

School of Biological Sciences

Instructions to Authors of B.Sc. (Hons) Project Reports in the School of Biological Sciences

The following "Instructions to authors" should be followed closely for the following reasons:

- i) Papers published in scientific journals must follow the specified format of the particular journal if they are to be acceptable for publication. Therefore it seems appropriate to have the same discipline imposed for production of the project report.
- ii) Assessment of project reports is facilitated when they are all produced in the same format.

1. LENGTH

As a general guide, the B.Sc.(Hons) project report should be 40-60 pages in total length (i.e., when all sections indicated below are included). Aim for quality and not quantity.

2. SECTIONS OF THE PROJECT REPORT

The separate sections of the thesis should be presented in the following order:

Title page (first page)
Abstract (next new page)
Contents (next new page)
Abbreviations and definitions (if necessary, next new page)
Introduction (start on next new page) = Chapter 1
Materials and Methods = Chapter 2
Results = Chapter 3
Discussion = Chapter 4
Acknowledgments
References
Appendices (if necessary, start each on a new page)

There are acceptable and discipline-specific variations on this format. Discuss with your supervisor what format best suits your needs.

All pages should be numbered serially, with the first page the title page then all the way through to the references and appendices if the latter are thought necessary. Tables and figures with their legends should be inserted as soon as possible after their first mention in the text (see Sections 3 and 4 below). All parts of the project report, including the abstract, references, tables and figure legends should be typewritten, one and a half (1½) line-spaced, on one side of A4 paper with left margins of at least 30 mm.

2.1 Title page

This should have the title of the project, your full name, date and the wording, "Project report submitted in partial fulfilment of the requirements for the degree B.Sc. (Hons.) in the School of Biological Sciences, University of Canterbury".

2.2 Abstract

This should be no more than 200 words and should start on a new page following the title page. It must be concise and address directly the main ideas, arguments and conclusions of the paper and be understandable by itself. Aim to present the major results and be precise. As a general rule avoid sentences that require the use of phrases such as "are discussed". Give specific numerical results wherever possible. It should not contain any references.

2.3 Contents

The Contents is a list of the chapters and sections of chapters together with the page numbers on which these begin. See Section 5 below for more information on numbering chapters and sub-divisions of chapters.

2.4 Abbreviations and definitions

Abbreviations must be unambiguously defined in the text the first time that they are used (e.g., photosynthetically active radiation (PAR)). If there are many abbreviations provide a list of these and their definitions on a separate page.

2.5 Introduction

This is the first part of the main body of the text and should start on a new page. The Introduction should define the problem, and explain why it is of interest. Previously published work should be concisely reviewed as a background to the results that follow. Generally this requires the citation of as many references as are necessary to indicate your understanding of the nature of the problem and knowledge of relevant literature. Questions that the study seeks to answer, and hypotheses to be tested, should be explained in the Introduction. This usually makes up the last few paragraphs of this chapter. The Introduction commonly includes:

- i. An explanation of the general area of interest.
- ii. An outline of the literature to show the current state of knowledge.
- iii. A statement of the aims of the project, showing how these follow from i and ii above.

2.6 Materials and methods

Provide enough information to enable a competent worker in the field to duplicate your experiments. Unusual experimental techniques, chromatography systems, assays or

2.7 Results

The results you have obtained are presented in this chapter. They are often best expressed in tables, graphs or diagrams. (Tables should be numbered consecutively. They are **not** Figures. See section 3 below. Figures should also be numbered consecutively and include all graphs, diagrams, drawings, photographs, etc. See Section 4 below.) It is not necessary to present every result that you obtained. Rather you should include those that enabled you to arrive at definite conclusions, whether positive or negative. Show that you used adequate controls.

The Results chapter should contain text giving a brief, factual description of the data and the analyses, including details of trends, and important or interesting features. Do not repeat at length in the text the contents of the tables and figures, but direct attention to the main results by referring to the relevant tables and figures. Do not interpret your data in the Results section; that should be reserved for the Discussion. Generally there will be few, if any, references to other published work in the Results section.

2.10 References

2.10.1 Citation of references in the text

Whenever you present a fact or theory that is not your own work, you must include a reference to the source of the information. References should be cited by author and date as in the following examples.

The results of Adams (1956) do not.....

This has been seen previously (Adams 1976).

There are several references to this phenomenon (Usher 1956, Smith & Jones 1982, Adams 1992).

[Note: two or more references may be given in chronological order, as shown in the above example, **or** alphabetically according to author, e.g. Adams 1992, Smith & Jones 1982, Usher 1956. **However**, you must use **one or other** system throughout your report, and **not a mixture** of both.]

Flowering occurs in autumn (Jones 1956, 1962, 1968).

[Note: two or more references by the same author are given in chronological order.]

Barrett & Robinson (1962) found there to be.....

[Note: two authors are both named.]

Barrett *et al.* (1988) disagreed emphatically.....

[Note: for more than two authors use *et al.* The expression should be shown as *et al.* (i.e., followed by a full stop) not *et al* because it is itself an abbreviation of *et alia* or *et alii* (= and others).]

This was first observed by Kennedy (1988a) although surprisingly she did not note the structure in two previous reports (Kennedy 1988b, 1988c).

[Note: where an author(s) has written more than one paper in the same year, these should be distinguished by the letters a, b, c, etc. in the order in which they are mentioned in the text.]

2.10.2 Presentation of reference list in References section

The references should be set out in alphabetical order of authors and in chronological order

At higher temperatures there is an increase in the rate of uptake (Table 3.7). It is clear from the data presented in Table 3.14 that...

