

WORK REPORT GUIDELINES

**General work report writing guidelines originally published by
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1.1 THE IMPORTANCE OF REPORTS

Unless you can communicate effectively, the knowledge and skills you acquire are of little use to others. You have to be able to collect information, organize it, and present it in a logical and concise form. Regardless of a report's target audience, the structure and organization must convey the exact meaning you intend. A well-written report can be helpful to your career while a poorly written report calls into question the credibility of your work and frustrates your reader.

To underscore the emphasis placed on the art of writing, many departments offer cash prizes for the best work report.

1.2 PURPOSE

A work report illustrates your acquired understanding and experience. A good work report shows evidence of critical analysis, good organization, clarity, and conciseness. It enables you to practise your skills of presentation, argument, evaluation, and calculation, and provides a permanent record of your work.

1.3 SUBJECTS

Perhaps the most difficult part of actually writing your work report is choosing the topic. You will want to select a topic that is relevant, manageable and usable (as opposed to being deemed confidential by your employer because many faculties will not allow you to write a confidential work report). It does not have to be the equivalent of a senior honours essay or research project, original research or relate to a new technical discovery.

Your work report must have an identifiable analytic component. A report that compares and evaluates several items or alternatives using various criteria is analytical. A report on a single topic can be analytic if it discusses advantages and disadvantages. The topic should be related to your employer, the line of work undertaken by the organization or business practices employed at their site. You could, for example, evaluate the way that the company implements R&D or wage incentive plans.

A report is unacceptable if it only contains a narrative, if it is simply a users' guide or other documentation, or if you simply summarize your work term tasks. An analytic report contains constructive criticism and contains conclusions and recommendations. If you have difficulty identifying conclusions, then you likely have insufficient analytic content.

One of the easiest ways to discover topics that may work for you is to consult with your supervisor. Often, employers will have activities they would like to undertake but cannot seem to find an appropriate amount of time to do the work. This is a perfect opportunity for you to investigate one of these activities as a topic for your work report. Might there be an opportunity for you to analyse a business practice that could result in a reduction in the amount of time it takes to manufacture the company's product. Perhaps there will be an opportunity to recommend a way to reduce costs or

save resources? You might be able to write new curriculum for in-house training sessions or external client seminars. The list is almost endless and is limited by your own creativity.

Although the topic does not have to be your idea, the report must be your own work and you are required to make a signed declaration to this effect. The work report is evaluated as a professional document. Your work report grade is based on the factual content and accuracy of the report as well as its presentation and clarity.

1.4 AUDIENCE

The way in which you write a report depends on your audience. For example, a report directed at the vice-president of an organization is written differently from a report directed at a co-worker in a specialized field. Your report may be widely circulated: your fellow employees and supervisors, as well as your field co-ordinator and faculty members, may read it.

As you write the report, focus on one type of reader only. State for whom the report is written. If the report is being written at the request of your supervisor, mention this in your letter of submittal and in the introduction. If your report contains specialized terminology and you are writing for a technically trained audience, your terms do not need further explanation. If you are writing for a large audience that is only slightly familiar with your work, you need to explain your terminology more carefully.

Since your report will be evaluated by a University of Waterloo representative (faculty member or field co-ordinator), you should assume that your evaluator falls into the "large audience" category and govern yourself accordingly.

1.5 DEVELOPMENT

1.5.1 STARTING

Early in the work term, meet with your supervisor to discuss the type of work you are doing and decide on a suitable topic for your report. Support the report with research. Ensure that your supervisor is familiar with the report requirements and with these guidelines.

Prepare a research schedule and keep an organized record of observations, apparatus, and meetings. Remember that seemingly unimportant items may be useful in your report. Your report's preparation is an ongoing part of your work term, not a chore for the end of term.

Note: Expect to research and prepare your work report on your own time. Employers are **not obligated to provide you with the time** to work on your report. If you are assigned the report by the employer and it will benefit the organization your supervisor may allow you to work on it during your paid hours.

1.5.2 PLANNING

Prepare an outline of topics and subtopics. Consider what information should be included in each topic, and where you need figures. You might want to use a separate sheet of paper or file card for each topic. Arrange the topics in a logical order, number them, and add short notes to each as you think of more ideas. You should spend quite a bit of time in this planning stage. Starting with a well-organized plan helps you to write a clear presentation for your reader. Finally, consider the purpose of your report; keeping your purpose in mind as you write focuses your writing.

Sometimes the organization of a report is obvious: a report about computer prices would probably be arranged from the cheapest computer to the most expensive, whereas a report describing a building's construction would probably be arranged in chronological order. In the comprehensive Canadian text, *Technical Writing*, Markel and Holmes suggest several methods for arranging and developing a report.

Ideas, methods, objects, or alternatives can be discussed in a report using any of the following strategies:

- in problem/method/solution response
- in cause and effect sequence
- in chronological (time) sequence
- in a spatial (or location) sequence
- in order from general to specific
- in order from most important to least important.
- by classification (group ideas/objects into similar classes)
- by partition (separate ideas/objects into component parts)
- by comparing (show similarities between ideas/objects)

Decide which order, pattern, or sequence is most useful for your topic and audience. Proper planning yields an outline of headings and lists of connected ideas (Andrews and Ratz 58).

