Muggles rejoice

In the 2 decades since British author J. K. Rowling introduced young readers to Harry Potter, a generation of tweens have eagerly awaited their letters of acceptance to the Hogwarts School of Witchcraft and Wizardry. For the many whose 11th birthday comes and goes without a special owl delivery, some magic could still be in their future: chemists around the country are revealing some of the scientific secrets to enchantment.

In 2011, University of Nebraska–Lincoln chemistry professor Rebecca Lai was contemplating how to attract more students to the sciences. She had just reread the entire Harry Potter series, and it occurred to her: What if she designed a course around the books’ potions and spells? Thus was born the honors class A Muggle’s Guide to Harry Potter’s Chemistry.

Like their Hogwarts counterparts, UNL students are sorted into “houses” on the first day of class and spend the semester earning points for their teams. Lai covers topics like the science behind Harry’s invisibility cloak and the chemistry of fireworks, and she uses the color-changing aspects of gold and silver nanoparticles to explain why the Sorcerer’s Stone might be red.

Though Lai taught the class for only 2 years, it became the foundation for a Harry Potter–based outreach enterprise. In addition to contributing to a regular lecture series called SciPop Talks!, Lai also created an after-school program called Harry Potter Science for a local elementary school. Each session of the 7-week course covers a theme from a different book in the Rowling series and features an experiment adapted from her college class.

In 2017, Lai turned the after-school program over to one of her graduate students, Channing Thompson, who adapted the materials for middle schoolers. “She did a great job, and now I have the materials to be able to train others to do it,” she tells Newscripts.

Lai is interested in making a Harry Potter science kit that would allow others to do the same 7-week course, and she is also interested in writing a book about teaching science through Harry Potter. And for UNL students disappointed that they missed out on the briefly run honors course, there is hope: Lai is mulling updating the course to include material from Rowling’s Fantastic Beasts franchise.

Waving the wand widely

Debbie Gale Mitchell, an assistant teaching professor at the University of Denver, has morphed her family’s Harry Potter obsession into outreach events that help bring her love of chemistry to the entire campus community.

During Halloween week in 2018, Mitchell and her counterparts from the university’s writing and research centers hosted their first Hogwarts-themed event in the library. While her colleagues from the writing center came up with a spell-making station, Mitchell created hands-on experiments intended to demystify chemistry. “When I do outreach, I want people to see this is stuff they can recreate in their own home,” she says.

That meant offering things like a make-your-own butterbeer station matched with an infographic explaining the various flavor components, and a chemical “sorting hat.” By picking a test tube containing a mystery substance (bleach, ammonia, baking soda, or vinegar) and adding a few drops of magic (the kitchen chemist’s favorite pH indicator, cabbage juice), students were assigned their house. Newscripts will let readers guess which substance will leave you marked as a Slytherin.

But does the chemical sorting hat match up with the official one—that is, the house assignments made on the fan site Pottermore? Pottermore puts Mitchell, who aspires to be a Hufflepuff, in with the Ravenclaws—and the cabbage juice agreed.