

**Annual Report for Award # 0715777**  
**Biology Scholars Program**  
(formerly the Enhanced Learning Improvements through Evidence Scholars Program)  
**Project Activities**

The Biology Scholars Program (BSP) (initially submitted under the title Enhancing Learning Improvements through Evidence Scholars Program) is a three-year, NSF proof-of-concept project (October 2007 through September 2010). The program builds upon the ASM Scholars-in-Residence Program established by the American Society for Microbiology (ASM) between 2005 and 2007. The BSP advances the scholarship of teaching and learning (SoTL) through multiple approaches:

- Research residency to train faculty to engage in teaching and learning research effectively to improve their science teaching
- Writing residency to prepare faculty to publish their SoTL research in peer-reviewed journals
- Leadership residency to prepare faculty to be leaders and mentors in biology education reform
- National conference for biology faculty to exchange current information about pedagogical practices and current research relevant to undergraduate biology education
- An ongoing learning community using synchronous and asynchronous digital communication tools

In year two, the BSP objectives were to:

- Sustain a presence among biologists from community colleges and minority-serving institutions as leaders and Scholars
- Increase participation of biologists from a diversity of the life sciences, including physiology, ecology, cell biology, and general biology, in leadership roles while lessening the role of microbiologists in these roles
- Offer a pilot program to increase faculty expertise in science education writing and publishing, and based upon feedback and formative evaluations, modify the program for 2010
- Sponsor the annual Research Residency that includes several components: a four-day Scholarship of Teaching and Learning Institute, follow-up activities and e-mentoring, and a half-day Capstone Workshop
- Monitor Scholars' implementation of classroom assessments
- Monitor Scholars' contribution to the current body knowledge about learning biology

The 2008-2009 annual report summarizes accomplishments based upon project objectives (Table 1).

**Table 1. Biology Scholars Program Major Accomplishments: 2008-2009 (Year 2)**

Project objective	Accomplishment
Sustain a presence among biologists from community colleges and minority-serving institutions as leaders and Scholars	Efforts were made to recruit community college faculty and faculty from minority-serving institutions in the 2009-2010 Writing and Research Residencies. This resulted in the acceptance of two community college applicants and faculty from four minority-serving institutions in California (two), Virginia, and North Carolina in 2009. In addition, the BSP retained one community college faculty person on the planning committee for the Research Residency
Increase participation of biologists from a diversity of the life sciences, including physiology, ecology, cell biology and general biology, while minimizing participation of	Five biology leaders who were recruited from the 2008 research residency cohort and represent physiology (two), cell biology (one), microbiology (one), and general biology (one) planned, presented, and mentored scholars in the 2009 program. Of the 21 participants accepted into the 2009-2010 cohort, the disciplinary

microbiologists in leadership roles	representation is 30% microbiology, 20% physiology, 10% cell biology, 10% ecology, 5% biochemistry, 5% general biology, and 20% no affiliation. Post-Institute evaluations collected from the first cohort (2008-2009) of biologists, not primarily microbiologists, indicate satisfaction and acceptance into the program. Seventy-one percent of Scholars agreed to the statement, "Even though I am not a microbiologist, I felt welcome at the Institute." Twenty-nine percent indicated "unsure or had no opinion"; these may have been the responses by actual microbiologists.
Offer a pilot program to increase faculty expertise in science education writing and publishing and based upon feedback and formative evaluations continue/modify the program for 2010.	A two-day pilot program, the BSP Writing and Publishing Institute, was offered in January 2009 in Washington, DC, to five biologists representing microbiology, physiology, ecology, and general biology (Table 2). Two biologists, Kathy Takayama from Brown University in Rhode Island and Erin Dolan from Virginia Tech University, led the program, presenting the formal session, leading small group discussions, and mentoring the Scholars one-on-one. At this time, all participants are conducting further studies and reworking their manuscripts.
Sponsor the annual Research Residency that includes several components; a 4-day Scholarship of Teaching and Learning Institute, follow-up activities and e-mentoring, and a half-day Capstone Workshop	<p>The Research Residency held each year in July includes several components: a four-day SoTL Institute, follow-up activities and e-mentoring, and a half-day Capstone Workshop. The Institute was held July 16-19, 2008; two conference calls and wiki-based assignments were held in the eight-month period following the Institute; and a final Capstone Workshop was held May 28, 2009. Post-Institute evaluations were conducted immediately after the Institute and Capstone Workshop, providing formative information for improving subsequent events. Follow-up evaluations are planned for fall 2009 and will assess Scholars' implementation of classroom assessments and SoTL.</p> <p>A second offering of the Biology Scholars Program is being held July 15-18 at the ASM office in Washington, DC. Twenty-two individuals submitted applications and 21 were selected (Table 3). The 2009 cohort represents diversity; two are from community colleges, five are from primary undergraduate institutions, six are from comprehensive universities, and eight are from doctoral institutions. Their disciplinary representation is 30% microbiology, 20% physiology, 10% cell biology, 10% ecology, 5% biochemistry, 5% general biology, and 20% no affiliation.</p>
Monitor Scholars' implementation of classroom assessments in biology courses at their home institutions and SoTL.	ASM retained external evaluator Christine Pribbenow to conduct follow-up surveys and focus group interviews with the first three ASM Scholar cohorts to assess application and implementation of the Scholarship of Teaching and Learning at their home institutions. The Zoomerang-based surveys were conducted during a four-week period in spring 2008, and the focus groups were held at the 2009 ASM Conference for Undergraduate Educators (ASMCUE) on May 28.
Monitor Scholars' contribution to the SoTL and contributions to the larger base of knowledge about student learning.	Same as previous accomplishment