1.5.3 WRITING

Read over your outline before you begin to write. You may wish to start writing with the introduction or you may feel more comfortable starting in the main body of the report. The important thing is to start writing. Do not be too concerned with spelling, punctuation, or grammar in the first draft. **Try** to choose words that convey your meaning to the reader. Leave lots of space for revision and editing. After you have written a few sections, leave your report for a while. When you return to your report, read the sections you wrote to ensure that you have considered your audience and followed your outline.

1.5.4 REVISING

Remember that you are aiming for clear, concise writing. Use a thesaurus and a good dictionary. Check spelling, grammar, and sentence structure as you read through your work. Check the meaning of words that are even slightly unfamiliar to you. Avoid using run-on sentences and ensure that each paragraph covers one topic only. Paragraphs and sections should have a section introducing readers to your topic, a main section that explains details, and a final section that provides a succinct summary.

Go through the report several times to check the logic, clarity, punctuation, and layout. Finally, ask yourself if the report is doing what you want it to do, and if it makes sense. If this is your first work report or if you doubt your ability to revise your work well, consult some of the reference books on writing listed in section 1.8 Recommended Reading, at the end of this document. They offer good ideas and shortcuts, sympathy, and even humour to help you with your report. (Remember to give them credit in your bibliography.)

Ask your supervisor to read your first draft and offer suggestions. Also ask someone who is unfamiliar with the technical aspects of your work to read the draft and appraise its comprehensibility and suitability. Reading your draft aloud helps to eliminate grammatical and stylistic errors.

Reference books also contain lists of words and expressions to avoid in your writing while offering suggestions for better choices. A few points on style are illustrated below:

Avoid ambiguity

- Avoid: A large amount of money was spent on promotion.
- Use: The company spent approximately \$50,000 on promotion.

Avoid long-winded phrases

- Avoid: It will be seen upon examination of Figure 2 that the response declined with time.
- Use: The response declined with time (Fig. 2).

Use active voice

- Avoid: The benefit of the new computer system is being considered by the company president.
- Use: The company president is considering the benefit of the new computer system.

Avoid first person

- Avoid: I conducted an experiment relating to water clarity.
- Use: The experiment relates to water clarity.

Avoid slang

- Avoid: Repairing the equipment was tough going and the extra work cost the company a bundle.
- Use: Repairing the equipment was complicated, time-consuming, and expensive.

1.5.5 COMPLETING

Type or print your report and make sure it has a professional appearance. A neat, well organized, and accurate report gives the reader confidence in you. A poorly presented report does not ensure a sympathetic response from the reader.

Layout requirements

- Leave a margin of at least 3.8 cm. (1.5 in.) on both the left and right sides of the page to allow for binding and for the evaluator's comments.
- Use double spacing throughout. Separate all paragraphs clearly by adding extra spacing in between each new paragraph.
- Although it is a matter of choice, you might try using block format throughout, including the letter of submittal. This means that all text in the main sections should start at the left margin, all text in the subsections should start at a second margin set in from the main margin, and so on.
- Begin each main section listed in the table of contents on a separate page.
- Be consistent in the style of your headings or subheadings (capitalization, underlining, alignment).
- Be consistent in the number of spaces between headings and text.
- Number the preliminary pages (table of contents, list of tables and figures, and summary or abstract) with Roman numerals, beginning with "ii" as the table of contents. Roman numerals are centered at the bottom of each page. Use Arabic numerals in the top right corner of the remaining pages of the report starting with the introduction.

1.6 FORMAT

This section illustrates a commonly used format.

The report must be bound with firm covers and held together at the spine with a two or three-holed binding mechanism or spiral plastic binding. Individual rings or spring clips are unacceptable.

Use a 12-point serif font (e.g., Times Roman) and double-space the pages of your report, except the letter of submittal (which is single spaced) and perhaps your table of contents and list of figures and tables (which may be single spaced if they are long, but are otherwise double spaced). Include 3.8 cm (1.5 in) margins. Number your pages, starting with the table of contents (ii). Your introductory page will be page 1.

1.6.1 PRELIMINARY PAGES

Preliminary pages should create a good first impression for the reader.

The first part of the report must be organized in the following sequence:

- Front cover
- Title page
- Letter of submittal including statement of confidentiality (where required)
- Table of contents
- List of figures and tables

Front cover

The front cover must contain:

- The title of the report
- Your name
- Your previous academic term and department/program.

Keep the report title shorter than 50 characters, including spaces. Use photographs or graphic design to improve the appearance of your cover.

If you use a transparent cover you do not need to list any of the above information, since your title page is visible.

Title page

The title page presents an expanded version of the information contained on the front cover. Beginning at the top of the page, list the following:

- University of Waterloo
- Your faculty
- Title of report
- Name and location of your employer
- Your name, ID number, previous academic term and program, and date when the report was prepared

<p style="text-align: center;">UNIVERSITY OF WATERLOO Faculty of Engineering</p> <p style="text-align: center;">THE IMPORTANCE OF FINANCIAL PLANNING FOR ENGINEERS</p> <p style="text-align: center;">The Financial Planning Group Edmonton, Alberta</p> <p style="text-align: center;">Prepared by Your Name Your Student ID Number Your Level and Program The Current Date</p>
--

SAMPLE TITLE PAGE

Letter of Submittal

The letter of submittal must follow the format of a standard business letter. If you are submitting a PD 2 report, address your letter to the course instructor(s). Most programs want you to address your letter to the person who is the Department Chair. In other programs it may be to the person who is the School Director or to the Associate Dean of your faculty. Check with your undergraduate office to determine which name you are to use. Check that all names are spelled correctly. Use your employer's letterhead or use your home address on plain paper.

