

Communication Project Reports

The communication projects are a little different to the other projects we offer, since the "report" comprises two discrete elements:

- (a) a **dissertation** of approximately 6,000 words in length, in which you must demonstrate an *in-depth* understanding of the topic
- (b) a **communication** component, which incorporates a written report, a website, a CD-Rom or interactive display, together with a 15 minute talk. Here you must demonstrate the ability to describe the scientific issues concerning the topic in an accessible manner to non-scientists.

The dissertation

The dissertation should be written in the style of "**Annual Review of Biochemistry/Cell & Developmental Biology/Microbiology**" etc.) and should comprise a review of a specialised topic within the field of Biochemistry, Microbiology, Biomedical Sciences, Forensic Biology or Cell and Molecular Biology.

In preparing your dissertation, you should bear in mind that the main learning outcomes of this exercise are:

- To develop an in-depth understanding of an advanced research topic within the fields of Biochemistry, Microbiology, Biomedical Sciences, Forensic Biology or Cell and Molecular Biology.
- To develop a clear and concise style of scientific writing which is both informative and lucid.

Reviews are an extremely important aspect of scientific research, and considerable attention to detail is required in their preparation. It is important that your dissertation is an *in-depth review of scientific research* in your subject area, **not** a superficial account aimed at non-scientists. You may find that it is difficult to complete a review in adequate depth within the word limit if the subject of your project is rather broad (e.g. stem cells), in which case you should discuss with your supervisor how to narrow the focus of the dissertation (e.g. recent developments in the use of stem cells in the treatment of Parkinsonism). If you have any queries on how to focus the dissertation appropriately, make an appointment to see the project co-ordinator.

You are advised to begin writing your dissertation before undertaking the "communication" elements of the project, so that they are well-informed by the knowledge you have gained by probing the relevant literature.

Presentation

Your dissertation should be **Typewritten** or **Word-processed**, and printed with **Double spacing** and 25 mm margins on plain white A4 paper using a standard font (e.g. Times, Helvetica, Palatino, Courier). The print size should be no smaller than

12 point. The report should be no more than 6000 words in length, and contain diagrams, graphs and tables to enhance the clarity of the text. Note that legends to figures are not included in the word count. The pages should be numbered. A **Single Copy** of the **Unbound** completed report is required for examination purposes.

Your dissertation should contain the following sections:

Title Page

Choose the title of your project carefully-this will be the first thing to be read, and is important for setting the tone of the work. Keep it factual and concise, a single sentence. You should also include on the title page: (i) Your name, (ii) Your Supervisor's name, (iii) the Department (Department of Biosciences, University of Kent at Canterbury); (iv) the date (e.g. March 2005); (v) the degree title you are registered for.

Contents

A table of contents, with the relevant page numbers. This may well be the last part of the dissertation that you prepare.

Abbreviations

A list of all abbreviations used in your dissertation.
Example: SDS Sodium dodecyl sulphate.

Introduction

This section should introduce the topic you have chosen to the reader, and may be partly derived from the literature survey which you prepared for the Skills module earlier in the year. However, do not simply copy the literature review. Tailor it to suit your final report.

Review of Literature

This section should contain a detailed review of the topic you have chosen. You are strongly advised to divide this section up into sub-sections, each with a sub-heading of its own. Tables, graphs and figures may be used where they improve the clarity of the text; each **Must** include an appropriate **Title**, and be supplied with a **Legend**. Without appropriate annotation, tables, figures and graphs are meaningless!

Conclusions

An objective discussion and interpretation of the conclusions which may be drawn from your research.

Acknowledgements

Briefly list those people who helped you during your project. This may include assistance from members of your supervisor's laboratory, or from library staff.

References

A comprehensive (and **Accurate**) list of references, citing the origin of texts and papers referred to in your dissertation. Citations should be made in the text in **Numerical Order**, and then listed in the **Same Order** in the References section. For example, the following entry in the Introduction.....

"Studies in a variety of species, from insects to mammals, demonstrate the remarkable fidelity with which growth cones of developing neurons project to and recognise their synaptic targets (1). In *Drosophila*, screening for those mutants in which identified neurons fail to make the right connections has resulted in the isolation of unique sets of genes that are required for pathfinding and target recognition (2)"

Should be accompanied by these citations entered in the References section:

- (1) Goodman, C.S., Shatz, C.J. (1993) Developmental mechanisms that generate precise patterns of neuronal connectivity. *Cell* **72**: 77-98.
- (2) Martin, K.A., Poeck, B., Roth, H., Ebens, A.J., Conley Ballard, L., Zipursky, S.L. (1995) Mutations disrupting neuronal connectivity in the *Drosophila* visual system. *Neuron* **14**: 229-240.

Follow the format above for references i.e.

Author(s), Year, Title of Paper, Journal, **vol no**, page numbers IN THIS ORDER

Please do NOT cite standard text (e.g. Genes V, Darnell etc) as a source of information!

