At the beginning of this summer, the Molecular Genetics and Epigenomics Laboratory (MGEL) in the College of Agriculture and Related Sciences (CARS), headed by Dr. Venu Kalavacharla, hosted three biology students from the laboratory of Dr. Khwaja Hossain, Associate Professor of Biology at Mayville State University in North Dakota. Mollee Crampton, an MGEL Research Technician, led the training project with the assistance of other staff and students at Delaware State University (DSU). The students were able to learn and implement molecular biology techniques here at DSU that they were otherwise not able to conduct at their home institution. During their brief, week-long stay, Alex Johnson, Cheyennee Durant, and Lindsey Shimpa gained experience in these techniques:

- DNA and RNA isolation
- Nucleic acid quantification
- Polymerase Chain Reaction (PCR) – a widely used molecular biology technique used for genotyping and DNA amplification
- Preparation of agarose gel and Gel Electrophoresis
- Nuclear isolation

Below is a summary of their stay in their own words.

What initiated your interest in your field of study?

Cheyennee: I want to be a wildlife biologist. I’ve always had a love for animals. Just a few years ago I experienced taking in sugar gliders, raccoons; helping them, kind of like rescuing them. Giving them a place to be, when they didn’t have a place to go.

Alex: I want to be a doctor and a biology degree, with a chemistry minor, really helps towards getting into medical school with all of the class requirements.

Lindsey: I’m getting a biology degree with a fitness and wellness minor to go into Physical Therapy. Biology majors have a lot of the requirement courses for graduate schools and requirements for the physical therapy program.
What specifically did you come to the MGEL lab to accomplish?

Cheyennee: To learn how to do things like DNA sequencing. I’ve never done a lot of that stuff before and it’s important for our jobs. It’s important to know what I’m doing [in a laboratory setting].

Alex & Lindsey: Our mentor [Dr. Khwaja Hossain] sent us here to get an understanding of DNA sequencing and isolation, DNA extraction and doing cDNA synthesis, because we really don’t have the resources to learn how to do it anywhere in Mayville; to basically get a good understanding of it.

What is the most valuable kernel of knowledge that you have picked up since you have been here?

All: Being able to communicate with others, because there are a lot of other people in the lab, so I think communication is a really big thing that [we’ve] learned and I think that we will take it back home with us. We will know how to be careful with other people’s [property] and just respecting other people’s lab space. At Mayville there are only three of us sharing the lab. We can now be more efficient with these processes in our own lab space.

Would you recommend this type of learning to other students and why?

Cheyennee: Absolutely! Personally, hands-on learning is the best way for me to learn. It may not be for everyone but it’s good because they can read through the protocols and then actually be able to put it into practice. Anyone can read a protocol but actually being able to make it work is another [issue]. And actually having a working mentor, such as Mollee, be there step-by-step for the first few times through the process really helped.

Alex: And the same thing that [the MGEL] is doing here with us, we plan on doing that with high school students when we get home, so they can be exposed to this if they ever want to work in a lab. I know I never had lab experience when I graduated high school; I came into the lab and I had no idea what I was doing. So this helps a lot; knowing and getting a good understanding of it.

Lindsey: It also offers a chance for people to make connections with people that can [possibly] help them get onto the path that they want to be. Like for me, I want to go to graduate school but I’m still kind of not sure where to go and I was thinking that this could be one of my options. So it kind of helps with these kind of experiences to meet people, and see where you can go for your future.

Thank you for letting us come, it’s been a great experience.

From left to right: Lindsey, Isaac Fisher (DSU Student Researcher), Cheyennee, and Alex. Preparing agarose gel in the microwave.

For more information on opportunities like this, please contact:
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