Prof strips the math, makes the cosmos more relatable

By Nikita Redkar  On November 3, 2014  Share Tweet Like
Sarah Lane
Physics professor David Toback teaches an essay-based course centered around the Big Bang and the cosmos.

The atmosphere in David Toback’s “Big Bang and Black Holes” lecture hall has a different atmosphere than the typical physics classroom. The class laughs and talks while Toback fields questions, and when a student asks about the penalty for turning in a past-due assignment, he replies, “Just submit it online before I notice.”

Toback, physics professor at Texas A&M, created the class to give students a natural understanding of the Big Bang and black holes and enable better knowledge of the cosmos.

“How did our universe start, and how did we get from a big bang to today? What happens if you throw something into a black hole? That’s what students are eager to know,” Toback said.

“Big Bang and Black Holes” is essay-based and is designed specifically for non-scientists. When asked about the motive behind teaching an advanced topic in such a non-technical way, Toback said sometimes people simply don’t like physics.

“Physics is really important, but people don’t want to suffer through three years of undergraduate physics and two years of grad school just to understand workings of the universe,” Toback said.

With no math and no exams, it is easy to see why the curriculum of Toback’s class is attractive to students. However, what makes the class so popular reaches beyond a syllabus — it is in the raw content and Toback’s teaching style.

Psychology sophomore Katy Spencer said Toback lectures in a way that not only gets the point across, but also keeps the class entertained.

“He’s probably the best professor I’ve had,” Spencer said. “He’s passionate about the subject and makes a difficult subject easy to understand while continually finding ways to joke.”
Toback also has unique techniques to keep student engaged during the lecture.

“Sometimes in the middle of class, he pauses the lecture to throw candy at the students,” said political science sophomore Michael Mapp. “It really gets you to pay attention.”

Toback devised the class and has been teaching it for five years. His class is made up of 110 students from various majors at Texas A&M. The lecture hall also includes many non-enrolled members simply wishing to audit the class.

“Our universe is [a] great story and it’s fun to tell a great story over and over again,” Toback said. “Everyone deserves to learn about the exciting stuff, and adequately explain the reasoning behind it.”

Spencer said a major part of the class grade depends on essays assigned to be written over the material in a way that the common public could understand.

“Could my students take this training and go off to be scientists? No,” Toback said. “Can they fundamentally explain the evidence of the big bang, that stars are made of matter, or how black holes work? Absolutely.”

Toback said the class goes beyond notes and a slideshow presentation.

“To me, going to college is about growing up and getting an education, not about getting a degree so you can get a job,” Toback said. “In my class, students learn to see the world differently. And there is nothing better than seeing students eyes light up when they understand something.”

Tags: Toback, cosmos, science, physics, class

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