Marks will be allocated for **General Presentation** (clarity of style, figures and tables). **Carefully** check your manuscript for errors in **Spelling** and **Grammar**. If your word processor has a spelling check function **Use It!** Mistakes can distract the reader from the point you are trying to make, and the **importance of accuracy in this area should not be underestimated**. If your spelling and/or grammar is poor, you will lose marks.

The communication report and talk

While there are rigid guidelines for the preparation of the dissertation component of the project, the "communication" aspect of the project is less clearly defined. This is because students will have their own ideas as to how to communicate the topic; as such, the criteria will be different and should be discussed with your supervisor. Bear in mind that the learning outcomes of this part of the project are:

- Developed ability to simplify complex information
- Gained an appreciation of how knowledge must be adapted to suit the audience
- Gained experience of presenting scientific information to a general audience
- Developed ways to make science accessible, interesting and fun

The communication report

The objective of the communication “report” is to explain the scientific concepts underlying your project to a non-scientific audience. You may choose to write a report suitable for a school magazine or newspaper (less than 2,000 words). You may wish to develop a website or CD-ROM to explain your subject area that is interactive, possibly accompanied by written notes (for example, many textbooks now use CD-ROM support for some of their chapters). Some have prepared a poster, perhaps with accompanying leaflets, to illustrate the science. You might even wish to “build” an interactive display or model to describe your topic. Feel free to let your imagination run riot! Do bear in mind, however, that this component will need to be self-contained, not require specialized equipment, and should not assume anything but the most basic background/scientific knowledge. In addition, do not fall into the trap of writing/creating a “re-hash” of your dissertation and/or talk. For example, if you were to design a website, the web pages should contain original material with the aim of communicating the subject to non-scientists; the text will therefore need to be different to what you’ve written in the dissertation as the slides from your talk. Also, do not lose sight of the purpose of the report – **it must contain scientific content**. If in doubt, discuss with your supervisor.

Since the communication report will be assessed on the basis of content, presentation and suitability for the intended audience, you must state explicitly in the communication report what your intended audience is (e.g. Sunday Times Magazine readers, 14-year old school pupils, patients in a GP surgery waiting room).

The talk will be designed to deliver the subject at hand to an audience of non-scientists. As such, the content should be balanced between accessible scientific content and broader implications. The talk will be assessed both in terms of the quality of visual aids used, and the style of presentation. The assessment will take place in local schools, and you will be talking to a variety of students with different scientific backgrounds, aged from 14-18. You therefore need to develop strategies for communicating complex scientific principles while still engaging people who have not studied science. There may be a number of opportunities to present your talks both before and afterwards, for example at our annual “Biosciences Communication Day” to which the public are invited, UCAS days, and visits to local schools.

The Role of your Supervisor

You should meet with your project supervisor on a weekly basis, in order to provide assistance and monitor your progress. Your supervisor may offer advice concerning which references to read, and may also be used to bounce ideas off regarding how to present science in a manner that is interesting and accessible. You are encouraged to discuss the format of your report with your supervisor. However, please bear in mind that your supervisor is most likely NOT an expert in web or CD-ROM design, and will only be able to comment on the scientific content and the way in which you wish to communicate it.

COMMUNICATION PROJECTS MARK SCHEME

Projects will be marked out of 100; a maximum of 40 marks for the dissertation, 25 marks for the "communication" report, 20 marks for the talk and 15 marks for performance during the project.

The **dissertation** (up to 6000 words) will be read independently by your supervisor and one other member of staff who will then agree a final mark (out of 40).

Breakdown of marks will be as follows:

- Introduction (10)
- Review of the literature (main text) (25)
- Conclusions (5)

The **communication report** will be marked read independently by your supervisor and one other member of staff who will then agree a final mark (out of 25). This part of the project is relatively flexible, and could comprise an article suitable for publication in a newspaper/magazine, an interactive CD-ROM*, or an educational package with online support*. It must, however, contain **scientific information** described in a manner suitable for a non-scientific audience.

- Quality of concept (10) - to include depth of science covered and effectiveness of science communication strategy
- Quality of presentation (10) - to include imagination, formatting, style and accuracy
- Appropriateness for audience (5)

*Please note that, while this element of the assessment is flexible, your supervisor will be on hand only to advise on scientific/communication elements, NOT technical support. You must, therefore, already have the skills to develop CD-ROM or website technology if you choose this method of communication, or otherwise find your own support for learning it.

The **talk** (15 minutes, together with 5 minutes discussion afterwards) will be given to an audience of Key stage 4 to sixth form students. It will be judged on the following criteria:

- Quality of audiovisual aids (10) - to include suitability for the audience, depth of science presented, visibility
- Presentation (10) - to include audibility, pace, interest, enthusiasm, engagement with audience

Performance during the project will be evaluated by you supervisor (out of 15) and will include assessment of imagination, depth of understanding, enthusiasm, attendance, independence, ability to acquire information and discuss it with supervisor.