

## Expanding the Understanding of Evolution

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# Expanding the Understanding of Evolution

SUSAN MUSANTE

Originally designed for K–12 teachers, the Understanding Evolution (UE) Web site ([www.understandingevo.org](http://www.understandingevo.org)) is a one-stop shop for all of a teacher's evolution education needs, with lesson plans, teaching tips, lists of common evolution misconceptions, and much more. However, during the past five years, the UE project team learned that another group of educators uses it, too. "It became clear to us that there was a significant number of undergraduate faculty using it," says Judy Scotchmoor, assistant director of Education and Public Programs at the University of California Museum of Paleontology. So, she and her colleagues decided to focus on meeting the needs of this newly discovered audience.

With additional funding from the National Science Foundation, the UE project team sent out a call for applicants to form a Teacher Advisory Board (TAB) that would help expand the UE Web site for undergraduate educators. The response was overwhelming. "In two weeks, close to 60 people responded for eight TAB spots," Scotchmoor says. The TAB was officially established in late 2009 with a group of diverse members. "Each brings a very different perspective to the conversation, based upon individual experiences, expertise, and teaching environments," says TAB member Jason Wiles, of Syracuse University.

After a year of hard work, the team unveiled an expanded and enhanced UE Web site in early 2011. Faculty can find a wide variety of teaching materials for many types of undergraduate settings and audiences. "It provides resources for labs, class projects, homework assignments, class discussions, and guidelines for implementation," says TAB member Robin Bingham, from Western State College

in Colorado. In many cases, she says, it is possible to take a UE activity and use it right away in the classroom. With her upper-division evolutionary biology students, she uses the "Evo in the News" articles ([http://evolution.berkeley.edu/evolibrary/news/newsarchive\\_01](http://evolution.berkeley.edu/evolibrary/news/newsarchive_01)), which take a story in the popular news media and explain it from an evolutionary perspective.

"Each story includes links to primary literature and discussion questions so that students can learn how to use the data and see how they support the scientist's conclusions," explains Anna Thanukos, UE's principal editor.

The UE team has developed other activities that use data from the primary research literature, such as the "Visualizing Life on Earth" module ([http://evolution.berkeley.edu/evolibrary/article/ldg\\_01](http://evolution.berkeley.edu/evolibrary/article/ldg_01)). Based on the work of David Jablonski at the University of Chicago, the module guides undergraduates through the logic of interpreting data, says Thanukos, to give them experience in generating expectations from hypotheses and have them work with data to answer evolutionary questions.

Ensuring that there are resources that help teachers engage students in the real science of evolutionary biology is exactly why Kristina Curry Rogers joined the TAB. "I'm involved in TAB because I feel very strongly that communicating about evolution is one of the most important (and most challenging) topics that we need to teach our students," says Rogers, who teaches at Macalester College in Minnesota. She and others are currently working on a UE toolkit for faculty interested in starting an evolution journal club.

The part of UE that TAB member Jennifer Katcher, of Pima Community College in Arizona, uses most is the Evolution101 section on phylogenetic

trees ([http://evolution.berkeley.edu/evolibrary/article/0\\_0\\_0/evo\\_05](http://evolution.berkeley.edu/evolibrary/article/0_0_0/evo_05)). "There aren't many resources that explain it at an appropriate level for undergraduates, and this does the best job that I've seen," she says. Fellow TAB member Jim Smith at Michigan State University agrees: "I have used—and send a lot of people to—the phylogenetics pages, which for me always leads to some other interesting and informative place."

Understanding Evolution project staff also used feedback they received over the past year to revise the site's navigation and to add new tools. Visitors can now post a review, rate resources, connect content within the site, and access new guides and teaching tips for using original UE materials in the classroom.

Despite all of their recent accomplishments, the TAB and UE project team are not slowing down. During the January 2010 TAB meeting, they outlined their plans for 2011 and dove into developing the next new set of materials, including an interactive syllabus, questions to actively engage students in class, and new hands-on labs. "I continue to be in awe of the TAB's dedication and creative energy," Scotchmoor says, adding that she and Thanukos are amazed by what the group accomplishes each time they meet.

Members of the TAB are equally full of praise for the UE staff and the project as a whole. "I feel so lucky to have the opportunity to work with this outstanding group," says Bingham. Smith adds, "I think the work that is being done by UE is not only important but incredibly well done."

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