

## 4. Deliverables Requirements

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Deliverable requirements are described below. Consult the “Evaluation” and “Event Calendar / Timesheet” sections of the course manual for details regarding due dates, timelines, and assignment weightings.

### Literature Review & Research Proposal

You will 1) Review and summarize the current literature in your designated field of study and 2) Formulate a problem statement, objective, and a work schedule for your project with the help of your supervisor.

At the beginning of your project (week 1), you will meet with your research supervisor to discuss your project objective, work schedule and recommended reading. It is important that you fully understand the problem to prepare a proposal. A literature search and background reading will be required before writing the research proposal.

To review the literature, students are required to prepare a literature review (max. 10 pages - with 1.5 line spacing). The literature review will be a concise summary of the key literature (with references cited) pertinent to the proposed research. The review will be thorough and summarize:

- essential theory
- major developments in the field
- current limitations
- properly references tables and diagrams are encouraged to illustrate key points

The 10-page maximum does not include appendices.

Prepare a concise proposal (max. 3-5 pages - with 1.5 line spacing) which includes:

- Include a title page (does not count toward the 5-page limit) showing the official/formal title for your project
- A clear objective statement
- A list of the tasks necessary to accomplish the objective and a brief description on how these tasks will be done
- A work schedule with timelines and personnel assigned to specific tasks. Include a schedule of meetings with your supervisor.

See the lit review and proposal evaluation sheet sample (located in the “Forms & Information Resources” module of the course onQ website) for additional guidance on content and expectations.

***Please submit your literature review and research proposal via the course onQ website by 10:00 pm on Monday, November 9, 2020.***

You must obtain approval of your proposal from your Research Supervisor before proceeding with any lab-related work.

It is not expected that once a proposal has been accepted, that you will follow it rigidly. However, if you have reason to modify your work plan, you should first discuss your plans with your supervisor.

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## Laboratory Work

There is no assigned laboratory period for this course. It is your responsibility to make arrangements for access to where you will perform your work (consult with your supervisor) and to organize your time to accommodate access to the work area and any training required.

**Note: access to labs may be severely limited this academic year due to COVID-19 concerns.**

Each student is required to work a minimum of 7 hours/week in the Fall term, and 11 hours/week in the winter term, on their designated project. The minimum requirement may include laboratory and/or modelling work, literature searches and writing documentation. Please use the monthly calendars provided in the “Event Calendar / Timesheet” Excel workbook and use them for your reference and to record the dates and times you have worked on your project. A copy of this calendar workbook is to be submitted along with each of your progress memos for assessment.

*You must read and follow all safety requirements listed in the “Safety Expectations” section of the course manual. All students must have WHMIS certification.*

*Students must also complete and sign all three of the following safety forms before starting ANY laboratory work.*

- [Departmental Safety Expectations](#)
- [Student/Worker Safety Orientation](#)
- [Experimental Procedures for Thesis Projects](#)

Completed forms must be submitted to the Department Safety Officer, Kelly Sedore.

See the [Queen's University Environmental Health & Safety Page](#) and [www.msds.com](http://www.msds.com) for links to Material Safety Data Sheets.

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## Monthly Progress Memos

Each student is required to complete four progress memos. Memos will be completed and graded on an individual basis. A copy of the event calendar / timesheet excel workbook with dates and times you have worked on your project must be submitted along with each memo.

The memo serves as a brief monthly progress report to the Course Coordinator (D. Poirier).

Include a descriptive Subject Line (eg. **Subject:** October Progress and Status - Ozone Bleaching of Wood Pulp).

Make your points clearly and concisely with short sentences. The tone should be business-like. Avoid point form unless it dramatically aids comprehension. Use fairly short paragraphs even if one or two are only one sentence long.

The memo should be one page (two pages max.- with single line spacing) plus attachments and professionally summarize:

- Objectives of recent work
- Accomplishments, (work that has been done) - Milestones achieved
- Challenges, difficulties
- Summarized results with concise analysis, discussion (do not include raw data or calibration files)
- Project status - on schedule, behind (quantify if possible)
- Changes to proposal, procedures, etc.
- Any important issues discussed at meetings with Supervisor/s
- Proposed plan of action (what's next, and how to do it)

Use a conventional memo layout (include **Date:**, **To:**, **From:**, and **Subject:**). If the memo is more than one page, consider using subtitles. There should be a logical sequencing of information.

See the memo evaluation sheet and a sample monthly progress memo (located in the “Forms & Information Resources” module of the course onQ website) for additional guidance on content and format expectations.

Students may also wish to review the section on memos in M. P. Jordan, *The Language of Technical Communication: A Practical Guide for Engineers, Technologists and Technicians*. 2nd rev. ed. Kingston, Ont.: Quarry Press, 2000.

