

FINDINGS FROM AN INDEPENDENT EVALUATION OF THE AMNH's ONLINE SEMINARS ON SCIENCE COURSE: *IN THE FIELD WITH SPIDERS*

Inverness Research studied the AMNH Seminars on Science program for eight years, from its inception in 1998 to 2006. Below we present teacher survey ratings for *In the Field with Spiders*, along with the profile of a teacher who took the course.

SURVEY RATINGS FOR *IN THE FIELD WITH SPIDERS*

Course takers report on our annual follow-up surveys that *In the Field with Spiders* has benefited them personally and professionally, and that their students also profit. This course ranks highly among the AMNH courses for the extent to which it contributes to the course taker's own learning and also for its effectiveness in stimulating student interest in the course topic.

We present below a small sample of our findings based on the responses of the 35 learners from 17 states who have completed follow-up surveys about the quality and value of the course. The majority of survey takers (80%) are K-12 teachers, but informal science educators and preservice teachers also provided feedback about how the courses have benefited them personally and as educators.

What do teachers gain for their own learning from *In the Field with Spiders*?¹

- *"additional background knowledge of science"* (91%)
- *"rekindling of my passion for science and the work of scientists"* (85%)
- *"a bank of resources for my own learning"* (82%)
- *"motivation to continue learning about the course topics on my own"* (76%)
- *"a deeper insight into the work of scientists"* (70%)

How do teachers apply the course directly to their classrooms?²

- *"I used what I learned to create a unit for my students"* (88%)
- *"I made some course resources available to my students"* (73%)
- *"I had students do some of the same investigations that I did"* (46%)

¹ Unless noted otherwise, percentages represent teachers who marked 4 or 5 on a 5-point scale where 1 = Not at all, 3 = Somewhat, and 5 = A very great deal.

² For questions regarding student impacts, percentages represent teachers who checked "yes."

How does the course help strengthen teaching?

- *"It provided me with hands-on inquiry learning experiences that can serve as a good model for the kind of work I can have students do" (67%)*
- *"It helped me to learn a new content area that I may teach in the future" (64%)*
- *"It introduced me to new kinds of materials and media such as simulations and websites that I can use in science" (47%)*
- *"I am better able to assist students in meeting our state or district standards" (33%)*

How do teachers say that this course helps their students?

- *"Students now better appreciate the natural world" (81%)*
- *"Students' curiosity is piqued about the course topics" (73%)*
- *"Students better connect science in school with the real world" (69%)*
- *"Students gain a better understanding of scientific inquiry" (62%)*

How does the course compare with other professional learning opportunities?

- *"The course was more valuable than other professional development available to me locally" (82%)*
- *"The course is more valuable than other distance learning courses I have taken" (76%)*

Do teachers recommend the course?³

- *"I have recommended the course to colleagues" (81%)*

TEACHER PROFILE FOR *IN THE FIELD WITH SPIDERS*

The Spiders course gives a high school teacher exciting new content and more skills for the classroom

We spoke with a teacher who teaches 9th-12th grade at a high school in Indiana. The school where she teaches is K-12 and quite small with about 1,000 students. Most of her students are in her classes from 9th through 12th grade and she teaches these same students biology, chemistry, environmental science, anatomy and physiology. She has

³ Percentages represent teachers who checked "yes."

been teaching for nine years and has a background in biochemistry and pharmacy. She enrolled in the SoS online course, *In the Field with Spiders*, in Summer 2005 because she wanted to teach at the local university as well and needed a certain number of graduate hours in biology to qualify.

Exciting content and skills for the classroom: Black widow spider bites and spider identification. The teacher we spoke with uses content from the SoS course to enrich her classroom teaching. As an introduction to lessons about observation skills she reads an account, from the course, about a scientist who purposefully allowed a black widow spider to bite him.

It seems to pique their interest, because everybody thinks, number one, you die from a black widow spider bite, and they really don't know what happens when you do get bit by one. Here is this crazy guy that does it on purpose to himself, just to make observations. They really get into it. They like it a lot. They tend to ask more questions, like 'Why would someone do that?' Then you end up with ethics questions such as what scientists should do or shouldn't do, and can you make good observations when it is on yourself?

She also learned how to identify spiders during the SoS course and uses this skill both formally, to support her curriculum, and informally to answer students' questions.

[Before the course] to me, a bug was a bug. Now, I can identify whether it is a spider. Most of them have eight legs and they have a cephalothorax and a head region. I have kids now that bring me spiders and I use the identification book [from the SoS course] and I can give them an idea if it is a spider, or not a spider, or be able to differentiate between different types of spiders.

We do a macroinvertebrate species experiment in my environmental science class where we go out and we test water quality by seeing what type of insects or spiders there are. The book helps us identify whether it is a spider, or another organism and it helps us maybe key it out and get what family it is in. Then, I use another book, not from the SoS course, to tell us what kind of environment they are living in and if they thrive in polluted environments or they are better off in an area where it is cleaner.

What do scientists do: Providing real life examples for her students. The teacher we spoke with has taken numerous SoS courses. She weaves stories about the work of researchers at AMNH into her teaching to illuminate what people with science degrees do in 'real life.' As she pointed out, she herself provides her students with another example of what scientists do—they teach!

The kids rarely see actual scientists doing work. If I can tell them about that, that usually makes it a little more exciting for them. You can bring in too that there are scientists out there doing a job instead of doing research—I have a science degree, but I am in here teaching. Every once in awhile, if they say 'When am I ever going to use this?' I can throw things in like that.