

# Preparing New Science Teachers for High-Need Schools

By Rosamond Kinzler and Maritza Macdonald



Curator and Division Chair Denton Ebel (right), Department of Earth and Planetary Science, instructs MAT candidates. Photo courtesy AMNH/R. Mickens

In 2012, the American Museum of Natural History (AMNH) in New York City launched the Master of Arts in Teaching (MAT) Urban Residency Program ([www.amnh.org/learn-teach/master-of-arts-in-teaching](http://www.amnh.org/learn-teach/master-of-arts-in-teaching)). The AMNH recruits Earth science majors from across the United States who are motivated to teach in high-need schools in New York State. Developing a teacher preparation program from scratch is a tall order, and the museum is learning a tremendous amount from its pilot effort.

**1. Leverage institutional resources to address a need.** The AMNH sought the opportunity to develop the program because of the critical shortage of certified Earth science teachers in New York State, and because the museum has deep capacity in this area. In addition to a doctoral-level team of teacher educators, the MAT faculty includes curators and postdoctoral researchers in Earth and Planetary Science, Astrophysics, and Paleontology. The museum's resources include considerable scientific collections and analytical facilities, partnerships with public schools, exhibits, and educational programs.

**2. Learn and teach with high-need schools.** The MAT program is working with six partner middle and high schools that serve high-need populations in New York City and Yonkers. In addition to their academic course work, MAT candidates spend four days a week co-teaching in these partner schools along with mentor teachers from September to June. Our program aims to prepare teachers who can engage *all* students, including English language learners and special education students.

**3. Collaborate and share expertise.** The program is co-directed by a teacher educator and an Earth scientist, and courses were co-designed and are co-taught by science and education faculty. Partner school principals work with the program co-directors to develop program policies.

**4. Recruit high-quality candidates.** The entire faculty plays a significant role in selecting program candidates. We are fortunate, through a combination of New York State, federal, and private funding, to be able to offer all of our students a monthly stipend and a full fellowship that covers the cost of tuition and books. This financial support is critical because of the program's intense workload—candidates work nearly full time as teacher residents while completing 36 graduate credits in just 15 months.

**5. Engage in self-study.** Formative evaluation is ongoing at all program levels: courses, residencies, resources, and uses of technology. Over the next three years, impact research will investigate how the students of our graduates perform on statewide assessments.

Initial results are promising. Our first cohort of 20 graduates is employed as science teachers in Title I (federal designation for high-need) middle and high schools in New York City and Yonkers. The museum is now working with a second cohort of 20 candidates and providing ongoing support for our cohort 1 graduates via museum-based and online professional development.

If you would like to write about what your institution has learned from a project in exhibit development, education, finance, and/or operations, contact us at [dimensions@astc.org](mailto:dimensions@astc.org) (subject line: What We Learned).

**Rosamond Kinzler** ([rkinzler@amnh.org](mailto:rkinzler@amnh.org)) and **Maritza Macdonald** ([mamacdonald@amnh.org](mailto:mamacdonald@amnh.org)) are co-directors of the Master of Arts in Teaching Urban Residency Program at the American Museum of Natural History, New York City.