


Undergraduate research has been a wonderful and rewarding experience. I have learned many valuable lessons that cannot be learned in a traditional classroom. Furthermore, it has been very rewarding to watch my hard work contribute to an ongoing project that will continue after I graduate. That being said, there is still more work that can be done to strengthen my senior thesis and to contribute to the advancement of my project. This work will not be possible without the opportunity to fully immerse myself in research over the winter session. There are several specific objectives I plan on completing during the allotted time that if completed would not only strengthen my thesis but propel my project forward as well.

A crucial piece of information necessary for the propagation of my project is the amounts of the proteins I am studying relative to one another in wild-type *Drosophila*. In order to obtain this information, a Quantitative, Reverse Transcriptase Polymerase Chain Reaction experiment needs to be conducted. Over the summer I attempted this twice, with inconsistent results. More work needs to be done in preparation for this experiment. This is something I plan on spending a considerable amount of time on in the winter.

Another common practice in *Drosophila* genetic labs is controlling mating. The purpose of this is to acquire flies with a specific desired genotype. In order to do this virgin female flies must be collected. Virgin females exist for approximately 10 hours after they eclose (or hatch). This means collection must occur twice daily, in order to obtain enough virgins in a reasonable amount of time. Working in the lab full time over the winter will allow me to do this and consequently allow me to complete more experiments in the timely fashion necessary.

A majority of the data I collect involves confocal microscopy. In order to determine phenotypes many samples must be reviewed and documented. This semester I have worked in concert with my advisor on the confocal microscope gaining the training necessary to operate it on my own. During the winter session I will be reviewing and documenting my own samples, work that was previously completed by my advisor and lab technician. This process is very time consuming, but is absolutely necessary for my project. The extra time over the winter will allow me to obtain better data and consequently improve both my senior thesis and the propagation of my project.

Above are three of the more time-consuming actions I plan to complete during the winter. Any other time will be spent on other necessary experiments, reviewing papers and drafting my thesis. I have put a lot of work into this project but it is still far from complete. Although this project will continue in my absence, the only way I feel fit to repay those that have helped me is to advance this project as far as possible. In this regard, enhancing my senior thesis is a secondary, hugely beneficial consequence, of my greater goal to contribute to this collective aim. I assure you that given the opportunity; I will take full advantage of the extra time I am given and meet all the goals I have set for myself.



Expected Budget:

Typically I spend my winters working to acquire the money necessary to make it through the subsequent semester. This winter I plan on staying on campus and submerging myself in my research. In order to do so I must have adequate funds to support myself. The six hundred dollars awarded will be used in the following fashion:

350 dollars- Rent. This is the monthly amount I pay towards my rent and utilities; my parents graciously provide the difference.

100 dollars- Utilities- Average cost of my utilities during the winter months I have been here.

30 dollars per week, for 4 weeks- 120 dollars- Groceries- This is, on average, the amount I spend per week on groceries.

30 dollars- flexibility incase my approximations are incorrect or to be used for future expenses (i.e next month's rent or next semester's books)

All numbers above are approximate (except for rent, that is fixed). Any extra money, will be set aside for future expenses (i.e future rent, utilities, groceries, books etc). Usually my winter income supplements the money I still have saved from working over the summer so, although I may not spend all 600 dollars over the winter, the extra money is necessary to keep me afloat during the upcoming semester.