

# DuPont, state bring new chemistry approach to the classroom

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## Community News

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Dr. Tom Hsu trains teachers from throughout the state in a new approach to chemistry instruction at the Appoquinimink Training Center last week.

Middletown, Del. —

As far as Dr. Tom Hsu is concerned, chemistry should be available to all students and it should be taught with the least possible affect on the environment.

Hsu, who has a doctorate in plasma physics from M.I.T., was an industrial chemist for Kodak and Xerox before Ergopedia is Latin for learning by doing, Hsu said, and last week he put 60 teachers from throughout the state to work for four days, studying chemistry from his textbook at the Appoquinimink Training Center.

“This is a very hands on approach to chemistry,” Hsu said. “With the new standards and all kids taking chemistry nowadays, we really need to find a way to make all kids succeed in chemistry, not just take it.”

There was a real hole in the chemistry curriculum, with students using college books that were written at the wrong reading level for them, emphasizing problem solving without spending enough time on conceptualizing the big picture of chemistry, Hsu said.

Chemistry instruction needs examples in order to make connections with students, and it must be put at a level that allows them to understand and makes it relevant to their lives. For instance, a box of crackers may say that it has zero trans fats on the front label, but on the back of the box it says “contains partially hydrogenated coconut oil,” he said.

“Well, they’re lying,” Hsu said. “It can’t have zero trans fat and have partially hydrogenated oil in it. But what’s partially hydrogenated oil? Why’s it bad for you? If students are going to be making decisions on their own lives based on chemistry, then they ought to understand a little bit about what it is.”

In the end, the program aims to teach students by posing a question, showing them how to investigate and solve problems without giving them the answers, Hsu said. After all, that’s the goal of science education – to create problem solvers, he added.

The program also allows students to learn chemistry, using only non-toxic chemicals that can be disposed of easily. Fume hoods are not required and open flames are not used.

That appeals to Middletown senior Desiree Olson, who is taking Susan Gleason’s chemistry class this school year. Olson conducted some experiments in a previous science class, and she likes the greener approach in Gleason’s class. “I like doing it this way better,” she said.



**Chemistry Middletown High seniors Desiree Olson, Courtney Rassman, Mike Monk and Tayler VanderWerff work in chemistry teacher Susan Gleason’s class.**

Gleason, like many teachers, was initially skeptical when Hsu trained her this past summer in San Antonio, Texas. But Hsu convinced her that chemistry should reach all students.

“Chemistry has been taught the same for generations,” Gleason said. “Chemistry books are usually written by chemists. Tom Hsu wrote this and, oh yeah, he’s a chemist. But he’s also a teacher. He looks at how can we make chemistry make sense to kids and make them realize it’s important to them.

“He’s about getting chemistry to all kids, not just certain kids,” she said.

Delcastle chemistry teacher Valerie Ness and physical science teacher Dan Hailey were among the teachers who participated in the training last week.

Hailey likes the fact that Hsu’s method allows chemistry to not be regulated to a state-of-the-art chemistry lab.


“You don’t need the gas jets. You can do chemistry on a regular table, not a chem. lab table with a special coating,” he said. “Really, all you need is a source of water.”

Ness likes the nontoxic approach.



**Delcastle Technical High School teachers Valerie Ness and Dan Hailey listen to Dr. Tom Hsu last week in Middletown**

“Every time I have to mix up solutions, I think, ‘How do I get rid of it?’” she said. “And there’s the cost effectiveness of that lab work. Is it worth it in terms of the waste I’m going to make in terms of how important that lab is.”

Most impressive to Ness is her daughter’s reaction to the new approach, which is being taught at  Clay’s Alexis I. duPont High School.

“I asked her, ‘How do you like it?’” Ness said. “She said, ‘I’m spending a lot of time thinking.’ I thought, this really is the focus - what you are you thinking about versus where did I get lost in the math.”