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Teaching Philosophy

My goal as a college professor is to foster a sense of curiosity, autonomy, and confidence in my students, as well as provide the foundational knowledge for our emerging scientists. I want students to view me as more than just a

professor, I want them to see me as a mentor. There are several ways I establish that bond.

Building a trusting relationship – As one of three full-time biology faculty at Penn State York, every student passing through the B.S. in Biology major or related 2+2 programs will take one or more of my classes before leaving our campus. I engage all students in our program, many times before they have me as a professor. I help them navigate their academic plans and troubleshoot roadblocks. I accomplish this through participating in advising sessions, biology club meetings, departmental picnics, informal campus events, involvement on student committees, new student orientation, and casual discussion. This helps me better comprehend student perspectives, learning styles, academic strengths and weaknesses, and possible attitudes toward the materials presented in my classes. Additionally, this builds a level of trust by which students feel comfortable seeking my help when they have academic problems or need advising advice. I strive to make a bigger impact throughout the campus by drawing on the experiences of my students, bringing their concerns and difficulties to the Academic and Student Issues Committee, which I co-chair.

Keeping it relevant - I tailor presentation of course material to student interests and use active learning techniques to make meaningful connections. In my molecular biology course (BIOL 230W), students were blown away to hear the molecular explanation for the pigmentation pattern of my Siamese kitten (who they helped name). In the same course, I ask students to blog on a broad biological concept that is interesting or relevant to them. Weekly they relate cellular processes that may seem abstract on the microscopic level to their topic of interest. For a premed student, the effect of protein structure on cellular function is much clearer when they can see how it drives human conditions like cancer and Alzheimer's disease. I use think-pair-share challenge activities, group work, and scholarly literature discussions to encourage proficiency of critical and independent thinking. Labs are another way I engage students through inquiry-based methods. In one lab, students use DNA testing to diagnose bacterial infections in ecologically relevant insects, such as the spotted lantern fly, an invasive species that is decimating fruit crops across eastern Pennsylvania. The results of this study will be publishable, and students have expressed interest in spending time outside of class to process the samples, lending evidence to their engagement in the project.

Connecting the dots – Learning is cumulative. My favorite moments in the classroom are watching students use knowledge and skills from my previous classes to answer new, complex questions. I run two of my 400-level courses as seminar courses in which there are no exams - only scholarly literature discussions, presentations, and grant writing projects. Students use the foundational concepts I've provided them to not just read, but to deconstruct a scientific paper. I ask them to put themselves in the authors shoes. How did the researchers formulate their central question? Why did they do each experiment, and what are the controls? Why are these findings important? These courses culminate in a grant writing project in which students develop a new study based on one of the papers discussed in class. They must understand the biological concepts well enough to develop a new question and identify which techniques, materials, and controls can be used to answer that question.

Formalizing curiosity – Scientists are made in the laboratory. I encourage students that are interested in performing research in my lab to apply for funding from various sources for these projects. I hold an annual grant writing workshop for all students in our department, and in the past two years, participants received grants from Erickson Discovery (8), Student Engagement Network (9), Pennsylvania Academy of Science (3), and American Arachnological Society (2). Working in the lab, my students become independent learners well versed in ethics, molecular techniques, troubleshooting, collaboration, and scientific communication. They must be self-motivated and persistent to succeed, even when experiments aren't working. They hold themselves and each other accountable. Lab members present their research locally and nationally in both oral presentations and posters. They talk about their research at Penn State recruitment and retention events. They also participate and run STEM related workshops for grade school children in our "Pathways to Your Future" event. Several students have even co-authored publications on their projects. My lab members gain the confidence to communicate science to a broad range of audiences and are well prepared to enter their graduate studies or the workforce.

To close, every day I wear a wrist band with the words "Aspire to Inspire". These are words I live by and teach by.