A DeLIGHTful Class

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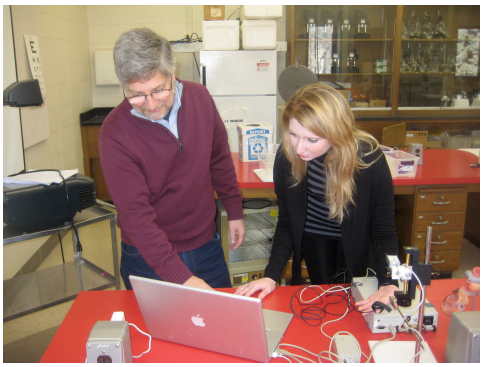

Professor Doug Light showing Alina Konnikova '11 how to measure pulse using data acquisition software which is used for physiological research and education.

Have you ever seen or heard of Spring peepers? If you have not, you are in for a surprise! These tiny tan colored amphibians possess a unique adaptation, which allows them to survive the harsh winters of the North America--these frogs are freeze tolerant. Freeze tolerance is an amazing physiological adaption, which is only found in a few other frogs. When the ice starts to form on the skin of the frog the sympathetic nervous system is activated, which in the end causes a release of glucose that acts as a cryoprotectant, preventing the cells from freezing. By taking Animal Physiology, a class taught by one of the most enthusiastic professors at Lake Forest College, Douglas Light, students can learn about the captivating world of adaptations that animals possess.

Throughout their undergraduate careers, biology students plunge into the diversity of the biological world, but in order to make this journey truly fulfilling one must take Animal Physiology! The format of the class is quite simple; it consists of lectures followed by exams and a final project presented in the last weeks of the semester. The lectures consist of a quick review of the information taught in Introduction to Biology class, followed by an in depth evaluation of complex concepts that explain the numerous adaptations evolved by various animals. All of these intricate mechanisms are unified by constant themes, which are emphasized during the class. For example, one of the themes of the class is counter-current exchange. This reoccurring concept can be seen ranging from topics of osmoregulation to excretory system to heat regulation. Knowing how the process works in one system allows the student to apply the known knowledge to additional systems. All of these themes are further supported by the ample number of examples which Dr. Light presents during the course.

Mike Fiske '11, when asked to comment on his favorite aspect of the class, says, "Animal Physiology taught me an essential skill to learn biology: to understand concepts rather than memorize trivial facts."

Have you ever had a class which had fascinating lectures but very dull, monotonous labs? Well this class is not the case! Majority of central themes taught in class are supported by experiments in the laboratory. The experiments range from cutting out the muscles from a frog's leg to observing action potentials through the muscle to measuring diving response of your lab partner by making them hold their breath in cold water! Having hands-on labs, which re-emphasize the material learned in class, helps the student understand the material better. In addition, using the different techniques in the laboratory allows students to see some of techniques used by physiologists every day to conduct research. In the end of the semester, each of the students does a presentation on the animal that they have studied for the later part of the class, which is a great way to present your research. This project is called “Adopt an Animal” and is similar to the project that every LFC freshman student does in Introduction to Biology class. The animal that I adopted was a Gila Monster. I was quickly amazed by the uniqueness of this organism, often seen as a scary, animal. I learned that Gila Monsters produce a protein in their venom glands called Exendin-4. The synthetic version of this protein is used today as a medication for treatment of Type II Diabetes. Thus, not only did I learn about interesting techniques, but I also learned about a fascinating animal.

Philosophers often contemplate on dilemmas, such as what came first the chicken or the egg? Interestingly, Lake Forest biology students often have similar dilemmas when answering what makes a class fascinating. Is it the information taught that is captivating the audience, or is it the skillful teaching style of Dr. Light? Clare Conlisk'10 when asked what was her highlight of the class, says, "I think Dr. Light was the highlight of Animal Physiology. He has the ability to make every class session entertaining, and every discussed topic interesting." Dr. Light is a very engaging professor whose passion for biology can be seen during class. He uses different teaching styles in order to explain the concepts which include numerous visual props such as transparencies or drawing on the board. He is very easily accessible. You can usually stop by his office to either ask a question or, most likely, play with his dog Baxter, a black Labrador retriever. However, most often, Dr. Light will engage into a conversation with his students in the hallways asking how they are doing, or asking them about the meaning of life. Thus, this shows that not only are LFC biology students philosophical, but so are their professors.

When I asked Dr. Light what are the specific goals that he had for the class, he said "the specific aims of this class were to improve student's understanding of chemical reactions significant to the living organism, energy transfer mechanisms that sustain life, understanding of membrane structure and function, and the mechanisms of sustaining homeostasis.” However, I believe that students learned much more then these goals. We learned how to perform hands on research similar to that done by physiologists. Most importantly, we learned how to apply the knowledge we have gained to unknown situations, thus improving our critical thinking skills, which are vital to a biology major.