Project Preparation (Assignment Writing skills)

Many poor grades result from bad writing technique, i.e.,

– poor understanding of what is required
– poor expression.

Top students understand clearly what the marker wants to see.
At the graduate level, average communication skills are not sufficient.
A grades are expected in everything.

Objectives

• identify the features of good and bad projects
• recognise the importance of critical thinking
• identify the major components of a written project
• learn how to plan an answer
• consider appropriate format/layout
• also
  • Citation methods
  • Use of data
  • Use of abstracts

Characteristics of a good project

• Top students are able to communicate information clearly, without distracting the reader.
• The medium becomes invisible.
• What makes the top-scoring project much better?

Preparation

• DECIDE what is required
  – Consider the question or topic closely
  – Read a good text and a few salient reviews

• PLAN your answer
  – jot down the main points
  – organise them into an appropriate sequence
  – mind mapping or brainstorming using diagrams is better than a list.
  – can see alternative sequences and identify missing ideas.

Critical Thinking

• The major objective of a graduate student supervisor is to teach/guide the student to be independently critical
  – Your written project should be a logically reasoned argument.
  – Each written project will be essentially a critical review of literature.
  – Ability to present a logical argument is essential to demonstrate knowledge of the relevant literature and a deep understanding of the topic.
  – In presenting that argument, you should take note of the following points

<table>
<thead>
<tr>
<th>The main errors in poor projects</th>
<th>The main advantages of good projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hard to read; poor grammar and spelling</td>
<td>Easy to read</td>
</tr>
<tr>
<td>Hard to follow; no objectives, no logical sequence; just a list of facts; hard to find the main points</td>
<td>Clear aims or objectives, defined scope</td>
</tr>
<tr>
<td>Often one point will contradict another, suggesting lack of thought</td>
<td>No contradictions; similar points are clearly distinguished</td>
</tr>
<tr>
<td>Answers long and waffley, not answering the question asked</td>
<td>Concise and to the point, answers exactly what is asked</td>
</tr>
<tr>
<td>Contains unnecessary and irrelevant information and examples</td>
<td>Includes relevant data, references and examples.</td>
</tr>
</tbody>
</table>
Requirements of good projects are same as those of paragraphs

1. Main idea or concept
2. Supporting ideas or information
3. Examples, data, other relevant facts and their relationship to each other, and references
4. Conclusion (c.f. linkage)

Don't just write the answer;

- COMMUNICATE the information to the reader.
- Put yourself in the place of the reader and see what you are telling him/her.
- Use good paragraph structure, logical linkage, simple wording and short sentences.
- Poor grammars spelling punctuation distract reader (Proofread again)

Presentation

- Try to minimise the effect of the medium
  - Clear headings (relate to aims)
  - Suitable font
  - 1.5 x line spacing
  - Good sentence structure
  - Good logic and clear linkages
  - Obey all conventions of discipline

Citations

- Cite only those papers that you have read
  - unless there is a valid reason for including papers cited by another author, e.g., the original is in a foreign language or the journal is not available.
- Cite original authors/paper if necessary
  - Sometimes necessary to refer to the original because of the historical importance (e.g., Watson & Crick) without actually referring to the contents of the original.
- Otherwise, cite the review (your source)

Citations (cont.)

- Emphasise the work rather than the authors
  - To do this, avoid beginning a sentence with a citation.
  - ... the structure of DNA (Watson & Crick, 1954).
  - If you wish to emphasise importance or differences between sources, it is then appropriate to begin with the citation.
  - Watson & Crick (1954) first published ....

Data

- Tables & Figures
  - It is not possible to present a strong scientific argument without some data.
  - Tables and figures are ideal, but they must be used in an effective manner.
  - They should stand alone if considered independently, but should also be referred to and discussed in the text of your project.
  - Copy them, but cite the source(s).
Data (cont.)

• Data in the text
  – In presenting the results of others, it is unnecessary to give details of statistical significance (unless that is an issue that you wish to develop) or to present their data to the nth decimal point in your text.
  – It is usually enough to state that a difference was observed, without listing the means, standard errors and P value. If much data are needed, use tables.

Abstracts

• Your abstract is the place where the reader expects to find the most important points and your major conclusions.
  – Always write one unless told otherwise
• Thus, it is not to be taken lightly.
  – Don’t expect to write it in a few minutes
  – Don’t cut & paste!

Abstracts

• Informative abstract
  – encapsulates the paper (mini version)
  – can often supplant the need to read the full paper
• Indicative abstract
  – indicates subject of the paper, enabling the reader to decide whether to read the paper
  – cannot serve as a substitute for the full paper
  – often used for review papers, or abstracts submitted when asking to present at a conference

Assignment Format

• Scientists have evolved a very structured way to communicate
• The scientific paper
• Variations on that format are often suitable for assignments

Format of a scientific paper

– Abstract
– Introduction (including objectives & scope)
– Materials and Methods
– Results
– Discussion
– Conclusion
– References
• Adapt this format. You may have no material and methods and no results, so the body will be your logical argument

Format of an assignment

• Abstract
• Introduction
  – (including objectives & scope)
• Body of assignment (logical argument)
• Summary and/or conclusion
• References
  – Format consistently
  – Avoid "internet sites"
Abstract

• Concise (<150 words?)
• One paragraph
• Informative
• Don’t include:
  – Undefined abbreviations
  – Abbreviation definitions for paper
  – References
  – Redundant words (list?)
  – Tables

Introduction

• Establish problem or question
• Discuss its significance
• Necessary background info
• Key references from literature
• Weaknesses or gaps in knowledge
• Definition of key terms
• Logical argument leading to
• Objectives (statement of hypothesis) & scope

References

• Follow format meticulously!
• Punctuation is critical
• Check original sources
• Cross check with ALL citations
• Proof read again and again

Dos

• Do
  – Use a cover sheet
  – Use 1.5 or double line space (this can be relaxed for tables)
  – Use a generous margin
  – Number all pages

Don’ts

• Don’t
  – Plagiarise
  – Waffle
  – Start a sentence with a numeral
  – Omit the space between numbers and units
  – Use numerals less than ten (without units)
  – Forget the word “data” is plural
  – Put many modifiers before a noun

Do

• Write an informative abstract
  – Use the past tense
  – Present tense for accepted facts only
  – Avoid run-on sentences
  – Consider re-sequencing phrases (examples)
  – Identify and delete redundant words
  – Cull unnecessary detail
  – Avoid one-sentence paragraphs
  – Always complete comparisons
  – Check that your conclusions relate to your objectives
  – Proof read!