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University of Manitoba Faculty Profiles

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Photo by:
Riley Brandt, University Relations, University of Calgary

Why is experience valuable for undergraduate students?

There are the obvious professional development aspects of spending some time in a lab, which always looks good in a CV. In my opinion, however, there are also some really valuable soft skills that can be learned from partaking in a research project. During an undergrad program, a lot of focus is placed in the acquisition of knowledge, but not so much in the application of this knowledge. Solving problems when they come. Oh! They do come! It requires making connections between all those pieces of knowledge that the student gathered before and using them to come up with creative solutions. That is something that can only be developed when conducting research hands-on.

Anyone that has published anything in the peer-reviewed literature knows the hard work that goes into it.
— Jose Luis Rodriguez-Gil, PhD

What opportunities are available for undergraduate students?

I am a new recruit to the department, so I am learning that myself, however, within the coming months, myself and Dr. Hanson will be looking for undergraduate students to work with us in a number of projects that we have coming down the pipe. No pun intended, a large portion of my current research centers around pipeline spills in freshwater systems. This research is being carried out at the world-renown IISD — Experimental Lakes Area (IISD-ELA). The IISD-ELA has an excellent program of internships for students that allows you to spend a whole summer working at the World's Freshwater Laboratory. This program includes some Manitoba-specific scholarships, so if you like lakes and forests, get in touch with us.

What value do undergraduates get from publishing?

Again, there is a double value here. Of course, it looks great in your CV. Not only as another line on it, but as a very impressive one. Anyone that has published anything in the peer-reviewed literature knows the hard work that goes into it. Seeing a peer-reviewed publication in an undergraduate student's CV speaks to a great number of skills and personal characteristics from that student that no other section of a CV would. At the same time, there is the part of being able to say that you have contributed to create new knowledge in your area. If the research doesn't get published, independently of how hard you worked on it, in the view of the rest of the world, it was not done. That is sad, because of the waste of your own work and effort, but also because it could lead to waste of other people's resources and effort if they end up doing it again because they didn't know it already had been done.

Of course, these decisions need to be based in the scientific knowledge acquired previously, but how that knowledge gets used when things don't go according to plan is where a great researcher shines.
— Jose Luis Rodriguez-Gil, PhD

What does it take to be successful in research?

As I mentioned earlier, one of the most common occurrences in research is things not going as planned. Problem solving capabilities and a bit of creativity to come up with new ways around the problem are great skills to have in a lab or in the field. Of course, these decisions need to be based in the scientific knowledge acquired previously, but how that knowledge gets used when things don't go according to

plan is where a great researcher shines. Many of these times could very well be opportunities for new ideas and future research waiting to happen. On a more work-life balance side of things, that constant problem-solving can be tough, and as such, to be able to do it for an extended period of time (your whole career!) you do need to learn to take a step back, have a break and come back to it with fresh eyes... and if it does not work, learn to let go!

Who has influenced you the most?

I am going to have to go with Dr. Mark Hanson. Mark was my PhD co-advisor, and we have been working together for over a decade now! More than in my science, where he has obviously had an influence, I believe his influence is more noticeable in the kind of researcher/advisor/mentor I want and try to be. He is approachable, he cares, and somehow, he manages to stay on top of things, even when he is incredibly busy! You never fall off his radar. He also taught me, early on, about the importance of being involved in the greater scientific community by joining and partaking in activities and organizations. That has payed off countless times over my career. Fortunately for me, I am now at the University of Manitoba, so we will get to work together for many years. Come join our labs!

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How will your current job help achieve long-term career plans?

I am currently a Research Fellow splitting my time between the IISD-ELA and U of M. The IISD-ELA is known as "The world's freshwater laboratory" and it has been compared to the CERN, or the International Space Station of aquatic research, for it is the only place in the world where the kind of work that we do (large ecosystem-scale freshwater research) can be done. Obviously, working at the IISD-ELA is a dream shared by most people working on fresh-water related issues, so I feel incredibly fortunate to be able to say that I work there. As a research associate, my job is to support research currently being carried out (like the oil-spill program mentioned earlier) but also to come up with my own research agenda of research that can take advantage of what this unique facility has to offer. At the same time, my work at U of M allows me to remain in touch with the university community and the students, who after all, carry out most of the research. While it is an early-career position, I believe there is a long future and great room for growth within IISD-ELA and U of M, and I am looking forward seeing where it takes me.

Describe a problem you faced. What did you learn?

I am not going to talk about one single problem, but a time in my life when I had to deal with many problems. During the past 2 and a bit years I have been project coordinator for a large project (3 PIs, 14 grad students) which involved simulating a series of oil spills in lake enclosures. This involved very hard work with a 6-month field season at the IISD-ELA. Every day we had to face "problems", from equipment malfunctioning, to fish not wanting to work with us and of course, all the cascading effects that those things would have in the general project and the work of the different students. I think my main learnings from that time are summarized in my previous answer to "what makes a successful researcher". Problems are not rare, but the norm in research, one has to learn how to get used to them, both in the professional sense (you do get better at coming up with a "plan B") and in the personal sense. You need to understand that it is just part of the job, and while you do want to do your best, sometimes, you need to leave the problem for a bit, go home, enjoy your family and friends and come back to it with a fresh set of eyes. Even if at the time it looks like the most important thing in the whole world... It likely can wait.

Solutions are easier to see with a fresh pair of eyes.
— Jose Luis Rodriguez-Gil, PhD

How do you motivate a researcher going through a low point?

I know it seems like your whole life right now, but it is just work... Go home and take a break.