

Evolution and religion: New insight into instructor attitudes in Arizona

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Sciences at Arizona State University have found that a majority of professors teaching biology in Arizona universities do not believe that helping students accept the theory of evolution is an instructional goal. In fact, a majority of study participants say their only goal is to help students understand evolution. Credit: Photo: Sandra Leander

Evolution can be an emotionally charged topic in education, given a wide range of perspectives on it. Two researchers from Arizona State University are taking an in-depth look at how college professors handle it.

In a first-of-its kind study, scientists from ASU School of Life Sciences have found that a majority of professors teaching biology in Arizona universities do not believe that helping [students](#) accept the theory of [evolution](#) is an instructional goal. In fact, a majority of study participants say their only goal is to help students understand evolution.

According to the study's authors, this finding was surprising. The exploratory research, published in the scientific journal *CBE—Life Sciences Education*, looked at how instructors perceived their role in helping students accept evolution. It also looked at the extent to which professors address the perceived conflict students may have between religion and evolution.

"Evolution is one of the key concepts in understanding biology," said Sara Brownell, senior author of the study and assistant professor with the school. "My own view is, 'Why would we want to teach evolution, if we don't want our students to accept it? We teach them that cells have membranes and we expect them to accept that. Why should evolution be any different?' Yet instructors in our study don't see it that way. For most of them, evolution is separated—first, in understanding and second, in accepting the concept." Brownell studies [biology education](#), in particular how undergraduate biology students learn and how instructors can develop more effective ways to teach.

In biology education, evolution and [religious beliefs](#) are often "hot-button" topics that play out publicly in the media as an "either—or" scenario, in which one side wins and the other loses. This, according to the ASU researchers, may negatively affect students who have religious

beliefs. Previous outside studies show that more than 50 percent of undergraduate biology students identify themselves as religious.

Yet, this study shows most instructors in Arizona neither acknowledge their students' religious beliefs, nor discuss that there are a variety of beliefs about science. And, the study shows a majority of instructors are hesitant to discuss the topic in class.

"Whether acceptance of evolution is the goal may depend on what you define acceptance to be. If you define accepting evolution as rejecting a belief in God, then that may not be an appropriate goal," said Elizabeth Barnes, co-author of the study and a graduate student in Brownell's lab. "While evolution is the basis of biology, evolution and religious beliefs do not have to be in conflict. Science answers questions about the natural world, about things we can test. Science does not have a test for whether God exists or had a role in planning how life unfolded."

Brownell and Barnes said the study revealed additional important points. It showed that many instructors perceive barriers, such as lack of training or context of the coursework, that cause them to avoid talking about evolution and religion in the classroom. Additionally, personal beliefs about the role God plays in evolution seem to impact what they are actually teaching. Many instructors say they believe evolution and religious beliefs are in conflict, so rather than discuss this with students who may be religious, they stick to only teaching facts about evolution.

"Many science instructors believe they can simply give facts about evolution, but research has shown that we have to attend to the emotional components and religious beliefs our students have," said Barnes.

"Clearly, this is not a black and white issue. We have to come together in the middle somehow—no more extremes," added Barnes.

This study included instructor participants from ASU, University of

Arizona, Northern Arizona University and 10 Arizona community colleges. It included professors who currently identified themselves as agnostic and atheist, as well as Catholic, Jewish, Protestant and 'questioning.'

Brownell and Barnes said the next step is to investigate this issue on a national level. This study focused on professors teaching [biology](#) in Arizona, which is listed in a 2013 Gallup poll as being in the lower one-third of religious states in the U.S. The pair is currently studying how religious students in the classroom perceive the topic of evolution and religion. They are also investigating what instructors and students believe 'acceptance' to mean in regards to evolution.

Provided by Arizona State University

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