

ESTABLISHING A PATTERN FOR STUDENT ENGAGEMENT—**ACTIVE LEARNING** THROUGHOUT THE CLASSROOM



Dr. Kate Biberdorf teaches General Chemistry to 300-500 students each semester. Using a hybrid format, she expects her students to work outside of class, arriving at lecture with a basic understanding of the concept being covered that day. To test their comprehension, and keep them engaged, Dr. Biberdorf employs iClickers throughout her 50-minute course to create a pattern of active learning.

Infusing Active Learning into the Course Structure

Dr. Biberdorf establishes a very specific style to her course right from the start, enabling her to not only set an appropriate tone, but to prioritize active learning within the very format of each lecture. iClicker Cloud helps, through quizzes and questions, to keep students engaged with the material throughout a single lecture. The basic pattern for her course is:

- Musical Introduction
- Warm Up
- Quiz
- Mini-lecture
- Related question
- Mini-lecture
- Related question

iClickers are used to administer both the quiz and related questions, but each component helps engage students and set a tone for the class that encourages students to actively participate.

Setting the tone with music

The music Dr. Biberdorf selects to open up her course typically has nothing to do with the Chemistry concept being covered that day. **“It wakes them up and gets them moving,”** says Dr. Biberdorf, who often teaches after lunch. It helps get them engaged and excited and sets a tone that this course is something that requires students to do more than just sit and listen.

Warming up with a personal story

Once class officially starts, Dr. Biberdorf kicks things off with a story about her personal life. Her goal is to humanize herself to her students so the atmosphere is less intimidating. Having such a large lecture course, it's easy for students to feel overwhelmed, but showing them she's just a regular human being helps set a comfortable tone, one in which students will be more likely to actively participate when the time comes.

Checking in with quizzes

This is the most serious part of each lecture in that correct answers matter as students respond to iClicker Cloud quiz questions related to the required pre-class work. Grading is based on accuracy, but students are allowed to use their notes to find answers. This includes anything they've written down prior to coming to class. They can't use their neighbor and they can't go online.

Lightening things up with mini-lectures and cooperative questions

The rest of each class bounces between mini-lectures and iClicker questions that are graded on participation rather than accuracy. Students are encouraged to talk to their neighbor when these questions pop up on the screen. **"I pose a questions to them and they start talking to their neighbor. They're engaged. They're moving around. They're working,"** says Dr. Biberdorf who hates if the room gets too quiet at this stage. Points are awarded for the students clicking a button rather than getting the question right.

Facilitating the interaction among students isn't a one-woman show, according to Dr. Biberdorf. Students in the Peer Learning Assistant Program – STEM majors who did incredibly well in the General Chemistry course – are invited back to walk through the class as teaching is taking place, helping guide students and encourage interaction.

Getting students to class with iClicker Cloud

By assigning a certain amount of points to the iClicker content in class (exams primarily influence final grade at 85 percent of the course) Dr. Biberdorf is able to help students build confidence in chemistry as they engage in lecture. Assigning value to the in-class work provides an incentive to come to class. Additionally, iClicker helps keep students active throughout the entire lecture because they're having a positive experience.

Two other strategies Dr. Biberdorf employs through iClicker to get students to class, relate to the accessibility of iClicker Cloud. Technically, students could respond to quizzes and in-class questions without physically being in class since iClicker Cloud is accessible from just about anywhere. Dr. Biberdorf makes sure the primary way to earn points is to be present.

- **Pick an existing answer choice:** If a question is put up that has A, B, or C as an answer choice, and a student selects 'D' as their answer, then no credit is awarded. It's clear students aren't physically in class if they're unable to pick at least one actual option for the questions put up in class, which are graded on participation.
- **Referencing the right image:** **"For quizzes, I'll load a question into iClicker, says Dr. Biberdorf, that says something like, "In the picture on the screen, what chemical process is taking place?"** The picture isn't loaded into iClicker, so the students have to be in class to see the slide and get the question right. Because quizzes are graded on accuracy, it's imperative they get the answer right to receive credit.

Conclusion

iClicker is an attractive tool for Dr. Biberdorf's class because it's ready to go. There is no need to import questions into a polling platform, and iClicker offers a variety of question types so students aren't always responding to multiple choice. iClicker Cloud also gives the students options as to what device they use to participate – phone, tablet, laptop, even a desktop. With this ease of use for both instructor and students, Dr. Biberdorf has been able to create a course structure utilizing iClicker that helps students actively learn throughout each lecture.