

ASC Mellon Foundation Faculty Renewal Grants

Final Reporting Guidelines

Mellon Foundation Faculty Renewal Final reports are due within 30 days of the end of the project period. The due date is in your award email from ACS. Your report should be e-mailed to mwhite@colleges.org. At the ACS faculty Renewal Initiative, 1975 Century Blvd., Suite 10, GA 30345. Fax: 404-636-9558.

Please address the following points in your 'detailed narrative' report with evaluation and dissemination information:

Name of Person (s) Submitting Report Min-Ken Liao
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Institution Biology Department, Furman University

Name of project/event Participating in the Research Residency of the Biology Scholars Program

Date(s) of Project June 2008 - May 2009

Amount Awarded \$2799

1. Original goals and objectives

Being a teacher, I have always asked, "Have my students learned?" I know how to be more efficient but I can't always tell whether I am effective. Over the years I have taken different pedagogical approaches which were proven effective by other teachers. However, I can't be certain whether these approaches are better, worse, or the same for my students. The root of this uncertainty is that I do not have a helpful assessment tool. The campus wide Student Response Form to some extent indicates how satisfied students are. However, how satisfied students are is not always a direct reflection of how much they have learned; and what kinds of grades they make are not always a direct reflection of how much they have learned, either. I need to develop a better course evaluation form to assess the effectiveness of different pedagogical approaches and, most importantly, to guide me to become a more effective teacher.

To start, I need to learn how to do research in Scholarship in Teaching and Learning (SoTL.) Therefore, I proposed to participate in the Research Residency Program of the Biology Scholars Program. It is a competitive program and I was thrilled to be selected (see attachment.)

Before the first workshop in Washington DC in July 2008, we had numerous readings and assignments, and we learned more about SoTL during the workshop. Additionally, we had to each design a SoTL research project during the workshop.

In the past six months, I have applied what I have learned from the assignments, the workshop, and additional readings from many SoTL journals and developed a biology course evaluation form (See attachment). Additionally, I have been conducting my SoTL research project on students in four Genetics sections (~70 total) and two Principles of Biology (~64 total) sections, with the help of Dr. John Snyder and Dr. Greg Lewis at Furman University. Dr. Lewis will also help me analyze my results so he will be the co-author of the poster that I am about to present. I will attend the capstone workshop of the Biology Scholars Program and present the results of my SoTL research project at ASMCUE (American Society for Microbiology, Conference for Undergraduate Educators) in May 2009, which will conclude my Biology Scholars Program Research Residency.

My biology course evaluation form is not perfect but already it has provided me information that the Student Response Form cannot. I have now identified a few biological concepts students feel confident about and a few other concepts students feel the least confident. Next time I teach Genetics, I plan to spend more time explaining challenging concepts and let students assume responsibilities in learning the better-established concepts.

2. If goals/objectives changed during the course of the project, please state the revised goals/objectives.

The year-long Biology Scholars Program will end after the group capstone workshop and individual poster presentations at ASMCUE. In my original proposal, I stated that the 2009 ASMCUE will be held in Philadelphia, PA from May 14-May 17. The dates and place have been changed. It will be at Colorado State University, Ft. Collins, CO, from May 27-31, 2009. This is probably the only significant deviation.

3. In what ways were the goals/objectives met? Please give examples.

I submitted a project proposal, my CV and a personal statement, and provided two letters of recommendation in order to be considered for the Biology Scholars Program. I received the acceptance letter on March 24, 2008. (See attachment)

4. Describe the evaluation/assessment process used. Summarize the results of this process. Include any instruments used to evaluate/assessment your project.

One of the unique features of the Biology Scholars Program is that the facilitators will keep track of our progresses. In addition to our own Research Residency Program Wiki, we have one group conference call per semester to assess our progresses. In fact, I am currently getting ready for the spring conference call with the program facilitators, my group leader, and my group mates, which is scheduled to take place next Monday, Feb. 2 from 2 to 3 PM.

The deadline for submitting the abstract to ASMCUE is on Feb. 20 but the Biology Scholars have to submit our individual abstract to our program facilitators by Feb. 9, so

they can have a chance and time to evaluate our projects and provide comments on the abstracts. They will also offer suggestions for the preparation of the ASMCUE poster presentations and for future studies.

The Biology Scholars Program will also keep track of our professional growth in SoTL for another five years.

5. If you were to redesign your project, what would you do differently and why? (What are the “lesson learned?”)

I should have asked for more money. I totally underestimated the cost of lodging in Washington, DC.