Your letter must contain:

- report title and number (your first, second, and so on)
- employer (or "PD # - <title of course>")
- previous academic term
- supervisor(s) (not required for PD courses)
- department(s) (not required for PD courses)
- main activity of employer and department (or of PD courses)
- purpose of report
- acknowledgments and explanation of assistance received
- statement of endorsement (shown below)
- statement of confidentiality, if required
- your name, ID number, and signature

The statement of endorsement shall read: "This report was written entirely by me and has not received any previous academic credit at this or any other institution."

In the sample below, required items are shown in bold face for your convenience. These items should **NOT** be in bold face in your own letter of submittal. Although you will include the letter of submittal with your report, it is not a component of report. Consequently, do not assign a page number to your letter of submittal and do not include it in your table of contents.

491 Birchmount Cres.
Winnipeg, Manitoba
R4V 1S5

(current date)

(name of your department chairperson)

(name of your department)

University of Waterloo

Waterloo, Ontario

N2L 3G1

Dear (name of your department chairperson):

This report, entitled "**The Health Effects of Chlorine in our Water Supply**" was prepared as my 1B Work Report for **Dynamic Engineering Consultants**. This is my first work term report. The purpose of this report is to evaluate the benefits and negative consequences of chlorine content in public water supplies.

Dynamic Engineering Consultants provide customers with top-of-the-line engineering consulting on a large number of topics, ranging from environmental impact to municipal design in Southwestern Ontario.

The **Environmental Consulting** section, in which I was employed, is managed by **Jennifer Wong** and is primarily involved with providing clients with consultation on large projects that may have adverse environmental effects.

This report was written entirely by me and has not received any previous academic credit at this or any other institution. I would like to thank Ms. Jennifer Wong for providing me with valuable advice and resources, including documentation and leads to informative web sites. I also wish to thank Mr. Ken Smith for proofreading my report and improving its appearance. I received no other assistance.

Sincerely,

(Signature)

(Your name)

(your Waterloo ID)

SAMPLE LETTER OF SUBMITTAL

Table of contents

The table of contents lists all main sections in your report and any subsections with headings. Ensure that each entry in the table of contents refers to the correct page number. Connect each entry to its page number with a dotted line. Align the page numbers on the right side of your page. Do not include the letter of submittal in your table of contents. Note the use of lowercase Roman numerals (ii, iii, iv) for the table of contents, list of figures and tables, and summary.

Table of Contents	
List of Figures and Tables	iii
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1.0 Introduction	1
2.0 Zerndrain	2
2.1 Description of Product	3
2.2 Usefulness of Product	3
3.0 Practical Application	6
3.1 Preparation Process	6
3.1 Weather Effects	7
3.2 Case Histories	9
4.0 Analysis of Lab Results	14
4.1 Surface Strength Testing	14
4.2 Freeze Thaw Testing	15
5.0 Conclusions	19
6.0 Recommendations	20
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Appendix A – Rebound Hammer Results	22
Appendix B – Frost Resistance Results	25
Appendix C – Sample of Product	27
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SAMPLE TABLE OF CONTENTS

List of figures and tables

If you use figures or tables in your report, you must list them in the preliminary pages of your report, immediately after your Table of Contents page.

If you use only tables, you will provide a List of Tables. If you use only figures, your report will have a List of Figures. If you use both figures and tables, you will have a List of Figures and Tables. However, if your report includes ten or more figures and/or tables, you should provide a List of Tables and a separate List of Figures, each on its own page.

Each list identifies its components by number, title, and page number. Do not list any tables or figures that appear in the appendices.

List of Figures and Tables	
Figure 1. Barriers with Zerndrain-Covered Forms	11
Figure 2. The Stretching Process During Applications	11
Figure 3. Smooth Surface Speckled with Staple Marks	12
Figure 4. Proper Securing Technique	12
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Figure 6. Finished Roadside Barriers	13
Table 1. Rebound Hammer Results	16
Table 2. Surface Strength	16
Figure 7. Johansson-Svensson Freeze-Thaw (1992)	17
Figure 8. Skjolsvold Frost Resistance	18
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SAMPLE LIST OF FIGURES AND TABLES

1.6.2 SUMMARY OR ABSTRACT

Normally a technical report contains a summary, while a scientific report contains an abstract. The faculties of Engineering, Environment, Mathematics and Science require a technical report with a summary. Other faculties may allow an abstract in their reports.

Differences between the abstract and the summary

The summary condenses the entire report into a few short paragraphs, at the front of the report. The summary does not describe the report: it is the report in miniature. Saying that recommendations and conclusions are made is not specific enough; you need to say what the recommendations and conclusions are. It answers the questions "what is the problem?", "how can it be solved?", and "what should I do about it?"

