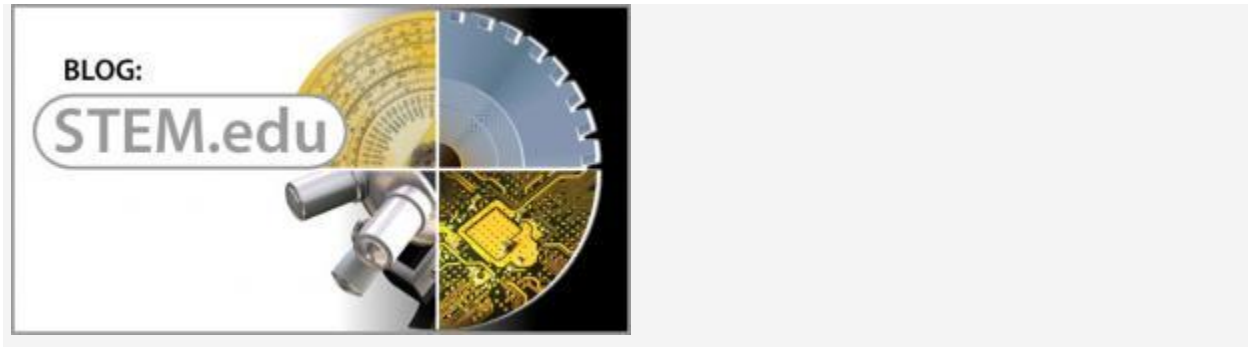


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Project ARISE brings scientists and mobile labs into biology classrooms

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Project ARISE (Advancing Rhode Island Science Education) connects high school biology teachers with Brown University scientists to enrich science education for Rhode Island high school students.

Specifically, the [goal](#) of Project ARISE is “to develop the tools and perspective that will enable high school teachers to integrate national science standards and high-level concepts in molecular biology and neuroscience into their science classroom instruction.” In this comprehensive program, faculty scientists and graduate students train teachers how to use inquiry-based methods to teach scientific concepts (and to teach students to think like scientists). The project has multiple components: monthly professional learning community workshops, mobile laboratories, and a final symposium where students present their research.

Professional learning community workshops

Throughout the year, ARISE scientists and teachers come together in monthly workshops. Each year the workshops have a different focus. This year, for example, the focus is on developing leadership skills. So far 47 teachers have received extensive professional development training through these workshops.

Other workshops are open to teachers who aren't involved in the full year-long ARISE program. For instance, in September of this year there was an all day workshop open to elementary, middle, and high school teachers. At this workshop, evolutionary biology professor Dr. Kenneth Miller presented a talk titled “Science Education: Does it Really Matter in America Today?” and neuroscience professor Carlos Aizenman discussed “Critical Thinking and Skepticism in Science: How to evaluate medical and scientific claims using logic, evidence and the scientific method.” At this workshop, ARISE teachers also presented their perspectives on teaching science.

Mobile laboratories

Mobile labs are an important component of Project ARISE. With these labs, trained graduate student science consultants can bring scientific equipment directly into classrooms. The equipment lets students do basic molecular biology experiments, use a digital microscope, and analyze muscle activity, brain waves, and eye movements (among others types of experiments). Because of the tools and training that Project ARISE provides, students can perform hypothesis-driven research. And the students have come up with some pretty interesting hypotheses. For

example, one student compared brain waves between introverts and extroverts and another designed a project to test which cafeteria items contained genetically modified foods.

Nature of Discovery Symposium

For Project ARISE's students, the capstone moment is presenting their research with a poster at a one-day spring conference at Brown University. This [Nature of Discovery Symposium](#) brings together teachers, students, and Brown faculty and grad students. The symposium's goal is to teach students the importance of communicating scientific reasoning and findings to the public. The students' presentations provide a thrilling opportunity for them to talk about how they designed and performed their experiments. Around 200 teachers and students attend the symposium each year.

Getting involved

Brown University graduate students with expertise in physiology, molecular biology, or neuroscience can become science consultants in Project ARISE if they can commit to one year of service. As consultants, they will bring mobile labs into classrooms and help students come up with hypotheses and design their experiments. Brown University scientists who cannot make a yearlong commitment can still be involved with the program via the Nature of Discovery Symposium.

Project ARISE began in 2006 with funding from the NIH. It is now funded by the Rhode Island Board of Governors for Higher Education. Participants in Project ARISE have also developed [inquiry-based teaching resources](#) that can be used by any teacher – check them out.

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