

January 2008 Applied Studies Report

Good Student

Placement: Good Company

Course Title: Biological Sciences 3980, Laboratory Research Assistant

### This Month:

- Training
- Getting Used to the Equipment

My employer is <insert name> and I am mainly collaborating with his graduate candidate student <insert name> with her research. Each week I work in Hepler Hall and alternate between two of the laboratories in the building. To summarize her research, <insert name> is attempting to determine whether male or female cottonwood trees are more common in flood-prone areas. This is important in the assessment of the impact of dams on riparian tree communities. A great way to determine flood or drought tolerance of a plant is by analyzing the stomata on their leaves. This is where I will help with <insert name>'s research.

My task is to find the stomata on leaf imprint peels under a microscope that has a camera attached to it. I take five pictures of each peel, and then transport the pictures to a computer where I count, measure the lengths and record the number of stomata found on each leaf type. I analyze samples of flooded plants, drought plants, controls, males, and females. I also am responsible for keeping records of my analyses. Based on this data, <insert name> will gain insight into whether there is any correlation between flooded sites and male/female sex ratios.

### Training

I first had a meeting with <insert name> where he explained the research that I would be helping <insert name> with. I then met with <insert name> who took me on a tour of the building and showed me the work she had done to construct the leaf peels I would be analyzing. On my first day, <insert name> and I worked together on the microscope and computer, deciding on ways that I could complete my work with the highest quality and efficiency possible. She taught me the steps required at both stations, and answered any questions I had. I also met with <insert name> who will serve as the "plant and stomata expert" on this project and he gave me some helpful advice for my work on the microscope and computer. <Insert name> and <insert name> both stressed the need for quality rather than quantity, putting me at ease with any time constraints that I was worried about.

### Getting Used to the Equipment

One of the hardest parts of my job is working with the microscope. I really had to train my eye to notice all of the stomata which are sometimes very small and hard to see. There are adjustments that need to be made with each slide, and at first what I thought were stomata that I focused the camera on turned out to not be when I transported the picture to the computer. There was a very steep learning curve with the pictures though, and after the first couple of pictures I got used to focusing properly. Sometimes it is still

hard to focus, especially on some of the slides that are hard to see, keeping this a challenging part of my job.

#### Time and Billing

I am receiving \$xx an hour/10 hours per week/13 weeks (or longer if I am not finished viewing all of the slides).

#### Hours Completed in January by Date:

##### Week 1:

January 10 – 3 hours

##### Week 3:

January 21 – 3 hours

January 22 – 4 hours

January 23 – 3 hours

##### Week 2:

January 14 – 3 hours

January 15 – 2 hours

January 16 – 2.5 hours

January 17 – 2.5 hours

##### Week 4:

January 28 – 3 hours

January 29 – 3.5 hours

January 30 – 3.5 hours

#### Summary

I am very happy to be a part of this research. My main interests are in Environmental Science and Biology, so this is a great opportunity for me. I find this study to be very interesting, and even though I will help with just a small part of it, I am eager to see the outcome. I think the fact that this subject is interesting to me will help to keep me motivated throughout the term. I realize how important this is when I think about how my actions have the potential to greatly affect <insert name>'s research and her results. This is why it will be important for me to always come to the lab with a clear head and the importance of the work in mind.

This opportunity will give me an idea of what it is like to be a part of a real research project. It is very early in the term, but already I have experienced the trials of things like figuring out how to complete a certain task, while always keeping the hypothesis in mind. I also will experience first hand the collaboration involved in completing each step of the project. All of the people involved already had a meeting with me to discuss how things were going in the early stages and where we think it should go. We all had a chance to put in our input and I learned more about the research process as a whole through this meeting. This was a great experience in working with others.

Throughout the term I am also keeping a journal of my day-to-day findings. In this, I write down any unusual peels I encounter, or if I see any repeating traits in one of the groups of leaves. This will help <insert name> to better notice any trends in the data later when viewing the outcome of the research. This journal will also enhance my experience in the lab by allowing me to think about what I am viewing, rather than just recording numbers. It will also help me to learn about different physiological traits that are present in riparian cottonwood communities, and some characteristics that appear in these communities in real life. Finally, I think the journal will allow some reflection of the concepts and tasks that I will learn throughout the term.

To be able to work with people like <insert name>, <insert name>, and <insert name> is really a great experience too, as they are all very knowledgeable and advanced in my field of interest. I think I will learn a lot from these people, and this will make my applied study an invaluable experience. Everything seems to be going great so far.