An abstract is more common in research papers than in reports. It ranges in length from 50 to 200 words and is a highly condensed summary. The abstract states a problem, the method of approach, and the results. The abstract is separate from the report and is often inserted in an information retrieval system. For example, an abstract is included in such things as magazine listings of report topics, or a computer database listing of report topics, whereas a summary is included in the report.

Summary

The Summary should be written after you complete the rest of the report. It should be able to stand alone. Frequently, it is the only part read by management. It should answer, "What does this report contain?"

Keep your summary concise (preferably one page). You may use lists, but easy-to-read sentences are best. The summary should present the:

- purpose of the report
- scope of the report
- major points, including a summary of your research methodology
- highlights of the conclusions and recommendations

Following such an organizational pattern does not mean, however, that the conclusions and recommendations are simply restated. The summary, instead, highlights significant or key items. It should not refer explicitly to particular components of the report. For example, the following statement is unacceptable in a summary:

"Five alternative shaft sizes were considered and the stress magnitudes calculated for each shaft are shown in Table 6. The final shaft design is shown in Figure 3."

Summary

This report concentrates on the design of a digital circuit that is a portion of an interface between a command generator and a satellite simulator.

The circuit demodulates an incoming recovered subcarrier signal and converts commands to a parallel format that is introduced to a data converter.

The purpose of this investigation is to provide an analysis for this circuit, with considerations given to the entire interface setup.

Demodulation is achieved through the use of a missing pulse detector that checks for phase changes.

A clock is generated by detecting the edges on the carrier.

The tone decoder uses the data and clock to recognize command bits, and converts the data into a parallel signal with shift registers.

It is concluded that the digital solution implemented is completely effective for this application, except during the presence of an unclean incoming signal or the absence of all wave input.

A method of eliminating this inconsistency involving the use of an LM567 chip is discussed, and it is also concluded that this method is entirely practical.

The removal of unexpected signal distortions and the use of the proposed circuit addition are recommended.

Abstract

The abstract is a short, self-contained paragraph, usually no more than 200 words, at the beginning of your report. It is a synopsis of information contained in the report. An abstract states the problem and gives a summary of your main discoveries and conclusions. Your statements should be clear and concise so that a reader can identify the contents of the report and decide whether or not to read the rest of it.

Abstract

The hypothesis that hostile and nonhostile individuals would differ in both magnitude and duration of cardiovascular reactivity to relieved anger was tested.

Participants were 66 older adults (mean age, 62; 38 women and 28 men; 70% Caucasian American, 30% African American).

Each took part in a structured interview scored using the Interpersonal Hostility Assessment Technique.

Later each relived a self-chosen anger memory while heart rate and systolic and diastolic blood pressures were measured continuously using an Ohmeda Finapres monitor.

Hostile participants had larger and longer-lasting blood pressure responses to anger.

African Americans also showed longer-lasting blood pressure reactivity to anger.

Health and measurement implications are discussed.

KEY WORDS: anger; cardiovascular reactivity; cardiovascular recovery; hostility; Ohmeda Finapres monitor; older adults.

Taken from:

Fredrickson B.L., Maynard, K.E., Helms, M.J., Haney, T.L., Siegler, I.C. & Barefoot, J.C. (2000) Hostility predicts magnitude and duration of blood pressure response to anger. *Journal of Behavioral Medicine*, 23 (3), 229 - 243.

SAMPLE ABSTRACT

1.6.3 REPORT

Introduction

The introduction is always the first section in the body of your report. It presents your work and defines the problem or project. It should supply enough background information to help the reader understand why your report was written and how it relates to similar work. Your objectives should be written clearly and concisely. However, the introduction should deliver a sufficient impact to encourage continued reading.

1.0 Introduction

Texts regarding politics and administration guide one's attention to the actions of leaders who specialize in decision-making: presidents, senators, generals, and managers.

The study of preparation, on the other hand, concerns the general public who is actively seeking to be more than pawns for others to direct and manipulate; striving instead to shape policies and organizations according to our own desires (Nagel, 1987).

Toffer (1970) predicted an increasing emphasis on temporary groups brought together for a specific task and a decreasing emphasis on permanent states in bureaucratic administration.

This prediction has proven true, and we now envision a world with greater opportunities for people to play a role in decisions affecting their lives, a greater diffusion of relevant and useful information and a profound need for all citizens within a democracy to be effective decision makers.

Although the most common form of participation known to man is voting and campaigning, it does, in fact, include much more.

In recent decades, the democratic ideal has intensified, inspiring a search for richer and less perfunctory forms of self-government.

The focus of this report is how effective a citizen participation program can be applied effectively to the case of Corporation of the Town of Milton.

The study includes an evaluation of what participation is and why it should be promoted, the principles involved in creating a trusting relationship with the public, and an application of these principles in the aforementioned case.

SAMPLE INTRODUCTION

Body

You state the problem (or project) in your introduction. The main section analyzes the problem, then summarizes and explains your findings. Organize the report into sections; use a clear and consistent system of headings. You may be able to follow the commonly used system of "Materials and Methods," "Results," "Discussion and Interpretations," with appropriate subheadings. If your topic dictates its own system of headings and subheadings, ensure that the reader is able to follow them easily.

