Request to Extend Thesis Research

Graduate Program on the Environment

The Evergreen State College

Graduate students who require additional time to complete their thesis work may request an extension for the Summer or Fall quarter immediately following the Spring Thesis Workshop. The extension must be requested by the student and approved by the reader and the MES Director. Starting in 2017, students who are approved to continue work on their thesis will be signed up for a one-quarter extension and pay an extension fee of $500.

If the student does not complete the thesis by the end of the requested quarter, it may result in the student receiving No Credit for their thesis and the student being withdrawn from the program. Reader: Please attach any further stipulations for thesis completion.

I, Ryan DeWitt, request an extension to complete my thesis in (choose only one quarter):

\_X\_ Winter Quarter 2021

I also understand that I must pay the $500 fee to extend my thesis work for one quarter.

I have read the information outlined in the MES Student Handbook about the services I can use at Evergreen while I am a thesis extension student.

I have attached my answers to the questions below to this form.

1. Describe your progress on your thesis thus far.
2. Describe the reason(s) for not completing your thesis by this quarter’s deadline.
3. Provide a detailed plan for completing your thesis during the next quarter.

Approved: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (Thesis Reader / Date)

Approved: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (Director / Date)

1. **Describe your progress on your thesis thus far.**

Thus far, my major areas of progress have been: 1) the development and execution of a toxicological study evaluating the effects of copper to early life stages of bull kelp; and 2) the research and development of my overall analytical framework.

In regards to the lab-based work, I have collaborated with with individuals at the Puget Sound Restoration Fund, the Northwest Fisheries Science Center, my reader (John Kirkpatrick) as well as the Evergreen SSC to develop my laboratory method. This method includes the cultivation of bull kelp and a 48-hour copper exposure in a temperature and light controlled environment. As part of the method development, I have conducted multiple control trials, necessitating field collections of kelp on seven separate occasions at three different locations. In October I successfully conducted my first complete 48-hour exposure and obtained results. I am currently working with my evergreen lab SIT to get trained on equipment (e.g. ICP-MS) needed to more accurately quantify my exposure concentrations.

In regards to the overall framework, I have been researching and developing an Adverse Outcome Pathway (AOP). AOPs are conceptual models that mechanistically link adverse effects at different levels of biological organization; from the molecule to the organism to the population. The development of the AOP will provide the context to connect my toxicological study to the broader question of my thesis.

1. **Describe the reason(s) for not completing your thesis by this quarter’s deadline.**

The major challenge faced thus far has been around the development/troubleshooting of my method. Initially, I had some difficulty in getting viable kelp samples, primarily because of weather constraints. As the weather improved, I was able to access kelp, however my access to the lab became limited due to covid restrictions. John Kirkpatrick has been enormously helpful and supportive in helping me find ways to continue with the lab-based component of my thesis during these restrictions. Although the lab-based work has undoubtedly taken longer than it would have in pre-covid times, progress is now being made and I am encouraged by the recent completion of my kelp exposure test.

1. **Provide a detailed plan for completing your thesis during the next [Winter] quarter.**

My thesis involves both a lab component and a literature-based conceptual model. My intention is to complete the laboratory component of the thesis within this Fall quarter. The remaining lab-based tasks include the use of ICP-Mass spectrometry to quantify my copper exposure concentrations. Depending on the results of that analysis I will be able to determine whether a follow-up kelp exposure is necessary. Once the lab-component is complete, I can turn to a more balanced management of the remaining components of my thesis (e.g. results analysis, literature review, discussion, etc.). I anticipate that I will need to extend my thesis beyond winter quarter. However, for the purpose of this extension request, see table 1 (below) for a schedule which assumes a winter quarter completion goal.

**Table 1. DeWitt MES Thesis Extension Timeline (Winter)**

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| --- | --- |
| **Major Task** | **Estimated Timeframe** |
| **Part 1 – Development of Draft** |  |
| * Science Support Center SOP | Oct (late) |
| * ICPMS Copper concentration test | Nov (early) |
| * Data analysis – dose response | Nov (early) |
| * Draft Adverse Outcome Pathway | Nov (mid) |
| * Draft updated literature review | Nov (mid) |
| * Draft results to reader | Nov (mid) |
| * Draft discussion to reader | Dec (early) |
| * Result revisions | Dec (early) |
| * Draft conclusions to reader | Dec (mid) |
| * Discussion revisions | Dec (mid) |
| * Draft introduction section to reader | Jan (early) |
| * Conclusion revisions | Jan (early) |
| * Introduction revisions | Jan (mid) |
| **Part 3 - Complete Draft to Final** |  |
| * Complete draft to John K. | Jan 15 |
| * Draft revisions and updates | Jan - Feb |
| * Request to Present Thesis Research | TBD |
| * Presentation | TBD |
| * Finalize Thesis | March 5 (to reader) |
| * Final Thesis to MES | March 12 |