

HOW SIX

Innovative Educators Use **Aktiv Chemistry** to Drive Student Success

Aktiv's interactive and intuitive platform
transforms chemistry courses

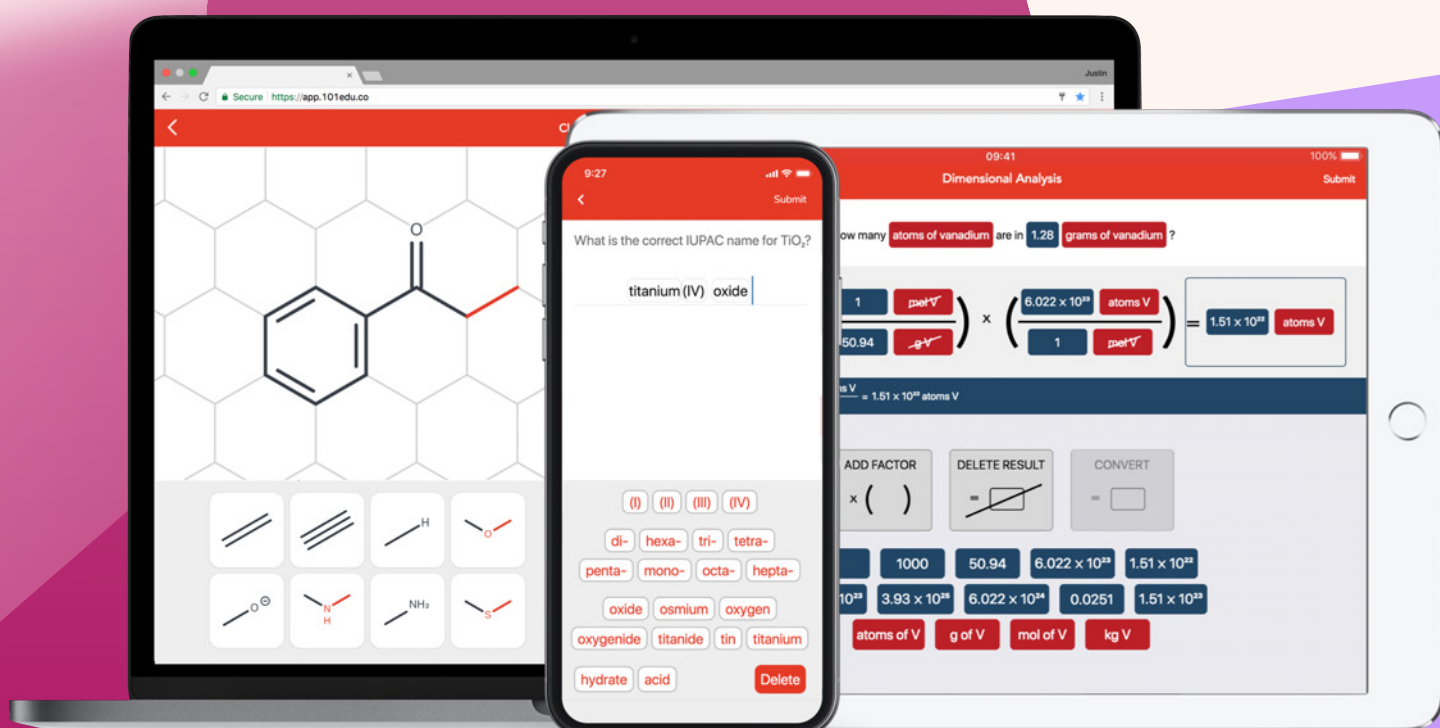


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Flipping the Narrative on Student Success in General Chemistry

STEPHANIE DILLON

Director of Freshman Chemistry Labs,
Florida State University



The Challenge: Maintaining rigor was a labor-intensive process

Constant practice and feedback go a long way in helping solidify concepts. But in a class of 350 students, that's easier said than done. Stephanie Dillon came up against this challenge when looking to flip her general chemistry classroom. Dillon was concerned about cheating in such a large course. In addition, she wasn't thrilled about ending class ten minutes early to discuss answers to practice problems. The time commitment involved with frequent practice was adding up as well. Dillon would type out her homework, print out worksheets and write all answer keys, which made for a cumbersome process.

It's why she embraced Aktiv Chemistry to form a robust flipped course that gave students the instant feedback they needed, all while preserving academic integrity.



Aktiv Chemistry allows us to present conceptual questions, mathematical questions, drawing questions—there's pretty much no limit to the type of question you can ask.

Dr. Stephanie Dillon

How Dillon uses Aktiv Chemistry and why her students love it:

- **Diverse question types:** Students demonstrate their knowledge in multiple ways by drawing Lewis structures, setting up dimensional analysis, or inputting chemical equations.
- **Greater peer connection:** Students use in-class time to discuss Aktiv problem sets together.
- **Randomized questions:** Questions are randomized with Aktiv's intelligent algorithm, putting cheating concerns at bay.
- **Guided, instant feedback:** Students receive tailored feedback provided by Aktiv Chemistry's chemical intelligence after inputting a wrong answer.

