School of Natural and Environmental Sciences: Biology and Zoology

GUIDELINES FOR PRESENTATION OF WRITTEN WORK

These guidelines apply to BIO modules. For other modules, you should check with the module leader as expectations may differ.

Whether as a student or in a job, you want your readers to pay attention to the information and ideas you are putting forward. Proper presentation is critical for this.

Checklist before submission. Copy this and use it before you submit written work. Does your document follow the rules given in the sections below?

<table>
<thead>
<tr>
<th>A. Formatting</th>
<th>B. Names of organisms</th>
<th>C. Units</th>
<th>D. Figures and tables</th>
<th>E. References (in text and reference list)</th>
</tr>
</thead>
</table>

A. General formatting

• Text size must be similar to 12 point Times New Roman or 11 point Calibri.
• Use at least 1.5-line spacing.
• Separate paragraphs with a blank line.
• Use margins of at least 2.5 cm on all sides.
• Number all pages. Put your student number as a header on each page.

B. Presentation of names of organisms

• The first time you mention a species in the text, give its full Latin binomial (genus and species) for unambiguous identification, for example *Homo sapiens*, *Escherichia coli*.
• Thereafter, it is normal to abbreviate the generic name to the first letter, followed by a full stop and a space, for example *H. sapiens*, *E. coli*. If you mention two or more genera with the same initial letter, it is best to write the names in full, especially if they are similar kinds of organism.
• Scientific names of genera and species go in *italics*. Give names of other taxonomic groupings, such as families and orders, in normal type, for example Nereideae (the family of the worm *Nereis virens*), with an initial capital letter.
• In scientific publications, you will often see the ‘authority’ for a Latin name (i.e. the name of the person who named the organism originally), for example *Homo sapiens* L., where the L. stands for Linnaeus. Do not include authorities when writing an assessed report unless the information is critical (for example if you are discussing the taxonomy of an organism or group of organisms).

C. Units and their abbreviations

• Use the SI system with the correct symbols (see table below). You can also use other convenient units that are accepted for use with the SI system, such as litre (l), molar (M),
day (d), and minute (min). If you get data from a source that uses older units such as pounds or pints (this is quite common on ‘popular’ web sites), you should convert them to the metric equivalent.

- When using a number with a unit, always abbreviate the unit: 10 s, not 10 seconds.
- Put a space between the number and the unit: 10 kg, not 10kg.
- Separate the components of compound units by spaces. Abbreviate ‘per’ units such as metres per second using superscripts, not slash characters: m s⁻¹ not m/s.

### Important units and their abbreviations

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Name of Unit</th>
<th>Symbol</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>length</td>
<td>metre</td>
<td>m</td>
<td></td>
</tr>
<tr>
<td>mass</td>
<td>kilogram</td>
<td>kg</td>
<td></td>
</tr>
<tr>
<td>time</td>
<td>second</td>
<td>s</td>
<td></td>
</tr>
<tr>
<td>amount of substance</td>
<td>mole</td>
<td>mol</td>
<td></td>
</tr>
<tr>
<td>volume</td>
<td>litre</td>
<td>l</td>
<td></td>
</tr>
<tr>
<td>concentration of substance</td>
<td>molar</td>
<td>M</td>
<td>Equivalent to mol l⁻¹ (= mol dm⁻³). The SI unit is mol m⁻³.</td>
</tr>
<tr>
<td>temperature</td>
<td>degree Celsius</td>
<td>°C</td>
<td>In Office 2007 programs, you can insert the degree sign using Insert – Symbol or by typing ALT+0176 on the numeric keypad with NumLock on.</td>
</tr>
</tbody>
</table>

### Prefixes

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Symbol</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>tera-</td>
<td>10¹²</td>
</tr>
<tr>
<td>G</td>
<td>giga-</td>
<td>10⁹</td>
</tr>
<tr>
<td>M</td>
<td>mega-</td>
<td>10⁶</td>
</tr>
<tr>
<td>k</td>
<td>kilo-</td>
<td>10³</td>
</tr>
<tr>
<td>m</td>
<td>milli-</td>
<td>10⁻³</td>
</tr>
<tr>
<td>µ</td>
<td>micro-</td>
<td>10⁻⁶</td>
</tr>
<tr>
<td>n</td>
<td>nano-</td>
<td>10⁻⁹</td>
</tr>
<tr>
<td>p</td>
<td>pico-</td>
<td>10⁻¹²</td>
</tr>
</tbody>
</table>

Note: Do not substitute the letter u for the micro symbol. The letter µ is available in standard fonts; you do not need to use the Symbol font. In Microsoft Office programs, you can use the Insert Symbol command or type ALT+0181 (hold down the ALT key and type the four numbers on the numeric keypad with NumLock on), or you can define your own keyboard shortcut (in Word 2013 or 2016, via File - Options – Customize Ribbon – Keyboard shortcuts:).

