

Reflective Essay RESL 1500

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As a science student, research is a topic which is discussed as early as in first-year. It is also a very intimidating topic as you have no idea what it entails. My belief was that it was only reserved for the best students, as most research is conducted by master's or PhD students. Little did I know research is for everyone. My plans going into university were to get my degree as fast as possible and apply to a pharmacy program. My plans changed as I developed a curiosity and appreciation for chemistry through my second-year organic chemistry class. When I realized I could combine my appreciation for chemistry with my passion for protecting the outdoors I knew I had found my new career path. I changed my major to environmental chemistry which led me to the path I am on now.

As a chemistry undergraduate student, you are exposed to a large scope of research activities. Between writing literature reviews in class or designing your own research project labs in laboratory, there is no shortage of research exposure. Although it wasn't until my fourth year I decided to embark on my first supervised undergraduate research project. Two main reasons I waited so long to pursue research were large course loads in third and fourth year and the intimidation of approaching a potential supervisor. After reviewing a final exam with Bruno in the summer he mentioned that if I wanted to try research or any extra curriculars to contact him. I contacted him in the summer and began brainstorming ideas for a directed studies project starting in September. During this project I learned so much about my research abilities and obtained so many new lab skills. I learned new techniques for creating solutions suitable for

Nuclear Magnetic Resonance (NMR) spectroscopy analysis. Including which solvents are best for different scenarios using NMR spectroscopy. I became very comfortable running the NMR instrument with no supervision. This is a very important task as in labs usually the instructor is running the instrument with your help, so you don't actually learn how to run the instrument independently. My report writing skills have also greatly improved since beginning undergraduate research. Usually when you submit a laboratory report the only feedback you get is once the report is marked. When writing my directed studies reports I was able to go back and forth with Dr. Bruno Cinel and Dr. Sharon Brewer with revisions to improve the report while I was creating it. Another area of improvement was my communication skills. My project required discussion and revision with faculty from different disciplines including geography and natural resource sciences. I was able to refine my procedures and learn new topics about soils from these faculty through email communication. Another learning aspect is long term project planning. Chemistry laboratories only last a semester and project labs within them usually only last 2-3 weeks. Owning a research project for a whole year requires much more planning and discussion with different faculty members. I believe this is the most valuable skill I learned during my research as it is extremely beneficial to a career after academia. Through my experiences in co-op work terms I have learned the importance of proper planning, especially when setting deadlines with your superiors. Working three co-op work terms in the summer I was exposed to many research projects in different fields including biology, chemistry, and agriculture. Working at these large companies I learned the importance of keeping proper records and how to record data in the field.

I have had many shifts in my thinking towards undergraduate research since starting my first year at Thompson Rivers University. I am no longer afraid to approach a faculty member about being a potential supervisor, I could ask anyone of the chemistry faculty with confidence. I realized that the faculty members are excited about research and love new ideas. As long as you are willing to put the effort in and be creative, they will be willing to work with you. I now realize that research is for everyone, and it is most beneficial to start undergraduate research early in your academic career. This ensures you have sufficient time for multiple projects and can collaborate with as many people as possible. I have also realized how connected research is to the workplace outside of academia.

The importance of the research activity extends past your time at university. The importance of research in my career will be towards environmental protection. Without scientific proof and scientific research, it is very difficult to create change. I hope to be in the environmental consulting discipline creating my own research projects to solve problems or environmental disasters. Research can tell us the source, impact, and transportation of contaminants in the environment. Once the research has reached some conclusions, new regulations can be set within the company or government to prevent further environmental risks.

Undergraduate research opportunities have greatly impacted my future. My experiences with my directed studies research project have motivated me to pursue a master's degree after graduating from Thompson Rivers University. Before my fourth-year I had no intention to continue my education as I just wanted to "get in and get out". I now know I have the ability and skills to pursue a master's degree. Assurances and motivation from my research supervisor have further inspired me to continue my education. Participating in research also gives you strong

references for graduate school applications and scholarships. I will also be able to reference my research experiences for job applications in the future. A popular question asked in interviews is around project planning and time management. I will now be able to reference my research project and all the planning which went into it.