Edward Kwee
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A.) Co-op Work Assignment

I worked in the Product Development division of the Research and Development Department at the Musculoskeletal Transplant Foundation (MTF). MTF is a non-profit musculoskeletal tissue bank; the largest in the country. MTF’s research and development department has over 50 employees across three divisions. I was involved in the development of one of MTF’s new products. The project was a high priority for the company so there was always something for me to do or help out with. My co-op project involved generating temperature profiles of shipments across the country and determining if such temperatures were detrimental to human tissue viability. I was also involved in the Orthobiologics division with processing human tissue and performing assays.

For Product Development, I received a list of standard operating procedures to read and become familiar with. Training was provided by technicians in the Orthobiologics division. I was trained according to the checklist that all technicians are trained through.

I was assigned to work under a senior product engineer. I could freely ask her questions. I had the freedom to discuss new experiments with my supervisor and, with her approval, perform my own experiments. In addition to my project, my supervisor gave me several smaller assignments, one of which included working with a MTS machine.

B.) Assessment of Learning and Development

Working with the Orthobiologics division, I was able to make significant use of my laboratory skills. Micropipetting, making solutions, performing assays, and aseptic technique were valuable skills from my undergraduate research that I was able to apply. Having this background, I was able to become integrated into the team very quickly. Also, having the background knowledge of general biology, general chemistry, biochemistry, and human anatomy were very useful.

With regard to engineering skills, mechanics of solids and heat/mass transfer were important courses to this co-op. Mechanics of solids was fundamental in all engineering projects. Having a working knowledge of heat and mass transfer was useful in my shipping studies.

Working as a co-op helped improve my problem solving skills. There were always new problems that arose that required new solutions. My writing skills were made to good use as writing reports was also an important aspect to the co-op. I was required to maintain a laboratory notebook and write reports- which were submitted as official company documents. In addition to daily written or verbal communications with my supervisor, I delivered weekly updates to the project team. Towards the end of the term, I also delivered a presentation to summarize my work to representatives from all the departments at MTF.
In terms of personal development, the co-op experience provided the exposure of working with different types of people. MTF has a rather relaxed social environment. It took awhile to get used to calling my superiors by their first name. In order to succeed at MTF, I learned to plan ahead, anticipate problems, be considerate of other people’s needs, think logically, be flexible, and always keep a positive attitude.

C.) Life Outside of Co-op

I lived in Piscataway, NJ which was about 25 minutes away from Edison, NJ- where MTF is located. Housing is readily available within a 30 minute drive due to MTF’s proximity to Rutgers University. One could find housing using Rutgers’ off-campus housing database or through Craigslist. It is very important to have a car for transportation. The Edison/Piscataway area is very developed with many shopping centers, supermarkets, movie theaters, and restaurants. There is a major mall within 5 minutes of MTF.

There are social opportunities with the Rutgers University community, such as sporting events. MTF offered several social opportunities including a pizza lunch, pot-luck lunch, company breakfasts, and others.

D.) Evaluation

Perhaps one of the best aspects to the co-op was being able to attend activities that occurred outside the daily occurrences of my project. There were several opportunities for off-site events which involved traveling to Maryland to observe goat surgery and traveling to NYC to sit-in on a consulting meeting on instrumentation. I was provided the opportunity to attend project meetings which involved members of all departments at MTF. All of these activities helped provide perspective on the bigger picture of how projects are run and how MTF functions.

It is important to note that I was the only co-op/intern during my work term. This was beneficial in that I could work on my own project and, if I had downtime, I could usually find something to do. The downside to this was that there were no other interns to work/live/socialize with. Regardless, everyone I worked with at MTF was generally very friendly, helpful, and made working there fun and enjoyable.

One important aspect to research at MTF is that work is dependent on the availability of human tissue. There were times when research tissue was unavailable and projects could not continue. I took advantage of these days to update my paperwork. These periods sometimes lasted for a whole week. On the other hand, things were extraordinarily busy and exciting once tissue was available. My projects required very long incubation periods that required me to wait on time periods from 5- 20 hours. This required me to come in early in the morning, stay very late, and even once on the weekend. Regardless, the extra time and effort put into working at MTF was very rewarding in knowing the amount which I accomplished for my project.
E.) Additional Information

MTF is an excellent place to co-op. The projects and assignments are important and relevant to the company's goals. Some days can be rather slow, but most are fast and exciting. When there is research tissue available, you will hardly be at your desk. The people at MTF are great to work with. They are passionate about their work and the goals of MTF. MTF's work benefits many people and truly makes a difference in medical care. I highly recommend to co-op at MTF for any biological engineer.