

## UH initiative will use 'Harry Potter' to conjure love for science

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Hoping that science will cast a spell on local middle and high school students, a University of Houston team is starting a program that will harness the magical draw of the Harry Potter series to make technical subjects resonate in local classrooms.

Funded by a nearly \$3 million grant from the National [Science Foundation](#), the Innovations in [Nanotechnology](#) and NanoSciences initiative will pair teachers from the Houston, Dickinson and Galena Park school districts with graduate students from the Cullen College of Engineering and the College of Natural Sciences and Mathematics.

"Despite being an adult, the story of Harry Potter and his magical world struck me both as an individual and a scientist. Clearly, most kids and many other adults also share this fascination," Pradeep Sharma, the associate professor who is heading the program, said. "The tantalizing part is that several aspects of the 'magic' in Harry Potter can be explained by science or is certainly achievable in the future, given the way technology is leaping forward."

One example that would easily translate in the classroom, Sharma said, is Harry's magical cloak, which makes him invisible.

"There is intense research going on based on nanotechnology to create such cloaking materials. Admittedly, it will be quite a while before we can vanish a la Harry Potter, but, using this example, a teacher could motivate the discussion of optics, the study of how light propagates and

behaves," said Sharma.

The five-year program aims to breathe new life into math and science curricula at a time when fewer American students are pursuing technical fields. Sharma says he hopes to instill in students passion and creativity that will drive successful careers and, eventually, fill the growing gap in the American work force.

The teachers selected for the program will be brought up to speed on nanoscience topics through an annual short course taught by UH faculty members.

Christine Hawthorne, a science teacher at Dickinson Independent School District, said she is "delighted to have an extra pair of hands in the trenches" and that the program stands to benefit everyone involved.

"The students are always eager to learn new things and hear from new sources, especially if it's linked to Harry Potter," she said. "I am hopeful that the excitement of this program will rub off on my students. It can't help but be contagious. Middle school is the perfect time to introduce these concepts. It is so important to hook the students and reel them in at an early age where science is concerned."

Sharma and his co-investigators, associate dean Fritz Claydon and professors Stuart Long, Eugene Chiappetta and Hanadi Rifai, hand-picked the nine graduate students who will be the backbone of the program.

One of those students is Nathan Howell, who left a position at an environmental consulting firm to get an advanced degree in environmental engineering at UH.

"I wanted to make myself more accessible and useful in the world of

relief and development. I'm blessed with a capacity to work in a highly technical fashion, and I wanted to use that capacity to be an agent of mercy by way of water development projects," Howell said.

"It has been exciting for me to get involved with middle school kids through a mentoring program that our church conducts at Hogg Middle School in the Heights. In that experience, I encounter the challenge of trying to stimulate an interest in my mentee for science and math, and I can see the value of using young adult literature to do that. My mentee is constantly immersed in the fantasy world of Stephanie Myer's Twilight book series, and I am currently reading it so I can better connect with him."

The graduate students will complete a four-week certification course this summer to plan the hands-on curriculum and become familiar with the state's science and [math](#) standards.

Rifai said it's important to pair the graduate students, who will be in the classrooms one day a week during the school year, with the right teachers.

"We tried to make a match. Remember, the other side of the equation is the teacher they will be working with - what they are interested in and what level of science they teach. Each graduate student has his or her own characteristics, personalities, discipline of research," she said.

Rifai predicts the middle and high school students will be receptive to the graduate students.

"If I were to go there and lecture, the students would look at me like any other teacher," she said. "But when they see graduate students, they're much closer to them, because they're still in school. So they will interact with them, I presume, differently."

In turn, she said, a more diverse "learning community" will emerge.

"In a learning community at a school, so far, it's the students and teachers. Somehow, there's something really lacking in that. A learning community should have a lot of different role models," she said.

The graduate students are expected to master the art of articulating complex scientific ideas in simple terms to broad audiences and go on to become professors, congressional advisers and other types of technocrats.

Claydon said the program could have a lasting impact on graduate [students](#).

"It will dramatically improve their communication skills and offer them a deeper understanding of their own research field. It will serve as a real enrichment to these graduate students' UH education," he said.

Source: University of Houston ([news](#) : [web](#))

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