Each table should be inserted as soon as possible after it is first mentioned. Small tables can often be inserted within the pages of text, but large tables are best displayed on a separate page. The same data should not be presented in tabular and graphical form. Bear in mind that it is usually easier to see a trend from a figure, such as a graph, than from a table, but that if the exact values are important, then these are more easily read from a table than from a figure.

Tables should be understandable on their own without reference to the text. This means that each table should have a clear title supplemented by any necessary explanations, which are placed above the table. For instance, the table heading should give the full name of the study species, the location of the study site, and so on, as if the reader does not have access to the Materials and Methods section.

The heading to each column should give the units, and use suitable metric prefixes to avoid long, cumbersome expressions (e.g., 150 M or 0.15 mM rather than 0.00015 M).

Replicate measurements need not be given. It is better to present the mean and standard error of the mean. Beware of using unjustified decimal places. Usually presenting three significant digits will be sufficient, although there are cases where fewer or more are justified. In some cases results may be better presented semi-quantitatively as +, ++, +++ or something of the sort, which avoids implying an unwarranted accuracy. However, numerical data is preferable so long as a measure of the error is also provided.

Below is an example of a small table.

Table 3.4. Photosynthetic rates for *Carpophyllum mascalocarpum* "leaves" without diatoms using parallel IRGA (emerged phase) and O₂ Winkler (immersed phase) techniques. Incubation PAR 400 E m⁻²s⁻¹, temperature 15 C.

Trial	Photosynthetic rates (mg C g DW ⁻¹ h ⁻¹)		A/B x 100
	IRGA (A)	Winkler (B)	
1	0.382	0.908	42
2	0.390	1.148	34
3	0.380	1.088	35
Mean SD	0.384 0.10	1.048 0.12	37 4.4

4. FIGURES

Figures include all illustrative material (but not tables) such as graphs, diagrams, maps, drawings, photographs, and photomicrographs. As for tables, figures should be inserted as soon as possible after they are first mentioned in the text. They should be numbered consecutively within chapters (i.e., Fig. 3.1, Fig. 3.2, etc. for figures in Chapter 3). Whenever possible sequence them in the order in which they are first mentioned in the text. If a single figure is made up of several components label these a, b, c, etc., as in Fig. 3.3a, Fig. 3.3b, Fig. 3.3c. All figures must be referred to somewhere in the text in the following manner.

Cell size increases with age (Fig. 3.14).
Examples are shown in Fig. 3.4.
Data presented in Figs. 3.7-9 show...

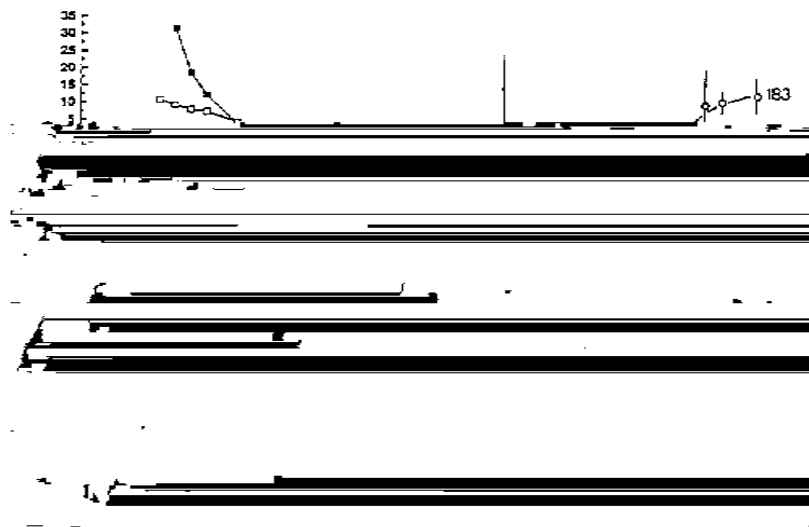
All figures should be accompanied by a thorough explanatory figure legend. Remember that the figure and its legend should be fully understandable without reference to the text. Legends should be placed below the figure whenever possible. If the figure fills the whole page and there is no room for the legend, then it should be put on a separate sheet facing the figure.

Graphs.

When graphs are used, they should be presented with the x-axis (abscissa) horizontal and the y-axis (ordinate) vertical. The x-axis is for the predictor or independent variable (i.e., the variable that is controlled) and the y-axis is for the variable showing the response to the controlled variable. All graph axes must be fully labelled with the units of measurement shown. Try to arrange the scales to set the most important graph lines between 30-60 .

If the points on a graph are crowded at one end it may be more appropriate to use a logarithmic or reciprocal plot. This may be done on the computer or using special graph papers.

Avoid putting too many lines on one graph. When there are several lines close together use different symbols () and lines (, --). It is often better to use several smaller graphs sharing a common axis, as shown on the left below.



5. STYLE OF SECTION HEADINGS

Distinct headings and their consistent arrangement make the text much easier to follow. The system used in this document is simple, but effective. The key features are indicated below.

1. MAJOR HEADING

Start text after single line space.

1.1. Section

Start text after single line space.

1.1.1. Sub-section.

Start text on next line.

1.1.2. Next sub-section.

Start text on next line.

- a. Sub-division within a sub-section.

different carbon sources, substrates or inhibitors are more easily visualised if given in molar quantities.

8. NOMENCLATURE

8.1. Names of organisms

Latin names for species and genera should be in *italics*. If your names follow a standard reference work such as a Flora or Fauna, state this in the Methods section (e.g., "Nomenclature follows Allan (1961) and Edgar (1986)"). Otherwise, the complete scientific name, its author and the date of publication of the name should be cited for every organism when first mentioned (e.g., *Griselinia littoralis* Raoul, *Pseudopanax discolor* (Kirk) Harms). A standard form for each author's name has been in use since 1992. This can be found in