Consider using the numbering system employed in this document. Do not use more than three levels of numbers: use bullets or dashes instead of a fourth level. Where you indent for a subheading, the entire subsection below must follow that new margin. Remember that capitalization and bolding makes your headings stand out more.

When citing sources, follow the standard accepted by your faculty. If your faculty has not recommended or prepared a style manual, adopt a style used by some of the reference books or journals in your discipline. A good source is the Modern Languages Association's style guide.

The body of the report, including the introduction, should be between 2,000 and 4,000 words. If you find it necessary to exceed this length, discuss your report with your field co-ordinator or a faculty member before you complete it. The "body" is defined as the main section of the report which follows the introduction and precedes the conclusions.

Figures and tables

Figures and tables help clarify your work for the reader. Any figure or table, however, must serve a specific purpose. Consider whether the information is better presented graphically or in a table. Figures and tables must be cited in the text, and should be placed as soon as is practical after the reference. You should present large volumes of figures and tables in an appendix.

Captions may be typed above or below the table or figure (use either convention, not both). Captions for both figures and table must be concise, but must also be inclusive and comprehensive. The caption and its table are inseparable; either is usually meaningless alone. Remember you must refer in the main body of your report to the data shown in figures and tables.

Tables

Use a table only when you need to present complex or voluminous data that contain several variables. If the data set is small or has few variables, consider putting the information into the text rather than into a table. If you do use tables, check in journals or reference books in your discipline for layout and design examples. Generally, the static elements are listed vertically and variables are listed horizontally. Do not separate the vertical columns with lines. Use the standard rules for SI Units. These are often summarized in reference books on writing reports and can be found in the metric practice guide. Place large tables on separate pages. Short tables should be placed in the text.

Table 13. The crop nectar amounts found among females nectar feeding, resting and blood seeking.

Year	Activity	N	Proportion (%) with indicated Nectar rank a			
			0	1	2	3
1978	Nectar feeding	55	69.1	21.8	9.1	0.0
	Resting	14	35.7	21.4	14.3	28.6
	Blood seeking	506	48.6	22.6	14.8	14.0
1979	Nectar feeding	150	61.3	33.3	4.7	0.7
	Resting	530	30.4	30.4	27.1	12.1
	Blood seeking	609	27.8	48.4	18.4	5.4

The crop nectar amounts were classified being great (3) (>2.0, moderate (2) (0.52.0, little (1) (<0.5 or as having no apparent nectar.

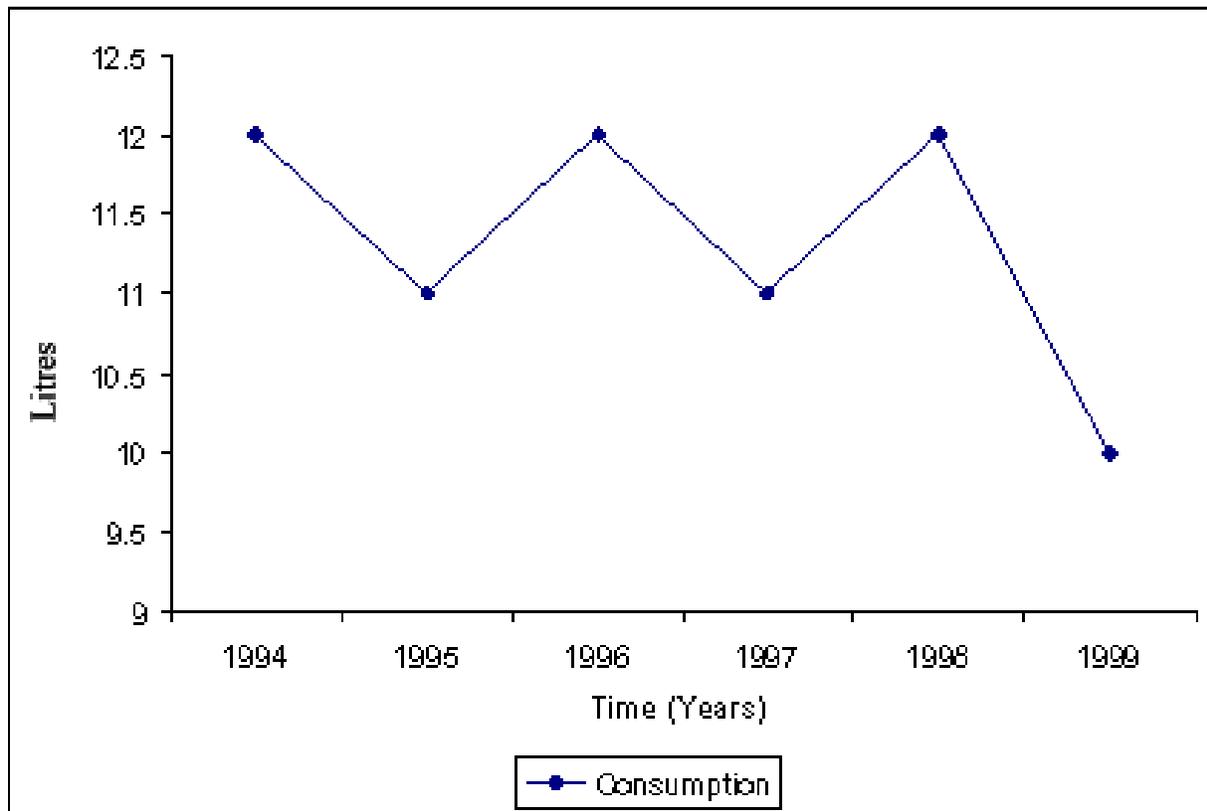
Table 1. Per Capita Residential Consumption of Airdrie and Calgary 1994-1999 (Cubic Meters/Month).