### D. Figures and Tables

- All illustrative material is either a ‘figure’ or a ‘table’. For example, refer to photographs, graphs, and maps as figures.
- Number figures and tables in separate sequences: Figure 1, Figure 2, etc.; Table 1, Table 2, etc. If your report has numbered sections, you can number the figures and tables according to the section, for example Figure 1.1, Table 1.1.
• Refer to all figures and tables in the text. Use the number (e.g. Table 1, Figure 1), and start the word ‘Table’ or ‘Figure’ with a capital letter.
• Give each figure a caption (usually called a ‘legend’) and each table a heading. The legend or heading should start with a descriptive title and then provide enough information to make the content comprehensible without reference to the text. It is standard to put headings above tables and legends below figures.
• If you have taken the data in the figure or table from the literature, you must give the source.

E. References (how to give sources of information)

Essential principles

1. When citing references in the text, use author (date) or (author date) format depending on context (see below). Do not number your references in the text or in the reference list.
2. Use a consistent format for your references (see below for details).
3. Only cite articles if you have used them directly (you have found the information in the article you are citing, not somewhere else).
4. You must cite all the articles from which you have obtained information or ideas that you use in your own document. You must not present other people’s data or ideas as your own, and you must not quote from other articles (or newspapers or the world wide web) in your own document as though the quoted material was your own work. These are both forms of plagiarism.

References within the text

• Give only surnames of authors, without initials or forenames.
• References go inside a sentence.
• Single authors: (Sobel 1990) or Sobel (1990).
• Two authors: (Burrows and Morris 2001) or Burrows and Morris (2001).
• More than two authors: (Rothschild et al. 1972) or Rothschild et al. (1972). The ‘et al.’ stands for ‘et alii’ (‘and others’ in Latin). Only the ‘al.’ is an abbreviation and has a full stop.
• More than one paper cited from same author(s) and year (Heitler and Burrows 1977a,b).
• More than one paper cited from different authors: list alphabetically, and separate by a semicolon (Bennet-Clark 1967; Rothschild et al. 1972).
• If you cannot identify the author(s) of an article, treat the issuing organisation as the author. For example, you would refer to a report from DEFRA, the Department for Environment, Food and Rural Affairs, published in 2005 as “(DEFRA, 2005)”. If there is no identifiable organisation, refer to the author as Anonymous.

Here is a short piece of text abridged from a published paper (courtesy of Dr Kirsten Wolff), illustrating how to use (Author Date) and Author (Date) formats.

“Changes in farming practices ... [have] contributed to the decline of biodiversity in semi-natural grasslands ... (Robinson and Sutherland 2002; Rich and Woodruff 1996) ... traces of inorganic fertiliser can be found in 85% of all grassland in Britain (Fuller 1987). Cousins et al. (2007) estimate that in Sweden 90% of grassland cover and connectivity between sites has been lost in the last 100 years. The study of common grassland plant species is of interest as
these species will often be included in grassland habitat restoration projects. *Rhinanthus minor* is a hemiparasitic annual plant that is often used in such projects (Davies et al. 1997).”

**References in the reference list**

- Give each reference in the form “Authors (Date) Title. Source [journal, book, etc.]”. Give author surnames followed by all initials (not forenames). See below for details of different types of reference.
- List all authors (i.e. no ‘et al.’) unless there are more than ten.
- **Order the references alphabetically by first author surname**, one author before more than one author, earliest year of publication first (do not change the order of authors’ names in an individual reference). EndNote will give you the correct order automatically; sorting by paragraph in Word should work too.

The details of reference formatting vary greatly among publications. We recommend the following system (used in journals published by Springer-Verlag) because it is simple to format, but the most important thing is to be consistent. The examples below illustrate the recommended style. Some pieces of work may require the system described here or may require different styles; if so, you will be informed of the requirements.
- No commas after author surnames and no full stops after initials, but separate authors by commas.
- All regular font: no italics or bold.
- Year of publication in parentheses.
- Colon between volume number and page numbers for journal articles.
- Article titles and book titles in sentence case (only the first word capitalised).

If you are using EndNote, never use EndNote’s default Author-Date style! Use the format of *Journal of Comparative Physiology A* (given as J Comp Physiology A Newcastle Biology under Edit – Output Styles – Open Style Manager…). For more detail, refer to the journal’s Instructions for Authors at [http://www.springer.com/life+sciences/animal+sciences/journal/359](http://www.springer.com/life+sciences/animal+sciences/journal/359).

Examples of important types of citation:

1. **A journal article** has authors, date, article title, then journal title followed by volume (but not issue number) and pages. Give the full titles of journals: it is too easy to make mistakes in title abbreviations. Example:


2. **A book** has authors or editors, year, title, publisher, and place of publication. If the book has the same author(s) for all chapters, you cite the book as a whole and you do not specify page numbers. Example:


   To cite a whole book that has different authors for different chapters, use the same format but give the editors of the book and put ‘(ed)’ after the author name(s). Usually, however, you should cite the specific chapter or chapters you have used, as below.
3. **A chapter in a multi-authored, edited book** has authors, year, chapter title, book editors, book title, volume, publisher, place of publication, and pages. Example:


4. **On-line articles.** See next section.