**2009 Writing Residency.** The program brought together five biologists from a pool of eight applicants across the United States (Table 2).

**Table 2. Scholars accepted for 2009 Writing Residency and their professional affiliations**

Name	Institution	Affiliation <sup>a</sup>
Michael Boyle	Juniata College, Huntington, PA	ASM
Alix Darden	Okahoma State University, Norman	ASM
Jennifer Rhode	University of North Carolina – Ashville	ESA
Rachel Robson	Morningside College, Sioux City, IA	ASM
Gail Rowe	LaRoche College, Pittsburg, PA	ASM

<sup>a</sup> ASM, American Society for Microbiology; ESA, Ecological Society of America.

**2009 Research Residency.** The 2009 Research Residency recruited 21 biologists who began their tenures with pre-Institute reading and writing assignments upon acceptance in April 2009 (Table 3).

**Table 3. Scholars accepted for 2009 and their professional affiliations**

Name	Institution	Affiliation <sup>a</sup>
Kathleen Archer	Trinity College, Hartford, CT	None
James Bader	Case Western Reserve University, Cleveland, OH	None
Janet Branchaw	University of Wisconsin, Madison	APS
Naowarat Cheeptham	Thompson Rivers University, British Columbia, Canada	ASM
Karen Curto	University of Pittsburg, Pittsburg, PA	None
Jonathan Davis	Dona Ana Community College,* Las Cruces, NM	ASM
Lianna Etchberger	Utah State University, Vernal	ASM
Ronald Gerrits	Milwaukee School of Engineering, Milwaukee, WI	APS
Trudy Gillevet	Northern Virginia Community College,* Annandale	ASM, ASCB
Brinda Govindan	San Francisco State University,* San Francisco, CA	Formerly ASCB
Wendy Heck Grillo	North Carolina Central University,* Durham	None
Caron Inouye	California East University-East Bay,* Hayward	APS (pending)
Lisa Johansen	University of Colorado, Denver	ASM
Jodie Krontiris-Litowitz	Youngstown State University, Youngstown, OH	APS
Mary Mawn	SUNY Empire State College, Saratoga Springs, NY	ASBMB
Kristina Obom	Johns Hopkins University, Rockville, MD	ASM
Iglika Pavlova	University of Chicago, Chicago, IL	ASM
Julie Reynolds	Duke University, Durham, NC	ESA
Miriam Segura-Totten	North Georgia College and State University, Dahlonega	ASCB
Conrad Toeper	Brescia University, Owensboro, KY	AIBS, ESA
Jacqueline Washington	Nyack College,* Nyack, NY	ASM

<sup>a</sup> AIBS, American Institute for Biological Sciences; APS, American Physiological Society; ASBMB, American Society for Biochemistry and Molecular Biology; ASCB, American Society for Cell Biology; ASM, American Society for Microbiology; ESA, Ecological Society of America; GSA, Genetics Society of America.

\* An asterisk indicates community college or minority-serving institution.