

**CMPSC 580
Junior Seminar
Spring 2021**

**Lab 2: Senior Thesis Project Proposal Assignment
Senior Thesis Project Proposal**

Objectives

To complete the senior project proposal. To use in L^AT_EX a proposal that contains the sections of a formal senior thesis project (i.e., Abstract, Introduction, Related Work, Methodology, Evaluation, Discussion, Conclusions and similar).

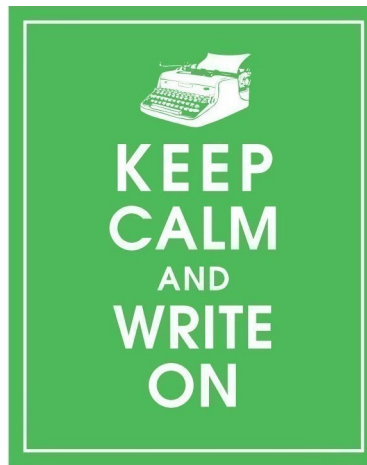


Figure 1: Writing your proposal may be worrying but, with careful planning, it can also be calming as your work will seemingly write itself.

1 Introduction

As we work our way through the rest semester, we will be working continuously on a proposal for a senior thesis idea. Each of your sections in your final proposal will build toward the final goal of the project but writing each part can be a deliverable in itself. To help create this concise, informative and illustrative proposal, we will be spending time to write each section, piece by piece, and so as Figure 1 notes, *keep calm and write on!*

Specifically, each week you will tackle a particular section of the proposal document, participate in peer editing exercises, and revise your written content, before proceeding to the next section of the proposal. This will allow you to determine the best ways to describe your ideas as they build on each other for your senior proposal and to ensure you complete a carefully written document.

You will use the same repository for each portion of the assignment. As you work on different components of your proposal, you may find it useful to utilize a proper GitHub Flow. Spend some time during the class today to explore GitHub flow and concepts such as branches, pull

requests, and merges. You can begin your exploration by reading the Understanding GitHub Flow at link, <https://guides.github.com/introduction/flow/>. Then, you can practice by following the steps outlined in the GitHub flow guide.

Today's assignment repository can be found at the below link to a GitHub Classroom repository. Here you will work on your assignment and then push your work to the cloud where the instructor will be able to view your work for grading. Often, there will be files in your assignment repositories which you are to edit before you submit them by using the below commands for `git`. Note, you will be using this same repository to complete your proposal section by section.

<https://classroom.github.com/a/1FKdUMzV>

To use this link, please follow the steps below.

- Click on the link and accept the assignment
- Once the importing task has completed, click on the created assignment link which will take you to your newly created GitHub repository for this lab,
- Clone this repository (bearing your name) and work locally
- As you are working on your lab, you are to commit and push regularly. The commands are the following. GitHub Actions CI will automatically check that your `LATEX` file builds correctly.

```
- git add -A
- git commit -m 'Your notes about commit here'
- git push
```

- When you are ready to create a release and submit a PDF of a section, you must tag your release using the following commands, replacing my name with your own and changing the version number appropriately.

Note: minor changes to your document would be reflected by incrementing the right-most number in the version by one. Larger changes will alter the middle number and left-most numbers.

```
- git add -A
- git commit -m 'Your notes about commit here'
- git tag senior_thesis_proposal-obonhamcarter-1.0.0
- git push -u origin main --tags
```

Please be sure to read the `README.md` file to help with your push tasks. After you have pushed your work to your repository, please visit the repository the GitHub website (you may have to log-in) to verify that your files were correctly sent.

Summary of Deliverables

Your work in each section is to be seasoned with the spices of project motivation, causing the aromas of relevance in scholarship to materialize and drift freely to the reader; an effort to ensure a continued appetite for fascination and excitement.

You are to write a document containing a proposal for the completion of your research idea. The goal of the proposal is to relay your novel idea to your future committee and other readers by motivating it properly, placing it in the context of existing work, describing the specific details of how you plan to accomplish the goals of your proposed project, and carefully considering the feasibility of the project and the timeline of its completion.

The final proposal is to contain the following sections, although others may also be required for your particular projects.

