

Breaking chemistry's bad rap

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Breaking Bad, cable channel AMC's popular series chronicling the dark transformation of Walter White from suburban chemistry high school teacher to crystal meth master chef and criminal mastermind, makes chemistry entertaining for the average person through shocking story developments, including White using his chemistry expertise (poison, noxious gas, and acid) to eliminate rival meth slingers.

But the show is not improving chemistry's tarnished public image says Matthew Hartings, assistant professor of [chemistry](#) at American University.

"Breaking Bad is an entertaining and truly fantastic show. And, it's amazing how much actual chemistry they weave into each episode. Unfortunately, though, the show plays into our preconceived notions that chemists are mad scientists and that chemicals are bad for you," Hartings said. "This reinforces some people's belief that chemicals are things to be avoided when, in fact, we eat, breathe, sleep, and work in a world of chemicals."

Hartings and Declan Fahy, an assistant professor of communication at AU, coauthored a recent article in the journal [Nature Chemistry](#) outlining why, of all the sciences, chemistry has perhaps the worst public image and how chemists can help turn that around through improved communication.

A timely message as 2011, the International Year of Chemistry, has chemists and the chemical industry ramping up their communication

efforts to honor chemistry's history and showcase the countless ways chemistry has improved everyday life.

Chemophobia

Hartings and Fahy say chemistry's bad rap is a result of "chemophobia," a term coined by chemist and popular [science writer](#) Pierre Laszlo referring to the terms most people associate with chemistry: poisons, toxins, [chemical warfare](#), alchemy, sorcery, pollution, and mad scientists.

"One of the reasons that Breaking Bad plays so well is because the public is familiar with the mad scientist/wacky chemist narrative," Hartings said. "What we're not familiar with is all of the other places that chemistry is present in our lives."

Chemophobia is why publishers and television/film production companies avoid using the word "chemistry" in the titles of creative works. They fear that potential consumers will shy away from their products—some recalling how difficult chemistry might have been in high school and others thinking, "Aren't chemicals bad for you?"

"When Deborah Blum wrote The Poisoner's Handbook, a 2010 book that describes the evolution of forensic science in 1920s America, she suggested the subtitle A True Story of Chemistry, Murder and Jazz Age New York," said Hartings. "But the book's subtitle ended up being Murder and the Birth of Forensic Medicine in Jazz Age New York because the publisher told Blum putting the word 'chemistry' on the book's cover would sink sales."

Five Steps to Improve Chemistry Communication

In their *Nature Chemistry* article, Hartings and Fahy outline five communication strategies to help chemists increase public engagement with chemistry and improve the field's public image.

- Practice research-driven communication. Focus groups, surveys, and interviews can help chemists identify various publics (their attitudes, values, and beliefs) and understand how they get information and form their opinions about chemistry.
- Understand the audience. Because chemistry is a broad field, it can be relevant to numerous topics (a few examples include pharmaceuticals, renewable energy, and cooking and nutrition) and have numerous audiences.
- Participate in the new communication landscape. More chemists should use social media, blogs, and online videos to communicate with their peers as well as nonchemists/nonscientists.
- Tie chemistry to society. Relate chemistry to social issues or broader themes that touch the lives of everyday people.
- Frame key messages to prompt engagement. Because chemistry is a broad, complex field and can appeal to numerous publics, chemists need to learn frame their messages to encourage public engagement (present a specific issue in a way that shows people the issue's relevancy and application to their lives).

Provided by American University

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