6. How did your project impact other faculty on your campus? If done jointly with one or more institutions, how did it impact faculty on the other campus(es)?

I have offered the biology course evaluation form that I designed to the whole Biology Department in Word document electronically twice. The evaluation form is flexible so it can be modified and used for different courses easily. I also asked my colleagues to inform me if they decided to use the evaluation form. As far as I know, Dr. John Snyder and I were the only two who used it in fall 2008 for Genetics and Microbiology, respectively. I am not certain whether my other colleagues didn't use it or they used it but forgot to let me know. As for this semester, at least Dr. Lewis and I will use it for Principles of Biology and Genetics, respectively. In addition, I will keep offering my biology course evaluation form to my colleagues.

7. How did the project impact the institution(s) as a whole?

I knew I would learn a great deal about SoTL before I applied for the Biology Scholars Program, but I did not expect that I would get this much out of the four-day workshop in Washington, DC, July 16-09, 2008. There were assignments prior to the workshop and more afterwards, but being away from my teaching and research responsibilities and completely immersing myself in the workshop was amazingly effective. Empowered by the rudimentary understanding of SoTL and newly acquired SoTL techniques, I have been collaborating with Mike Winiski, our Instructional Development Consultant for the Science Division at Center for Teaching and Engaged Learning at Furman University, and developing different assessment tools. We designed and used assessment techniques such as Survey Monkey, the newly developed course evaluation form, and focus group interview in my Microbiology, Genetics and First Year Seminar classes. I have also shared all my First Year Seminar assessment techniques with colleagues who taught or are teaching First Year Seminars on campus. Additionally, Mike and I make sure that all activities that need IRB approvals get IRB approvals. I wouldn't have known this much about SoTL and assessment had I not participated in the Biology Scholars Program. And I certainly would not be able to share the products that I developed with my colleagues on campus.

8. If students were involved, what was the impact on them?

The objective of this proposal is to receive funding to become one of the Research Residents of the Biology Scholars Program so I can learn how to do research in SoTL. Therefore, the impact of this participation on my students is not direct, immediate and apparent. To me, while innovative pedagogical approaches are desirable, it is more important to have the right assessment tools as a guide to further maximize the learning benefit for students. Therefore, developing a biology course evaluation form was my first project. Now I can use the form to assess the effectiveness of different pedagogical approaches I use in classrooms. Being a better teacher will most certainly impact my students positively.

9. How have you shared the results with ACS colleagues and beyond ACS? What are your plans for dissemination?

Every Research Resident of the Biology Scholars Program has to at least present a poster at a conference and ideally submit a manuscript for publication. I plan to attend ASMCUE this May and present the result of my SoTL project using the biology course evaluation form that I designed. Knowing how challenging it is to develop a biology course evaluation form, I anticipate that I will have a lot of requests for the evaluation form after the meeting.

10. Did any publications result from this project? If yes, list here.

I will have a poster presentation at ASMCUE in May, 2009.

11. What are the next steps (follow-up) in your project? Evaluations, surveys etc are to be included as a part of this report.

The 2008 Biology Scholars Program will end this May. However, the program facilitators will keep track of our professional growth in SoTL for another five years. I have two ongoing SoTL projects and I hope to produce two publications. The one of which Mike Winiski is the collaborator has produced reportable results and the manuscript is in preparation. The one in which Dr. Greg Lewis is the collaborator is still in the data-gathering phase. However, in both cases, I was equipped by my experiences in the Biology Scholars Program to conduct research in SoTL.

13. Please include a summary of your work that may be included on the ACS Faculty Renewal website.

I receive the ACS Faculty Renewal Grant to participate in the Biology Scholars Program (2008) in order to learn more about the Scholarship of Teaching and Learning (SoTL). The program offers three different types of residencies: writing, research and leadership. The one I was interested in participating was the research residency program that “seeks biologist who are asking questions about the effectiveness of their teaching approaches.” This year-long program consists of two workshops, one in summer 2008 and one in summer 2009. There were readings and assignments started in March 2008, and two conference calls, one semester each, to keep track of scholars’ progress in the individual SoTL research project. My research question is whether weekly reflection, not studying or keeping learning journals, enhances students’ confidence in learning. To start off, I designed a biology course evaluation form which I am more than happy to share with any ACS members. In return, I would like to receive feedbacks for improvement. This May I will present the results of my SoTL project in American Society for Microbiology Conference for Undergraduate Educators in Colorado State University.

Email your report to mwhite@colleges.org
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