[▶ Hear from Dr. Dillon in this short video](#)

The Results

350+

General Chemistry students taught per semester

23%

improvement in 'A' grades in Fall 2022

2 hrs

to set up 37 lectures using Aktiv Chemistry

Helping Students Buy Into Their Organic Chemistry Experience

CATHY SERRANO LUGO & DANIEL COLLINS

Department of Chemistry, Texas A&M University



The Challenge: Rising dropout rates due to uneven preparedness

The right educational technology can be a valuable part of an educator's toolkit. That holds especially true in organic chemistry as professors Cathy Serrano Lugo and Daniel Collins quickly found. Skeletal structures. Nomenclature exercises. Reaction mechanisms. Their teaching and learning platform couldn't offer the hands-on experience for students to practice their understanding of concepts. Nor could the educators measure comprehension of complex reactions using multiple choice or true-or-false questions alone. Worse, both faculty noted high dropout rates—hovering around 27 percent in Serrano Lugo's class.

Along with other course improvements they instituted, like active learning group work and peer-led assignments, Aktiv helped them improve student engagement.

“

Aktiv Chemistry is very easy to use and adapt into your learning activities during class. It's part of the reason why grades improved in my class.

Dr. Cathy Serrano Lugo

How both faculty use Aktiv Chemistry:

- **Scaffolded drawing exercises:** The AktivGrid lets students draw and manipulate organic skeletal structures and mechanisms, solidifying concepts “much faster” compared to other platforms.
- **Pedagogically-intelligent feedback:** Students rely on automated and personalized feedback to address misconceptions on the spot.
- **Collaborative and active lectures:** The educators love Aktiv's ability to break up the “vocal monotony” of lectures with opportunities for think-pair-share exercises and buddy quizzes.
- **Student-friendly homework experience:** Students enjoy completing in-class polls and homework from any mobile device, resulting in greater completion rates.

▶ [Hear from Dr. Serrano Lugo and Dr. Collins in this short video](#)

The Results

20,000

practice problems to choose from in Aktiv

5–7

students were now dropping Collins' course (compared to 15–25 before Aktiv Chemistry)

Sparking Engagement in Chemistry for Non-STEM Majors

ELAINE BERNAL

Department of Chemistry and Biochemistry,
California State University, Long Beach



The Challenge: Addressing mixed perceptions towards chemistry

No two students are alike when it comes to academic preparedness or the perceptions they may hold towards chemistry. Lecturer Elaine Bernal noticed a concerning pattern among her non-STEM major students. They arrived at her class intimidated by the thought of having to memorize equations and grasp mathematical formulae. She quickly realized that she had to make chemistry more interactive and less daunting for 300+ students with varying levels of proficiency. To do so, Bernal knew she had to reframe passive lectures as “conversations.”

It's what led her to Aktiv Chemistry, where she provides multiple active learning opportunities that help non-major students see the broader significance of chemistry.

How Bernal uses Aktiv Chemistry and why non-majors lean into learning:

- **An intuitive, game-like interface:** Students enjoy drawing Lewis structures and building molecules from their own devices.
- **Conversations, not lectures:** Aktiv has helped Bernal moderate class discussions—versus delivering dense lectures—and has improved peer connection in the process.
- **Greater relevance:** Students appreciate a visual-heavy learning experience that helps them see how chemistry applies to the real world.

▶ [Hear from Dr. Bernal in this short video](#)



Chemistry is a very visual and sensory subject. The platform opens them up to learning more about chemistry. Issues like climate change, global warming, real environmental issues. They're more attuned to that when they see how it works.

Dr. Elaine Bernal

Saving an Entire Community College Department \$60,000 Annually on Course Materials

BRAD BATES & BRIAN WOODRUM

Department of Physical Sciences and Engineering,
Chandler-Gilbert Community College



The Challenge: Traditional chemistry resources increased financial barriers

Steep tuition fees already put financial pressure on many students. Rising textbook fees don't help. Professors Brad Bates and Brian Woodrum vowed to make things different in their classes. Their previous \$200 chemistry course package not only contributed to financial barriers—the digital textbook and lab product they used weren't easy to navigate and led to a rise in student complaints. What's more, students didn't have the flexibility to access coursework on devices they already owned.

It's why the duo applaud Aktiv Chemistry's affordability and user-friendliness for students and faculty alike.



Aktiv Chemistry is an extremely high-quality product for an extremely great price and everyone seems to love it. I get zero complaints. It's fun, easy, and the students pick it up really quickly.

Dr. Brad Bates

How both professors use Aktiv Chemistry to lower the barrier to entry:

- **Free access to OpenStax textbooks:** All chemistry students now enjoy learning from free, high-quality textbooks that integrate with Aktiv. Plus, extensive question banks provide tailored assistance when students need it most.
- **A mobile-first learning experience:** Students access Aktiv Chemistry questions and OpenStax content from their smartphones, eliminating the need to purchase hard-copy materials.
- **Reducing administrative work:** Both faculty appreciate Aktiv's ease-of-use and ability to create assignments in bulk. In turn, the number of student emails and complaints has drastically dropped.

