you choose you must be consistent throughout.

Each reference must include the elements given in the examples below. The first of these is a reference to a book, the second is an independently-authored chapter within a book, the third a journal article and the fourth is to a Web page.

**Scientific Writing**

Use modern scientific writing with a clear pitch and structure in your dissertation. Remember to use the active voice as much as possible. Write using short paragraphs (4 - 7 sentences long) and short sentences - with even paragraph and sentence lengths. Make sure you have clear topic sentences for each paragraph and clear summary sentences that link to the next paragraph.

Here are some links to some scientific writing guidelines:

The Nature summary/abstract guidelines

<http://www.nature.com/nature/authors/gta/2c_Summary_para.pdf>

The 5 pivotal paragraphs in a paper – Dynamic Ecology

<https://dynamicecology.wordpress.com/2016/02/24/the-5-pivotal-paragraphs-in-a-paper/>

JC Cahill’s “Finding the “Pitch” in Ecological Writing”

<http://onlinelibrary.wiley.com/doi/10.1890/0012-9623-92.2.196/full>

## Oral Presentation of the Dissertation

Your presentation will be assessed and the mark will contribute to the final dissertation assessment. Assessment will be based on skills in communication and presentation (which have been developed during the year), as much as on the scientific content (which will already have been assessed in the dissertation itself). Talks should normally contain a brief introduction with a statement of the dissertation project aims/objectives and some information on the wider context of the dissertation project; a description of the methodology used; the major results found; a discussion and interpretation of the results with reference to the published literature.

You should use your research questions or hypotheses and your overall scientific ‘pitch’ to frame your presentation. This is a science communication exercise. The strongest presentations will put together a compelling scientific story using simple visual aids, little text on each slide, simplified figures/diagrams and a clear take-home message.

Different dissertation projects will require emphasis of different aspects. Twelve minutes is not long and you will have to be selective in what you present. Do not ask ‘how can I cram my project into 12 minutes’; ask ‘which bits of my project will the audience be able to digest in 12 minutes’. A copy of the assessment form will be uploaded to Learn to show you the criteria by which the presentations will be assessed.

**Assessment**

Your dissertation will be read and assessed by two markers, including your supervisor. We will use the standard marking scale and assess the thesis according to the general criteria given below. Each dissertation will differ, but the list below is intended to give you an idea of the general aspects of the thesis that we are evaluating:

(i) Comprehensive knowledge and understanding of the subject, including the relevant literature (e.g., observations, experiments and theory)

(ii) The general format and standard of presentation of the thesis – is it clear and concise?

(iii) Appreciation of aims and objectives of the project; statement of hypotheses tested

(iv) Clear and adequate description of methods

(v) Clear description of the results, including figures, tables and illustrations

(vi) Clear and competent analysis (including statistical) of the results

(vii) Validity and depth of interpretations, innovation and creative thinking

(viii) Integration of the findings with those of other studies in the literature

(ix) Critical appraisal of the methodology and its limitations

(x) Ideas for further study

(xi) Clear summary of the major findings and the implications of the work