Year	Calgary	Airdrie	Percent Increase
1994	11.56	7.09	63.09%
1995	10.46	6.52	60.37%
1996	11.20	N/A	N/A
1997	10.97	N/A	N/A
1998	11.20	6.91	62.13%
1999	10.59	6.41	65.16%
		Average	62.7%

Figures

Figures include line drawings (diagrams, histograms, graphs) and photographs. Figures are an excellent way to relate various aspects of your data that are often difficult to present in words. Use photographs only if they are exceptionally clear and serve a better purpose than a hand-drawn diagram. Again, check the professional journals for your discipline in the university library or a local library for examples of effective use of figures. Large figures should appear on separate pages. Small figures should be placed in the text.

Figure 4. Consumption of CO₂ Over the Life of the Project



SAMPLE FIGURE

1.6.4 CONCLUSIONS AND RECOMMENDATIONS

Conclusions and recommendations are very important to your report, and these sections sometimes cause confusion. A simple rule is to place any statements that you can derive from the main body's investigation in the conclusions section of your report. Include in the recommendations any comments that you feel might assist in future activities. These future activities are probably not your responsibility and you should attempt to give the reader the benefit of your experience from working on the problem.

Conclusions

Just like the summary, conclusions should be brief (preferably one page), but complete and understandable. You may use lists, but easy-to-read sentences are best. Each paragraph should deal with only one aspect of the study. Conclusions may only be drawn if they are supported fully by the analyses described in the body of your report. Three or more conclusions are expected.

5.0 Conclusions

Hybrid-electric vehicles outperform electric vehicles.

Electric cars are well suited to city traffic but lack the performance needed for highway use. The hybrid vehicle's additional combustion engine helps to outperform the electric vehicle on the highway.

The cars must be priced lower to become more popular.

Government subsidies in some states and provinces significantly reduce the prices of low-emissions vehicles. Hybrids will be popular because many consumers cannot afford separate highway and city vehicles.

The cars damage the environment.

All the cars generally use less energy but at reduced performance. This will always be a trade-off area. Hybrids have low emissions, electrics have zero emissions, and both are a sound solution to urban smog.

Gasoline improvements, fuel cells and alternative fuels are future prospects.

Gasoline engines and exhaust systems have experienced major technical advances that make hybrid vehicles more promising. Fuel cells will provide clean power to the cars of the future. Alternative fuels will remain a major area of research because of widespread dependency upon fossil fuels.

SAMPLE CONCLUSIONS

Recommendations

Recommendations should be organized in the same manner as conclusions and should follow them on a separate page. Recommendations are essentially speculative, but they should follow logically from your conclusions. Recommendations should be specific, measurable, and attainable. Two or more recommendations are expected.

6.0 Recommendations

An extensive analysis should be conducted into the painting processes of all other parts on the MS2000. The paint racks should be examined for their allowance of flexibility and constraint on the parts they hold. A study should also be done on the effects of the immense heat on the plastic parts, and of the defects that can be attributed to it.

1. Continued Sampling

Limited capability studies (50 samples) should be conducted on an average of two times per month on the switch bezels and other parts to ensure that they continue to be produced defect-free.

2. Better Supervision

A full-time operator should be hired in order to ensure that SPC data is being correctly entered consistently. This person should also bring to the attention of the engineers any fluctuation on the data that may indicate a problem in the production process.

3. Engineering Advice

During a 100% sort, an engineer should always be present in order to answer any questions the operators may have about the parts, or to offer advice if early warning signs of new defects should arise.

SAMPLE RECOMMENDATIONS

It might help to think of your report in this way

- Management likely reads only the summary, conclusions, and recommendations; technical staff and your boss may read to the end of the main text; successors read the whole report.

1.6.5 REFERENCES

This section can also be named *Works Cited* or *Bibliography* according to the preference of your faculty. List all sources referred to in the report. Do not try to impress the reader by listing publications that you have not used. If you use personal conversations as a source, list the participants' positions and the conversation's theme, time, and place.

Here is a link to help you with the creation of your bibliography/reference list. Please review the various style guides at the link below to decide which one to use (if you are uncertain, be sure to inquire at your undergraduate office to determine which one you should follow):

- University of Waterloo [compiled list](#) of style citation and style guides

Citing electronic sources can be a challenge. If one or more of your references are taken from the Internet, e-mail, online newspapers, etc., you may find the style guides available from these links beneficial:

- [Online](#) a reference guide to using Internet sources
- [Library of Congress](#), *How to Cite Electronic Sources*

1.6.6 GLOSSARY

Add a glossary only if the text is heavy with specialized terms, mathematical symbols, or technical jargon. If you have only the occasional term in your report, define it as part of the text:

"...that pressure (P) is a function of temperature (T)..."

"...the snout area contains a pair of nasolabial grooves (NLG; Fig. 4C)..."

1.6.7 APPENDIX

Not all reports have or need an appendix. Appendices can be considered stand-alone documents, and thus could have their own table of contents. The appendix should contain any information that substantiates the report, but that is not required for a comprehensive understanding of your work. The appendix may contain bulky data such as lengthy tables, computer printouts, descriptions of processes or operations, analytical procedures, or maps. Assign consecutive letters or numbers along with names to each, for example: "Appendix A -- Detailed Street Calculations," "Appendix B -- Bearing Plate Calculations," or "Appendix 1 --Site Maps."

1.7 REQUIREMENTS AND PROCEDURES

1.7.1 NUMBER

Normally, a minimum of four satisfactory work reports (one from PD and three through work terms) is required for graduation and normally not more than one report is permitted each work term. If your faculty has other requirements, they are listed in the [Undergraduate Calendar](#).

1.7.2 GRADING

Acceptable work reports are graded *Outstanding*, *Excellent*, *Very Good*, *Good* (Math work reports only) or *Satisfactory*.

Some programs use a standard grading form (see sample below) to mark work reports. Please check with your faculty for information on grading criteria.

If your report is graded *Unsatisfactory (Resubmit)*, you may choose to resubmit the report. If you resubmit a report, it must be handed in by the last day of classes of the current term. Note that the deadline may differ by faculty.

Unacceptable work reports do not receive credit.

Grades awarded for work reports are shown on your Co-operative Student Record as well as your Examination Report and transcripts.

It is mandatory if you are in Mathematics (including Math Accounting) and recommended if you are in Applied Health Sciences, as well as Math Science/Biotechnology Accounting, to include a completed Employer Work Report Evaluation form when handing in your report. This is not required by any other programs.

[Employer Mathematics Work Report Evaluation Form \(PDF\)](#)

[Employer Applied Health Sciences Work Report Evaluation Form \(PDF\)](#)

Co-operative Education Programs

Evaluation of Work Term Report

Outstanding Excellent Very Good Satisfactory Unsatisfactory (Resubmit) Unacceptable

Work term in which report written (please circle): Year _____ January-April May-August September-December

Student's name _____ ID No. _____ Year, Term, Dept. _____

Employer's name _____ Report number _____

Title of Report _____

Evaluated by _____ Date _____ Room No. and Ext. _____

Note: Starred (★) items are mandatory. If missing or unsatisfactory, the report must be re-submitted.

Graphics of Report	Excellent	Very Good	Satisfactory	Unsatis.	Resubmit	Comments
★ Front Cover	<input type="checkbox"/>					
★ Title Page	<input type="checkbox"/>					
★ Letter of Submittal (incl. declaration)	<input type="checkbox"/>					
★ Table of Contents	<input type="checkbox"/>					
List of Tables	<input type="checkbox"/>					
List of Illustrations	<input type="checkbox"/>					
Use of sections and headings	<input type="checkbox"/>					
Overall Appearance	<input type="checkbox"/>					

Structure	Excellent	Very Good	Satisfactory	Unsatis.	Resubmit	Comments
★ Summary (should contain)						
a) Purpose of Report	<input type="checkbox"/>					
b) Scope of Report	<input type="checkbox"/>					
c) Major Points of body	<input type="checkbox"/>					
d) Summary of Conclusions And Recommendations	<input type="checkbox"/>					
★ Introduction (should contain)						
a) Background	<input type="checkbox"/>					
b) Objectives	<input type="checkbox"/>					
★ Conclusions	<input type="checkbox"/>					
★ Recommendations	<input type="checkbox"/>					
★ References	<input type="checkbox"/>					
Appendices	<input type="checkbox"/>					

Literary Quality	Excellent	Very Good	Satisfactory	Unsatis.	Resubmit	Comments
Grammar	<input type="checkbox"/>					
Spelling	<input type="checkbox"/>					
Clarity	<input type="checkbox"/>					
Style	<input type="checkbox"/>					

Quality of Subject Matter	Excellent	Very Good	Satisfactory	Unsatis.	Resubmit	Comments
Suitability of Topic	<input type="checkbox"/>					
Command of Topic	<input type="checkbox"/>					
Analytic Content	<input type="checkbox"/>					
Thoroughness of Treatment	<input type="checkbox"/>					

Would you recommend this report be shown by the student at employer interviews? Yes No

Evaluator's Comments

CO_OPED, AUG. 99 1780-1

SAMPLE RUBRIC

1.7.3 PLAGIARISM

Copying words and ideas from others without giving proper credit is unacceptable:

Plagiarism is a serious form of infringement. The basic premise in research and report writing is that an author cannot copyright facts, news, or ideas; the copyright covers only the way in which they are expressed. Therefore if you take facts, news, or ideas from other sources and express them in your own words, you have not plagiarized or infringed anyone's copyright. But if you quote from someone's work without a reference to the source, then you are implying that the quotations are yours, and this is plagiarism. Plagiarism also occurs if you refer incompletely to a work; for example, when the source of the first quote is fully identified, but subsequent quotes from the same source are not identified.