***Submit your progress memo (as one WORD .docx file) and your calendar/timesheet (one Excel workbook .xlsx file) by 10:00 pm via the course onQ website according to the following deadlines:***

- Saturday, October 31, 2020
- Monday, November 30, 2020
- Sunday, January 31, 2021
- Sunday, February 28, 2021

***Students are expected to meet with their supervisors a minimum of every two weeks to discuss research progress.***

## Interim and Final Oral Presentations

Duration: 12 minutes plus 3 minutes for questions.

Audience: Supervisor/s and, optionally, research group members (e.g. Grad Students and/or Post-Docs).

Presentation skills as well as the content of the presentation will be evaluated according to:

- design of the presentation in terms of background and colour themes, spelling and grammar.
- brief and clear introduction so that someone unfamiliar with the field would understand what the research is about and the state of current knowledge
- clear definition of objectives
- clear, audible speaking style and speed at all times
- flow of the presentation such as smooth transition from slide to slide, level of confidence and ending within allotted time
- clearly visible, understandable, and properly labeled graphics (Figures, Tables, etc.) and appropriateness of choice.
- clear indication of the significant information in graphics
- quality of scientific/engineering content
- summary or list of conclusions
- knowledge of subject, ability to answer questions

Evaluation sheets for the presentations can be found in the “Forms & Information Resources” module on the course onQ website.

Presentation slides (.pptx or .pdf format) must be submitted/uploaded to the course onQ website by the deadline stipulated in the presentation schedule document, available in the “Schedules” section of the course manual on the course onQ website.

Presentations must be performed for your Supervisor sometime before the deadline stipulated in the presentation schedule document (in the course manual module), by any mutually convenient remote meeting process. The Zoom meeting app is a good option. But, if you want to use a different method . . . whatever method works best for both Student and Supervisor is fine.

The Student and Supervisor are responsible for arranging/scheduling/conducting the oral presentations. The Supervisor will evaluate the presentation, then forward the evaluation sheet to the Course Coordinator within 24 hours of assessing the presentation.

## Final Report - Short Journal Article

Research Project Supervisors are welcome to impose their own set of formatting requirements. This may be desirable, for instance, if you intend to submit your work to a specific scientific journal. The guidelines provided below are meant to provide you with a starting point for the report format requirements. If your supervisor has no strong feelings about the report format, then you need only follow these guidelines. Your expectations and those of your supervisor may be different. You should clarify these expectations before you begin working on your report.

The following resources are available in the “Final Report” submodule of the “Forms & Information Resources” module on the course onQ website:

- Slides Handout for “Journal Paper Writing” presentation
- Examples of Scientific Journal Articles with:
  - Separate Results and Discussion Sections
  - Combined Results and Discussion Section

Final reports for CHEE 408 should be:

- *Estimated Length: maximum of 15 pages (not including title page, appendices, references, tables, figures)*
- Use a single column for the main text (i.e. not two columns as in the sample Scientific Journal Articles)
- Font size: 12 pt
- Font type: Times New Roman
- Double space the entire body of the text
- Use 1" margins
- No end-notes, footnotes

If the written report is a result of the combined effort of more than one student, a one page summary of member contributions is required. This should *identify all of the significant tasks involved in your completed work (e.g. research, and writing), and apportion the responsibility taken by each member.* A brief statement that "all members contributed equally" is **NOT** acceptable. For this purpose, your group may want to consider a log book. You may record all hours spent working on the project, the nature of the work, such as research, reading, laboratory tests and simulation runs, as well as the results of all meetings and problem-solving or decision-making sessions. This summary is a method for identifying the significant tasks involved in your project and the success of your team in working together.

***The draft of your written report (in the form of a single WORD .docx file) must be submitted via the course onQ website by 10:00 pm on Monday, April 5, 2021. Please note, draft reports are to receive a final grade.***

The draft report should not be rough. It should be as near-complete as possible, given the current status of your project.

The purpose of requiring a "near-complete" draft (Apr. 5), followed by the final report (Apr. 16) incorporating your supervisor's recommended edits, is that everyone should end up with a better final document than if only the final report were submitted. The hope/intention is that you will end up with something that you will be proud to show to a potential employer or prospective Grad School Thesis Supervisor.

See the draft and final report evaluation sheet sample (located in the "Forms & Information Resources" module of the course onQ website) for additional guidance on content and expectations.

***The final version of the report (in the form of a single WORD .docx file) must be submitted via the course onQ website by 10:00 pm on Friday, April 16, 2021.***

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## **Peer Evaluations**

At the end of the year, students that have been working on their project with another student/s are to submit a peer evaluation. **Peer evaluations are to be submitted electronically via the course onQ website, by 10:00 pm on Saturday, April 17, 2021.**

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Last updated July 28, 2020