Kelsey H Jensen
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I view biology courses as an opportunity for my students to engage with scientific thought, process, and laboratory skills while developing the foundations of critical analysis and communication. My goal is to use their natural curiosity about the world around them to impart skills they will use throughout their academic and professional lives. I aim to use my passion for environmental science to develop a generation of students equipped to tackle increasingly complex and pressing global issues within and beyond the scientific community. When biology is taught effectively, students come away with skills that are transferable beyond the lab, with the knowledge to succeed in higher level courses or independent research, and the capacity to be self-guided learners after the end of their formal education.

Starting from the moment my students enter the classroom I aim to create an equitable, respectful, and supportive learning environment. This is foundational to the teaching techniques that will support their learning. If a student is anxious because they think they will be called on randomly without warning, or bored because they know they will never be asked to share their thoughts, they are not actively engaged with their learning. My students know what they can expect from me each day, from each lesson plan, and from the course overall so they can come prepared and make the most of our class time. I use fundamental teaching techniques to ensure that I am teaching to all students and not just those who already know the material or are most enthusiastic. Knowing my students, their goals, and concerns for the class helps me to effectively communicate the relevance of each lesson. Of all the small changes I have made to my teaching to improve interest and participation, the most effective has been simply to walk around the classroom as we discuss the topic at hand. When class feels more like a conversation than a lecture, students are more willing to ask questions and give answers, even when they are uncertain. This immediacy breaks down barriers that hinder productive discussion often absent from science, but essential to learning complex ideas.

Most students come in to my classroom with a traditional background of high school science that involved a lot of memorizing and little critical thinking. Shifting this mindset is one of the biggest challenges of teaching an introductory level undergraduate course. The most frequently asked question I get is: “Is this the right answer?”. My goal is to change inquiries of accuracy to questions that demonstrate a desire to understand, apply, and challenge the content we are learning. My favorite moments in class are when I get a great question from a student and can turn to the rest of the class and ask: “What do you all think?”, challenging them to participate in scientific discussion. When I ask questions of my students to gauge their understanding, I always solicit multiple answers to emphasize that there is rarely one fully correct answer. I encourage them to write down their own answer, compare with a neighbor to see where they differ, and then discuss their reasoning. This gives students an opportunity to check their own understanding, and then asks them to use what they know to address discrepancies and determine if both answers are possible. This pushes them to think like experts by taking multiple view points and challenging existing paradigms.

Early on in my teaching experience I realized that I cannot rely on just asking students if they understand a topic, as they often have no metric for gauging how much they understand. To address this challenge, I aim to have small pre- and post- assessments that help me to measure their learning and the effectiveness of my teaching strategy. I rely on formative, low stakes assessments as they are proven to help student learn through regular self-testing and allow me to adjust my teaching as I go. Assessments should ideally be a teaching tool in themselves. I believe that using assignments that teach other skills while evaluating understanding (such as writing a critical analysis to a journal article, giving an oral presentation, or writing a non-scientific

communication), are a more realistic evaluation of how a student will transfer the skills and knowledge from a course to the "real world".

If we don't teach our students to be life-long, self-guided learners then we are not preparing them for their future careers. Being a scientist means continually engaging with new content and using new discoveries to guide our own projects. Education research across many disciplines has shown that reading textbooks, highlighting terms, and re-writing notes, is not an effective learning strategy. Every semester I see students who roll their eyes when they realize I am not just going to give them the answer but that they will have to be actively involved in their learning. Working to engage with the material in multiple ways throughout the semester will always give better learning outcomes than pure lecturing. My experiences with teaching have impressed on me the value of putting extra intention into both *what* the students are learning and *how* students are thinking. Considering how I interact with my students and how I ask them to engage with the course content can simultaneously improve the learning outcomes and the experience of students. I want anyone who steps in my classroom to leave with not just a functional knowledge of the course material but feeling empowered to pursue their own curiosity.