Teaching Philosophy

My philosophy of teaching could be better described as a philosophy of learning. There are three key values I hold in college instruction: student-centered learning, a positive learning environment, and multicultural education. The purpose of college education is to help students learn to communicate, to think, to build character and to prepare to be a citizen of the world[1]. There should be one more aspect: teaching students how to learn in the first place. My primary goal is to spark a student's curiosity and further motivate their self-learning skills through positive interactions. I found that student loose attention and interest when they cannot see the utility of the knowledge, especially when they come from different education backgrounds or may choose different career paths rather than studying science. Therefore, I use three approaches to meet my goals: 1) I teach with my full enthusiasm for a subject to convince students to enjoy learning; 2) I create a positive learning environment to show my availabilities; 3) I design my class from simple and familiar concepts and then build it up to the complex problems.

1) Convert my enthusiasm to inspire students' joy of learning:

As a student myself for 20 years, when I reflect, the most memorable classes I had were all delivered by enthusiastic teachers. When I first began to teach, I increased my volume to show my enthusiasm, which was not an effective strategy. Student found it easier to hear me, but their attention level went down. Later I found that adding some scientific anecdotes that show my passion for the field really caught students' attention. I added personal stories and shared with them how I was excited when I learned about similar topics in college. I realized that students picked up on my excitement and it led to better attention, engagement, and retention. My students and classroom observers have repeatedly praised my enthusiasm on course evaluations:

> *"Enthusiastic and well informed on the topic.*
> *The instructor showed enthusiasm for the material. Students were attentive throughout the class."*

2) Create a positive learning environment:

To create a positive learning classroom environment, I believe that building a positive interaction between students and teachers is key. After each lecture, I always stay to wait for students who have questions or want to talk to me. I also make myself available for extensive office hours and via email. I created a discussion board with the UCONN Blackboard system to facilitate students posting questions and helping each other. During each lecture, I make sure I ask effective questions to engage students. I also deployed a clicker-based activity via Poll Everywhere to measure students' learning progress. Most importantly, I show my care and support. To students who are hardworking and high achieving, I provide positive feedback to further strengthen their intrinsic motivation[2], which creates significant learning experience. My classroom observers have praised my strategy on course evaluations:

> *"The instructor interrupted the lecture to ask good questions frequently, both orally and via Poll Everywhere.*
> *Several students asked questions about the material, and all or nearly all participated in Poll Everywhere."*

3) From simple to complex, then break down complex to simple:

When designing my lecture/lab material, I always make sure I cover enough background and fundamental knowledge before diving into more complex concepts. For example, in my animal genome editing lecture, I make sure to start with introducing the concept of DNA encoding genetic material within each cell, and give students enough review on the knowledge they are familiar with. Moreover, I teach students to break down complex problems. During one in-classroom practice, I asked students to design a gRNA used in genome editing with the DNA template provided. I also gave hints to break down this complex problem into multiple steps: 1) write out the complement DNA sequence; 2) RNA contains uracil instead of thymine. Such active learning techniques remind the students of the broader context for complex concepts and illustrates how they can apply what they have already learned to seemingly difficult questions.

As a college instructor, my goal is to be knowledgeable in both the subject I teach and in pedagogy. I want to teach students how to learn by building long-term memory and creating new connections to master the knowledge. As an educator, I believe my teaching philosophy will change with experience throughout my career. I am always open to improvement and willing to learn and make changes.

Teaching Interests and Experience:
I have been a teaching assistant for three years in an undergraduate and graduate student combined class Animal Embryology and Biotechnology. In my four years of Ph.D. study, I have designed the material for and taught seven invited full lectures in the UConn Animal Science undergraduate classes, including Animal Embryology and Biotechnology, Principles of Animal Genetics, and Animal Breeding and Genetics. Together, I have received three in classroom observation evaluations provided by the Center for Excellence in Teaching and Learning (CETL). I have also mentored approximately a dozen junior graduate students, visiting scholars, and undergraduate students in laboratory research and computational biology.

To improve my teaching, I completed the Certificate in College Teaching Program at UConn to learn pedagogical techniques. Through one year and nine credits of both theory and practical classes, and with five pedagogy books for our reading circle, I built up my own teaching portfolio in college-based multicultural education. Moreover, I took one semester of the <u>Teaching Experience in Animal Science</u> class offered by UConn Animal Science department. In this class, I observed the classroom for one semester, designed a lecture with lab, taught the class, evaluated/self-reflected on the class, and developed a teaching philosophy.

I would be well-equipped to teach a range of undergraduate subjects including Animal Genetics and Genomics, Animal Embryology and Biotechnology, Reproduction. I would also enjoy teaching a graduate student level classes such as Next Generation Sequencing Analysis in Animal Science, which would be composed of hands-on practice and problem solving. Moreover, I also like to teach a lecture/seminar-based graduate class, such as Animal Genomics and Epigenetics, in which I would rotate between lecturing and paper discussion, using a flipped classroom and a focus on primary literature.

REFERENCE
(1)   Bok, D. *Our Underachieving Colleges: A Candid Look at How Much Students Learn and Why They Should Be Learning More - New Edition*, REV-Revised.; Princeton University Press, 2006.
(2)   L. Fink. *Creating Significant Learning Experiences: An Integrated Approach to Designing College Courses*; Calif: Jossey-Bass.: San Francisco, 2003.