- Required sections:
 - **Title:** An informative and exciting title for your proposed project.
 - **Abstract:** An overview of your project where you include some of the highlights of your motivation, method, anticipated results, discoveries and conclusions. Since this section is only about 250 words, you will not have much space to include all these elements in a lengthy discussion. You will have to be very brief, yet meaningful in your discussion of the associated parts of your work. It is often easier to write the abstract once all of the other sections of the proposal have been completed.
 - **Introduction:** All written projects begin with an introduction section where the main ideas of the work are introduced and contemplated. The reason for why the reader is to care about this connection is addressed while enriching the reader's knowledge about the problem and why it should be solved. Here you will also spend time working to develop support for your novel idea and to motivate your approach in light of the existing field relevant to your proposed work.
 - **Related Work:** In this section, you are adding relevance to your work by situating it in relation to other studies, lines of thinking, research projects, methodologies, etc. In your introduction, you will briefly situate your work within the larger body of existing knowledge. In the Related Work section you will explain in more detail what is already known about your research area. To make this discussion, you will be citing peer-reviewed literature, existing software projects, and common knowledge in the field (from the books) to allow the reader to understand the significance of your proposed work.
 - **Methodology:** In this section you will inform the reader how you intend to prepare some solution or to reach your goal of research. For instance, all steps that you take to complete some part of your work ought to be described so that one is able to re-create your steps and to arrive at the same conclusion. Write this section as if you are writing it for yourself – if you have these notes available to you, then you will not forget how to perform different types of research where the approach to the research is similar in the future. Specify any relevant algorithms, software tools, programming languages, etc. that you will utilize for the completion of your project. This section should also include a demonstration of feasibility.

- **Evaluation:** This section will describes the process to be undertaken to validate the proposed work using applicable evaluation metrics. It could include evaluating performance of an algorithm, statistical analysis of data, user study to be conducted, etc. The evaluation plan must be feasible, possibly including multiple evaluation strategies and a backup evaluation option.
 - **Conclusion:** In this section, your proposal document will draw to a close. Here you will remind the reader of the advantages of your proposed idea. You will discuss how the outcome will be a benefit and describe how your proposal is feasible at Allegheny and can actually be completed in the time frame that you specify.
- Minimum Length: 10 pages. If you have graphics you will need to use more pages, large graphics, especially, will not count toward the minimum page requirement.
 - Bibliography: You are to use a minimum of 12 references in your proposal.
 - At least one diagram (e.g., flowchart) created by you. Reading some of the detail that goes into one's proposal may be complicated and so the addition of a graphic to describe will be a great help to the reader. Remember, you *want* your readers to completely understand your work since they represent those who can offer you an incentives to complete the project on time and without failing.
 - At least one table or graph to enable the reader to understand existing work and/or your methodology.

Peer Review

You will participating in a peer review activity during class sessions, where each individual is to read the work of another member of class to offer constructive feedback. To help you to be constructive and effective during this editing task, you will be following questions such as those below. The actual questions, which will differ from section to section, will be given to you during the assignments of the peer editing deliverables.

You must have each section of your proposal read and edited by at least one person in this class, and you must read and edit at least one peer's proposal sections other than yours. To offer your feedback to your peer, you will submit your feedback (the answers to the leading questions) written in a proper Markdown language into the peer's *issue tracker* on GitHub. For this, you will have ensure that you have access privileges from your peer.

- The writing is free of typographical and grammatical errors.
- The writing in each section has a logical flow.
- Each section contains an introductory and summary statement.
- Proper transitions between sections are present.
- The writing in each section does not contain non-professional language and omits technical jargon.

- The document includes some visuals such as diagrams, flowcharts, etc.
- The document is properly formatted (uses the given template, does not contain unneeded white space, etc.).
- The motivation and the arguments in the paper are well cited.
- There are sufficient recent citations present.
- The citations include a diversity of sources.
- The writing contains sufficient detail to allow an entry-level researcher to understand its premise.

Your produced writing will also be reviewed by a technical leader and the instructor.

2 Evaluation and Due Dates

You will receive notices in class with the assignments and the deadlines of each section's deliverable. The failure to complete and submit drafts of each section by the stated due date will result in a reduction of your proposal grade. Failure to participate in peer editing process will result in a failed participation grade for that activity.

Specifically, the grade that a student receives on the senior project proposal will have the following components and percentages:

- **Writing of Sections [up to 60%]:** Each main section (Introduction, Related Work, Method of Approach, Evaluation Strategy) will contribute to up to 15% of the proposal grade. This grade incorporates the quality of each section, the progress made toward the final draft of the section, and the timely submission of the draft and the final version.
- **Title, Abstract and Conclusion [up to 20%]:** The quality of the title, and the abstract and conclusion sections will account for up to 20% of the proposal grade.
- **Mastery of Technical Diagrams, Tables, Graphs [up to 10%]:** A portion of the proposal grade will also be determined by the quality of the required (at least one) diagram and (at least one) graph or a table.
- **Length [up to 5%]:** A portion of the proposal grade will be determined by the satisfaction of the length requirement.
- **Bibliography [up to 5%]:** A portion of the proposal grade will also be determined by the quality of the required bibliography (at least 12 sources).