 **Hear from Dr. Bates and Dr. Woodrum in this short video**

The Results

\$60,000

amount saved on course materials with Aktiv Chemistry and OpenStax

400

students enrolled across all general chemistry courses

\$40

new cost of course materials
(compared to \$200 previously)

Strengthening Student Bonds and Reactions Towards Chemistry

Students underscore the need for interactive and hands-on learning

Interactivity. Accessibility. Applicability. These can't be buzzwords for today's learners. Students have come to expect learning experiences that involve so much more than verbatim lectures. More than 6,100 students across 446 institutions reflect on the difference Aktiv Chemistry made on their learning.

Here's what they had to say:



95%

Aktiv Chemistry's user interface was **easy to use**

91%

Aktiv Chemistry helped **improve** my chemistry grades

86%

Aktiv Chemistry made me more **engaged** or **interested** in chemistry



I LOVED using Aktiv Chemistry for all of the amazing features such as the different ways to complete problems and making Lewis structures.

GOB Chemistry student,
University of Wisconsin, Stevens Point

I am able to understand different chemistry concepts because of being given feedback when solving problems in Aktiv.

General Chemistry student,
Vanderbilt University

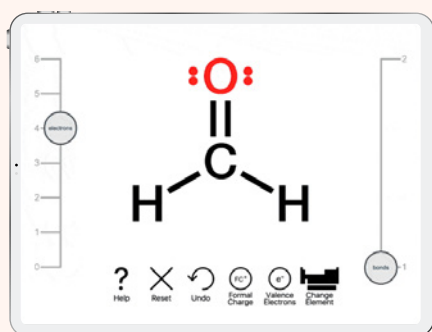
Aktiv really helped solidify my understanding of different topics, and it made me more comfortable translating what I saw in the lectures and read in the book.

General Chemistry student,
Oregon State University

▶ Watch inspirational student videos

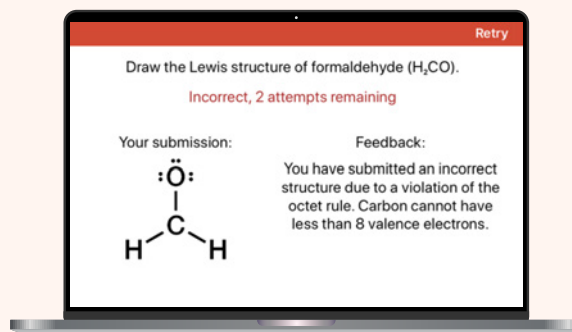
Why Faculty at 700+ Campuses Enjoy Teaching with Aktiv Chemistry

Aktiv Chemistry is an active learning platform that helps students tackle common pain points such as drawing chemical structures and mechanisms, dimensional analysis, nomenclature, equilibrium and more. Here's how Aktiv Chemistry transforms the chemistry course experience for faculty and students alike.



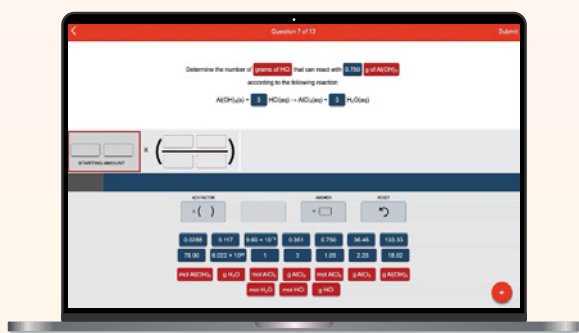
Groundbreaking drawing systems

Let students draw Lewis structures, organic formulas and mechanisms, and visualize VSEPR models using an intuitive interface.



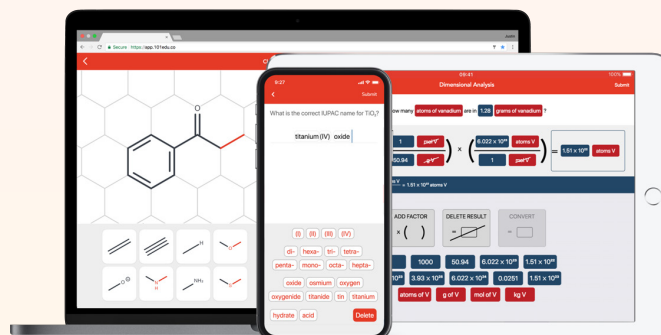
Feedback with chemical intelligence

Offer guided instant feedback that gives students helpful hints when they submit incorrect answers.



Reduce costs while increasing quality

Deliver more affordable and high-quality course materials with flexible textbook options including OpenStax and Top Hat, accessible via the Aktiv platform.



Grant a mobile-first learning experience

Let students learn on-the-go with a platform accessible from any smartphone, tablet, or laptop.



Ready to level up your chemistry course?

Get started by speaking to a Learning Specialist at aktiv.com/chemistry