References to on-line articles

On-line articles have become indispensable sources of information. There are many different types, with differing degrees of reliability. In all cases, be as specific as you can about the URL for the web page (not just the web site) so that your reader can find it easily. Here are some examples.

1. **Scientific journals that are only published on-line.** In the text, cite these like a normal scientific journal. In the reference list, follow the guidance given on the web site and include the “DOI” (digital object identifier). This is intended to provide a permanent link: you should always be able to access an article using http://dx.doi.org/ followed by the DOI and often by an internet search for the DOI. On-line journals normally have volumes but not page numbers; they may use article numbers in the place of page numbers, as in the following example:


DOI:10.1186/1471-2105-4-43

Note: most journals are still published in printed form. If a journal is printed, refer to the printed version even if you read the article on-line.

2. **On-line copies** of printed reports, book chapters, etc. Use normal citation in the text. Give the reference to the printed version as far as possible and give the URL and date accessed, since the on-line version may be much easier to find than the printed version. Example:


3. **Other on-line articles.** These vary greatly in their reliability and availability. Be cautious in citing such articles: it is best to use the most authoritative and permanent source you can find. Such sources have usually been through a review process. Give the author(s), or organisation if the article is anonymous, the date or, if the article is undated, the year you accessed it (usually the current year), the title, the URL, and the date you accessed it. Examples:


The article by Morelle is a news article with a publication date (2006).
F. Some basics of scientific writing style

The subject of good writing is a large one. The following guidelines are selective and address problems that are very common.

1. Always use your own words. Make notes on what you read, prepare an outline, and then write.

2. Make your writing as simple and concise as you can.
   • Short sentences are the easiest to write and read. When you review your work, look for over-long or over-complex sentences and simplify them.
   • Never use a technical term unless you can demonstrate in your writing that you understand its meaning. You can often do this simply by defining the term in a sentence or two when you first use it.
   • Avoid unnecessary phrases like “As already stated…”; “It is worth mentioning at this point....”
   • Think about whether you could use fewer words (some writing seems to follow the principle “Never use one word when two would do.”). For “...are found to be...”, you might be able to write just “...are...”; “There are seven steps that must be completed...” means the same as “Seven steps must be completed...”.

3. Make sure all your sentences have at least one verb (otherwise they are not sentences).

4. Avoid contractions such as “aren’t”. They give an impression of casualness.

5. Use the simple past tense to describe experiments, for example “The investigators watched the monkeys”. The present tense is appropriate for statements of fact: “Monkeys are active mammals”.

6. In general, use the active voice (e.g. “Avoid the passive voice” rather than “The passive voice is to be avoided”). However, the passive voice is generally recommended for descriptions of experimental procedures because it is impersonal (and in particular avoids the need to distinguish between ‘I’ and ‘we’). Please note that there is some
variation among scientists and journal publishers about when (and when not) to use the passive, and the first person (i.e. ‘I did’, ‘We think’).

7. Be careful about punctuation. For example, avoid ‘run-on’ sentences, which use a comma where there should be a full stop, colon, or semi colon.

8. Group your sentences sensibly into paragraphs. A paragraph should describe a set of linked points and a single paragraph should almost always consist of more than one sentence.

9. Make sure you use the correct word. For example, some words are often interchanged.
   - Some of these are simply common typos, such as “their” and “there”; “were” and “where”.
   - “Affect” and “effect”. These are very commonly confused. “Affect” is almost always a verb meaning “to produce an effect upon”; “effect” can be a verb meaning “to bring about” but is more commonly used as a noun meaning “consequence”. It may be safest to use different words. For example, you could substitute “influence” for “affect” and “cause” for “effect” used as a verb.

10. Do not use a slash to mean “and” or “or”, so “Hot or cold extremes will damage plants” rather than “Hot/cold extremes will damage plants”.

11. Make sure your spelling is correct. Do use the spell-checker in Word, but make sure the dictionary it uses is UK English. Word has a tendency to default to US English. To specify UK English, select all your text and choose Review – Set Language (the button in the Proofing group with a red tick and no text label). The scientific vocabulary in Word’s dictionary is quite limited, and so it is useful to add words, but make sure you spell them correctly! Try the grammar checker – it can be helpful, although it sometimes misunderstands correct sentence structure.

12. For clarity, it is best to avoid abbreviations unless the abbreviated term is very long, such as the names of some chemicals, or is standard in the scientific literature of the subject: consider whether an abbreviation is useful or just obscures your meaning. Except for the most common (such as ‘DNA’), you should always spell out abbreviations when you first use them: give the abbreviation in brackets after the first mention of the name in the text, e.g. “multidrug-resistance protein (MRP)”. Alternatively, you could provide a list of abbreviations.

G. Further guidance

Your copy of Study and Communication Skills for the Biosciences includes advice on scientific writing. Other useful books available in the library include:


You can get help from the Writing Development Centre: http://www.ncl.ac.uk/students/wdc/.

Useful external websites on scientific writing include: