

B.Sc.(Env.) 8-month CO-OP Work Report Guidelines

Contact information

Carie Devitt bscenvpc@uoguelph.ca

While Carie is the initial contact person for co-op procedure-related questions for students in all B.Sc.(Env.) majors, *your major's faculty advisor is the key resource for your proposal and final work report.*

Faculty advisor contact information can be found here:

<https://oac-program-counselling.uoguelph.ca/contact/bscenv-contacts>

Goals of a B.Sc.(Env.) Co-op Work Term

1. To perform “real world” work for an employer and to gain experience in the field of environmental sciences.
2. To write a co-op work report that links your work term learning with your academic/classroom learning. *It is important to choose a topic which allows you (and us) to see the relationship between your work and your academic learning.*

Evaluation

Evaluation in this course is entirely based on written communication in the form of your submitted Work Report Proposal (20%), Interim Assignment (30%) and Final Work Report (50%). Final Work Reports will be evaluated on how successfully you achieve the elements described below. Evaluation for academic record is performed by a faculty member of the University of Guelph, NOT by your employer. While the Co-op Work Term Report Employer Comments form (attached) is required in your work report submission, it is not used formally in the grading of the report. Final Work Reports will not be accepted without this form.

In accordance with the Co-op Program policy, any report graded as unsatisfactory will be given only one opportunity to be re-submitted for re-grading. The grades for the Co-op Work Report are Outstanding, Very Good, Good, Satisfactory, and Unsatisfactory (Resubmit).

Students in COOP*4000 have the option of submitting a letter of submittal and a professional cover letter in lieu of a formal report. If your 8-month work term includes COOP*4000, you can choose to submit an 8-month Interim Assignment and Work Report as indicated in these guidelines, OR a 4-month Work Report (due on the fifth class day of the second semester of your 8-month work term) PLUS a letter of submittal and professional cover letter (due on the fifth class day of the semester following the end of your 8-month work term). Please make Carie aware of your choice at the time the proposal is due.

Course Resources

There are no textbooks for the work report, but we do expect full use of the relevant academic literature including books, journals, government documents, and other publications. Also, see ‘Recommended resources for assistance with writing’ section (below).

Important Dates

Work Report Proposal: **Due 6 weeks into the first semester of the 8-month work term.** Electronic submission on Courselink.

Interim Assignment: **Due 5 weeks into the second semester of the 8-month work term.** Electronic

submission to Courselink.

Final Work Report: **Due 5 class days into semester following the completion of the 8-month work term.** Electronic submission to Courselink. Please submit your final work report (pdf) *and* your Co-op Work Term Report Employer Comments form as a separate pdf attachment. **Your report will not be graded without the accompanying mandatory Co-op Work Term Report Employer Comments form.**

Your employer needs the opportunity to evaluate and comment on your work report well in advance of your submission for grading. They need to complete and sign the Co-op Work Term Report Employer Comments form (attached). You will want to make sure you have given your employer reasonable time for this step.

Recommended resources for assistance with writing:

- Writing services at the University of Guelph Learning Commons: <http://www.lib.uoguelph.ca/get-assistance/writing>
- <http://www.hemingwayapp.com/>
- Strunk, Jr., W. and White E.B. 2000. The Elements of Style, 4th edition. Pearson Education, Upper Saddle River.
- Garner, B. A. 2009. Garner's Modern American Usage, 3rd edition. Oxford University Press, Oxford.
- Appendix 3

Academic Misconduct

The University of Guelph takes Academic Integrity and Academic Misconduct very seriously. You are expected to understand and follow the rules and regulations as described in the Undergraduate Calendar. For more information: <https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml>

Work Report Proposal (20%)

A written proposal is required. Electronic submission is acceptable, as noted above. The required format for the Proposal is outlined in Appendix 1.

Proper academic writing structure is assumed including proper citations and grammar. The proposal should be written so that it briefly gives an overall outline of your Final Work Report. This includes a description of your job and your workplace, relevant background providing rationale for your topic, a research topic or specific question(s) you plan to address in your report, as well as methods, and anticipated results and significance. This proposal must be submitted to your co-op faculty advisor BEFORE the work is performed in order to solicit topic approval, a proposal grade, and feedback about your topic. This will tend to increase the quality of your final report. Make sure you review the requirements of the Final Work Report as this will inform the Proposal's structure and content.

Interim Assignment (30%)

The Interim Assignment consists of 2 distinct parts (see below). A written report is required for each part. Proper academic writing structure is assumed including proper citations and grammar. For any academic paper or report, significant time is required to complete a literature search. Proper attention to this assignment will be rewarded as you write your final report. Make sure you review the requirements of the Final Work Report as this will inform the structure and content of your First Draft.

Part 1 – Annotated Bibliography

The first part of the Interim Assignment is an investigation of the literature pertaining to your proposed Final Work Report topic. This investigation will take the form of an Annotated Bibliography pertaining to your approved report topic. This will allow you to consider the scope of information or knowledge you need to gather in order to complete your Final Work Report. It will also identify areas of information or knowledge that require further investigation (gaps). Please review how to write an Annotated Bibliography. <https://guides.lib.uoguelph.ca/AnnotatedBibliography>

The required format and specific expectations are outlined in Appendix 2.

Part 2 – First Draft of Final Work Report

The second part of the Interim Assignment is a first draft of the Final Work Report. Building on your investigation of the literature, completed in Part 1, the purpose of the second part of this Interim Assignment is to provide you with feedback and make sure you are on the right track toward completing the Final Work Report. We recognize that you may not have all data collected, nor have completed all aspects of your research or investigation. However, some sections of your work should be well underway. Further explanations are outlined in Appendix 2.

Final Work Report (50%)

A written report is required. Electronic submission is acceptable, as noted above. Proper academic writing structure is assumed including proper citations and grammar. Types of reports include: Experimental/scientific report, management report, bio physical or land management report, or a literature review. Other formats may be considered with prior approval from the co-op faculty advisor based on the report proposal. For example, if the organization for which you are working has an established format for a formal technical or business report, you may use that format with the approval of your Faculty Advisor. See Appendix 3.

General Comments

All co-op work reports have the same basic functions. While work reports can take different formats, they all must do the following:

- Identify a goal: An issue to be addressed or a problem to be solved, usually in a working environment.
- Introduce and discuss the necessary background and context that places the goal within a wider context other than just your work. (This does not need to be an exhaustive review.).
- Justify why this goal is important, and to whom.
- Explain the process of how you went about achieving the goal.
- Provide sufficient evidence including data, information and its analysis in order to demonstrate progress towards your goal.
- Critically evaluate the strengths and weaknesses of your approach, evidence and conclusions.
- Discuss the outcome of your work in a wider context of similar projects and provide conclusions and/or recommendations about what to do in the future.
- Communicate effectively.

Appendix 1: Work Report Proposal Format

Your name:

Student ID:

Your major:

Who you work for and what you are hired to do: (Company, organization, your job title and description of your role)

Descriptive project title: (This should provide a sense of what you will attempt to achieve)

Background: (150-200 words)

Provide a rationale for your proposed project including a review of the relevant literature. Your background should lay the foundation for your project topic and create the scientific/social/business/education context for your research question/goal(s) posed below. Provide sufficient evidence (i.e. academic literature/citations) supporting your report's topic.

Research question/goal(s)/objective/product: (80-100 words)

For multiple goals, try to rank them from most to least important.

Methods: (200-250 words)

Describe the methods you will be using, specifically identifying what information you will collect, how you will collect it, and how you plan to evaluate that information in order to achieve your goal.

Anticipated results and significance: (200 words)

Describe anticipated results, their potential significance, and who would find them of interest. (Think about the broader audience or stakeholders.)

References:

Use proper citation format.

Report type:

There are several types of papers or report styles from which to choose. We expect references to be included regardless of your format. Indicate which format your work report will follow.

Examples of report types include (but are not limited to):

- Experimental/scientific report
- Management, Biophysical, or Land Management report
- Literature review (critical analysis)
- Other (if the organization for which you are working has an established format for a formal technical or business report, please describe the format in 75 words or less). Please get prior approval for this format.

Appendix 2: Interim Assignment Format

Interim Assignment: Part 1 - Annotated Bibliography

An Annotated Bibliography for the Final Work Report should be approximately 10-12 pages, taking into account that the typical annotated bibliography will contain 2-3 references per page. For the purpose of this assignment, your Annotated Bibliography will be written as a paper consisting of a series of entries relating to your Final Work Report topic, organized either alphabetically, or by aspect of your topic. Each entry in your annotated bibliography will consist of two parts:

1. The citation in the proper referencing style
2. A one-paragraph discussion (or "annotation") of the source listed above

The purpose of putting together an annotated bibliography is to allow you to summarize a comprehensive, yet focused, selection of the scholarly sources on your topic. This will provide an opportunity for you to gain a bird's-eye view or general review of literature pertaining to your topic. The Annotated Bibliography may include more sources than you end up citing in your Final Work Report. It is important to use this step to assess what the KEY papers are for your Final Work Report.

Refer to the University of Guelph Library website for a more specific outline of expectations for an Annotated Bibliography:

<https://guides.lib.uoguelph.ca/AnnotatedBibliography>

Interim Assignment: Part 2 – First Draft of Final Work Report

The second part of the Interim Assignment moves you towards a first draft of the Final Work Report. The length of this draft of the Final Work Report should be approximately 10-12 pages. The Title Page, References, Tables, Figures, and Appendices are NOT included in these 10-12 pages. Part 2 of the Interim Assignment builds on your investigation of the literature, completed in Part 1. The Introduction and Background section of your Final Work Report draft will include an analysis and synthesis of the key papers included in your Annotated Bibliography. The purpose of submitting a draft of the Final Work Report as the second part of this Interim Assignment is to give instructors an opportunity to provide feedback and to ensure you are on the right track toward completing the Final Work Report.

This draft of the Final Work Report should include the following sections:

Title Page

Introduction and Background (incorporate your literature search (Part 1 of this Interim Assignment) into this draft).

Method/Approach/Techniques/Execution

Tables, Figures and Appendices (if any)

References

Appendix 3: Final Work Report Format

8-Month Work Term:

The Final Work Report for an 8-month work term (for COOP 1000, COOP 2000, and COOP 3000) should be approximately **12-20 pages**. The Letter of Submittal, Title Page, Figures and Tables, and References are additional pages. An 8-month Final Work Report should be more thorough in terms of the literature search, data collection, analysis, synthesis and interpretation than a 4-month project. Consider suggested page numbers as a guideline only. If you can be more succinct or if you need more pages, use your discretion.

Please use reasonable formatting for your report. This includes using 12-point font, double spaced (1.5 spaced as a minimum)

Sections and Subsections

Your report does not have to have sections individually titled: Introduction, methods, results, discussion, conclusions, references, appendices, etc. A complete report should have a logical flow from beginning to end. Your job is to create an effective document that includes information relevant to each of these elements.

Carefully chosen headings and subheadings tend to be very useful in clearly identifying what you need to do in each section and so are helpful to both you and the reader. The specific headings used below are not a requirement, and so can be replaced with other equally useful headings of your choice.

Letter of Submittal (may be 2 pages)

A Letter of Submittal addressed to your faculty advisor must accompany your report. It should include three main sections (it is not necessary to include headings in your letter):

Summary of Responsibilities and Duties Performed

- Briefly describe the organization you worked for, the type of activities the organization performs, and the types of activities you performed during your work term.
- A brief summary of your work report including a clear statement of the purpose of your project, the intended audience and a brief description of what you specifically did. Acknowledge any assistance given in the preparation of the work report.

Critical Analysis: Quality of Experience

- Provide a critical analysis of your strengths and successes as well as areas in which you require additional skills, knowledge or experience.
- Discuss achievement of your learning objectives including barriers and opportunities.
- Reflect on ways you might overcome barriers in future jobs setting yourself up for future successful work experiences.

Critical Analysis: Professional Development

- Identify professional development needs and outline a plan to address them.
- Include clear goals for future work terms and career progression.

Title Page

Descriptive title: This should be complete, make sense to a reader unfamiliar with your work, and convince them that the project is linked to environmental science. Your name and student ID

Last academic semester completed (i.e. Semester 4)

Employer's company/name

Date

Executive Summary/Abstract

This is the condensed version of the most important points of your report and it must be brief. It should include (not necessarily in this order):

- A statement of your goal or objective; what you set out to do, produce, or achieve. Justification for why the goal is important.
- An explanation of where the project was performed and for whom.
- Your plan for achieving the goal, a brief description of method.
- Your method for collecting information: Literature review, interviews, observation., mathematical modelling.
- A description of your method for analyzing information. A summary of the most important results or products of your work and major conclusions and/or recommendations based on your work.

Introduction and Background

Clearly describe the goal(s) of the project or the problem addressed.

- Justify why this goal or problem is important, usually by setting it in a wider context that is relevant to others beside yourself.
- Explain the significance of the project and who the stakeholders are.
- Provide relevant background knowledge about the issue, system and/or planned research. Demonstrate your own knowledge and expertise on the topic so that the reader will begin to trust and tend to believe your conclusions.
- Review briefly and with citation what others have done on this problem. Define any unusual terminology related to the project.

Method/Approach

Clearly describe how you intend to achieve your goal or approach the problem in sufficient detail that another person could do the same task – but avoid unnecessary detail.

- Clearly describe how the problem was approached in a step-wise fashion:
 - Explain what and how information was collected.
 - Indicate how you plan to summarize and evaluate the information collected.
- You may choose to break this section into specific short sections, each describing a particular narrow step you did in order to reach your general goal.
- Start each subsection with a statement of the specific narrow goal/step you needed to achieve and how it was achieved.

Results/Outcome /Findings

Summarize the relevant information for the reader so that it enhances your report and convinces the reader that you have the means to progress towards your goals or support your conclusions. Express the information in ways that highlight your goals or conclusions. Summarize in text the major patterns, findings, results expressed in more detail in figures and tables. It is NOT sufficient to simply show raw data. Make sure that figure and table captions are sufficiently detailed so that a reader can understand them WITHOUT reading the full text.

Make sure that figure and table elements (headings, axes, etc.) are large enough to be legible and complete so as to be easily understood (avoid abbreviation).

Include interesting information that you had not expected but that may be relevant to your discussion (below).

Discussion

Your discussion should:

- Briefly rephrase the project goals.
- Briefly describe the primary and secondary findings by reviewing the information that you provide.
- Relate your findings to your goals; evaluate if you have/have not achieved your goals.
- Discuss how your project is related to a broader class of similar issues in society (generalize your specific project to broader issues in society); critically evaluate your work in the context of others wherever possible; show your general expertise on the topic by evaluating the important literature on the topic (and reference this correctly).
- Evaluate the strengths and weaknesses of what you did and how these may be relevant towards interpreting how well you achieved your goal.
- Provide conclusions about what you have learned that are relevant to your employer's or your goals; how your project advanced a general understanding; or the novel contributions of your work.
- Revisit and discuss ALL topics raised in your introduction (the discussion and introduction often have some symmetry around the major topics; any topic raised in the introduction is generally revisited in the discussion – although you may introduce new topics in the discussion that may not have been present in the introduction).

You may also choose to discuss a variety of additional topics in your discussion:

- Consider the strengths and weaknesses of your study and how they may affect your conclusions. Critically analyze what you would have liked to know more about your situation and why.
- Describe what additional work could be done or what additional information needs to be collected to strengthen your case, clarify an uncertainty, or what would be required to meet some standard.
- Realize that all studies are flawed in multiple ways, and so do not simply state your studies' flaws, instead evaluate if there are key flaws that could have changed your

conclusions or make your conclusions different from others.

- Specific recommendations for future.
- Research related to more fully achieving the goals, collecting particular information (be specific).
- Responses of the employer to this and similar situations.
- Next steps in using your achievements to achieve future goals.
- New directions to pursue that have come up in the course of your work.
- Suggestions about new questions/goals that can now be identified in order to make further progress and why.
- Highlight unique features of the project that distinguish it from others, either for your employer or on a larger societal scale.

Literature Cited/References

Clearly describe the sources of information that you used in your Final Work Report and for your work. Wherever possible link statements in your text to specific references.

All citations must be complete by providing the following information:

WHO: Author(s)

WHEN: Date (year is sufficient for published scientific articles, month and day may be necessary for material drawn from the public mass media: web, newspapers, magazines, blogs, etc.)

WHAT: A title

WHERE: Scientific journal name, volume and pages; other media as appropriate but in sufficient detail so that the reader can easily locate it.; URL should be supporting information to a verbal description of the source.

Please be consistent in your use of a citation/reference format (for example - ASA (American Society of Agronomy)) generally a format using “author and year” is preferred.

Evaluation by Employer

The Co-op Work Term Report Employer Comments form (standard format) is **required**. While this evaluation, completed by your employer, is taken into consideration by the faculty evaluator, it is not used in the formal grading of the report.

Appendix 4: Advice on how to write an effective report

The report may take as much work to create as your original work on the job. This is because you will do at least two important things while writing your report:

1. You will look at your work at a 'big-picture' level rather than through the details of your day-to-day work. You will have to do a lot of thinking about both the details of your project and how these relate to the stated goal, and how the outcome of your project informs even larger issues in science and public or private society. You will have to put your work in context and this may require additional gathering of information from the literature and other sources.
2. You will also have to create an effective written communication for an intelligent third party who may nonetheless have little experience about specifics related to your project. So be prepared to give yourself enough time to think and write well. This means expect to write multiple drafts.

If you need assistance with writing skills, contact the Learning Commons in the McNaughton Library for assistance. See the other writing resources noted on page 2 of the Guidelines, including <http://www.hemingwayapp.com/>.

A warning about cutting and pasting: Good writing is NOT cutting-and-pasting material from other sources while supplying 'fill' material. This results in 'scrapbook' writing, which is generally very poor quality. Your writing is like a fingerprint. It has many personal qualities that are characteristic of how you think and communicate. This is your 'voice' and 'style' giving each of us a distinct 'writing-print'. A reader rapidly recognizes your writing style and voice, sometimes within the first paragraph. This means that if you cut-and-paste material from a variety of sources and include some of your own words, your writing ends up sounding unavoidably like a patchwork quilt, and this is not effective communication. Quoting without citation is also viewed by many as passing off someone else's work as your own and so may qualify as evidence of Academic Misconduct. Avoid these problems by NOT excessively quoting from other sources (even when appropriately citing the source). Use quoting sparingly, if at all, to drive home a major point because quoting is uncommon in most writing (except journalism). We are interested in your words and voice as it indicates something about the quality of your expression, creativity and thinking about the work you performed to achieve certain goals. Excessive quoting will tend to be penalized.