Plagiarism is punished severely in the university environment, usually by expulsion, if there is a fraudulent intent. In a recent PEO (Professional Engineers Ontario) decision, an application for membership was denied because a thesis submitted to the PEO Academic Requirements Committee was proven to be plagiarized. Follow the guidelines for fair dealing, and avoid the heartache of plagiarism (Andrews and Ratz 212).

1.7.4 DUE DATE

Normally, work reports are due seven days after the first official day of lectures of the academic term in which the report is required. Actual dates may vary across faculties so it is best to check with your Undergraduate office.

Work Reports are an important part of your Honours Co-operative plan. You must complete and submit a satisfactory work report according to the schedule and due date prescribed by your plan (available from your undergraduate office and/or the work report guidelines for your faculty). Your co-op work report must be submitted on the due date. If you fail to meet this requirement, you will not be permitted to continue in co-op.

1.8 RECOMMENDED READING

For general writing information that will help you develop your work report

- [University of Waterloo Library Writing Assistance](#) – check "Grammar" and "General Writing Assistance" for more links.
- Math Undergraduate Office – the math homepage offers some [general work report guidelines](#) and [writing help](#). (If you're not in math, sections 4.1, 4.3, 5.3, and 5.5 probably do not apply to you)
- [Carnegie Mellon University's Writer's Style Guide](#) – great for abbreviations, capitalization, punctuation, dates, numbers, places, punctuation, commonly misused words, and technological phrases.
- [Guide to Grammar and Writing](#) – discusses problems at the word, paragraph, and paper level; provides comprehensive grammar information.
- [Guide to Grammar and Style](#) – supplies an alphabetical list of style suggestions and common grammar mistakes.
- [Online English Grammar](#) – provides comprehensive grammar guidelines.
- [Interactive Grammar Quiz](#) - Test your grasp of punctuation, common verb and pronoun errors, sentence structure, and usage. If you get a question wrong, you can review a brief explanation of the underlying grammatical principle. If you score 100%, fireworks appear!

The following books from the University of Waterloo library can also assist you

- Andrews, G.C. and H.C. Ratz, 1995. *Introduction to Professional Engineering*. 5th edition. Sanford Educational Press, Waterloo (TA 158.A62x 1995)
- Barrass, Robert, 1978. *Scientists Must Write: a guide to better writing for scientists, engineers, and students*. Chapman and Hall, London . (T11.B37 1978 OPT)
- Coggins, Gordon A., 1977. *A Guide to Writing Essays and Research Papers*. Van Nostrand Reinhold Ltd., Toronto. (LB 2369.C6 PORTER, STJ)
- Co-operative Education and Career Services, 1982. *Guidelines for writing your work-term report*. University of Waterloo, Waterloo. (T11.G84x 1982 DAVIS, PORTER, STJ)
- Gibaldi, Joseph, 1995. *MLA Handbook for Writers of Research Papers*. 4th edition. Modern Language Association of America, New York. (LB2369.G53 1995 CONRAD, PORTER, REN, STJ)
- Houp, Kenneth W., 1995. *Reporting Technical Information*. 8th edition. Allyn and Bacon, Boston. (T11.H59 1995 DAVIS)
- Hubbach, Susan M, 1985. *Writing research papers across the curriculum*. 2nd edition. Holt, Rinehart, and Winston, New York. (LB2369.H83 1989 PORTER)

- Jewinski, Judi, 1992. *Essays & Reports: a handbook*. 4th edition. Undergraduate Affairs Group, Faculty of Arts, University of Waterloo, Waterloo. (LB2369.J48x 1992 PORTER – MAIN FLOOR REFERENCE, REN, ST J)
- Kirkman, John, 1992. *Good style: writing for science and technology*. E & FN, London. (T11.K54 1992 DAVIS)
- McGuire, Peter J., 1988. *A guide to technical writing*. Harcourt Brace Jovanovich, Toronto. (T11.M364 1988 PORTER)
- Michaelson, Herbert B., 1990. *How to Write and Publish Engineering Papers and Reports*. Oryx Press, Phoenix. (T11.M418 1990 DAVIS)
- National Information Standards Organization, 1995. *Scientific and Technical Reports – Elements, Organization, and Design*. Niso Press, Maryland. (T11 N354 1995 DAVIS, PORTER)
- O'Connor, Maeve and F. Peter Woodward, 1978. *Writing Scientific Papers in English*. Pitman Medical, Tunbridge Wells. (T11.O3 1978 PORTER)
- Rubinstein, S. Leonard, 1969. *Writing the Research Paper*. Allyn and Bacon, Boston. (LB2369.R8 PORTER)
- Schmitz, Robert M, 1935. *Preparing the research paper, a handbook*. Farrar & Rinehart, New York. (LB2369.H83 1989 PORTER)
- Turabian, Kate L., 1996. *Manual for Writers of Term Papers, Theses and Dissertations*. 6th edition. University of Chicago Press, Chicago. (LB2369.T8 1996 PORTER – RARE BOOK ROOM, DAVIS – CIRCULATION DESK, STJ)
- Young, Matt, 1989. *The Technical Writer's Handbook*. University Science Books, Mill Valley. (T11 Y68X 1989 DAVIS, OPT)