

Reflections of an Undergraduate Teaching Associate

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Key words: Education, Biology, Undergraduate, Teaching Assistant, Teaching Associate

## Abstract

My experience working as Undergraduate Teaching Associate with Dr. Terry L. Hufford was positive and life-changing. The position at The George Washington University enabled me to co-develop the curriculum for an honors introductory biology course. I helped to implement the course, as a traditional Teaching Assistant would have, and also was directly involved in course revision and assessment. Partnering with the professor to improve the curriculum, I came to better appreciate the careful multi-scale planning that goes into structuring a course, the importance of dynamic interaction with students and getting their honest feedback, and the considerations involved in choosing teaching methods that encourage student participation. The skills I gained are not just helpful for when I am teaching; I have incorporated the whole organizational approach into my everyday endeavors. I hope that my experience will be an inspiration for other undergraduate student-professor collaborations.

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## Introduction

As an undergraduate student at The George Washington University, I helped to form a new approach to student-professor partnerships through my role as “Teaching Associate.” More than a Teaching Assistant, I assisted the professor in developing and implementing a revised curriculum for an introductory biology course. Honors Biology presented unique challenges as it was intended for both science majors and non-majors, and employed a student-centered approach, including emphasis on discussion and active participation (Discovery, Discussion,

Reflection Method). As a teaching associate who previously took the course, I was involved in all aspects of the course, from the planning, to the implementation and assessment of the revised curriculum. Facilitating student involvement in the course, through student-centered teaching methods, and seeking student feedback for assessment, was a rewarding, life changing experience for me, and seemed to be a benefit for all involved: to me, the students, the professor, and even the university. I hope that my positive experience will promote future partnerships between university professors and undergraduate students.

## Methods

### *Introduction to Honors Biology from a Student Perspective*

As a freshman, I took the yearlong Honors Biology course the first time it was offered, in fall 2001 and spring 2002 semesters. The course was designed for students in the University Honors Program, both science and non-science majors. I was considering majoring in Biology, and liked the idea that the course was for a diverse group of motivated students. At an Honors function I met the professor, Dr. Terry L. Hufford, and was excited to find out about his student-centered teaching perspective.

While a number of alternative teaching techniques were used in the course, the format of the class still relied predominantly on lecture, which did not foster sufficient student interaction with each other or the professor. The dynamics of the class did not satisfy the professor and students in meeting the goals of the course: to promote understanding of introductory biology material,

use of critical thinking skills, mastery of science as a process, improved communication ability, and appreciation and interest in biology.

*Becoming a Teaching Associate:*

At the end of the course, Dr. Hufford asked me if I would be interested in working with him over the summer to revise the course before the fall semester. I was thrilled and honored to be offered this opportunity. My roles that summer were to research alternative teaching techniques, and, working with Dr. Hufford, determine how to approach and plan the course for the following year. Some programs involve students in course planning and creation of assignments (e.g. Beard *et. al.*, 2000), but the fact that I was treated as a colleague in the process seemed a rare opportunity. Dr. Hufford took my input very seriously, on everything from in-class questions for discussion to the time periods of the course.

Since I had just taken the course I had some ideas about what worked and did not work for me when I took the course, and also how the other students felt based on my discussions with them. Also I interviewed faculty members for their input. Additionally I could offer my personal perspective, through my experiences outside of biology such as in peer mediation, sports, drama and other areas. Helping to plan the course heightened my awareness and appreciation for the work that goes into a course before the teacher ever sets foot in front of the class.

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## Results and Discussion

In the following fall and spring, I continued working with Dr. Hufford by assisting with the implementation of the redeveloped course, and assessment of the new teaching methods through research. I was a volunteer, but then was fortunate to receive academic credit, allowing me to be involved in-class as well as out of class. The types of responsibilities given to UTAs in other programs vary, and include everything from laboratory preparation (Saint Louis University, 2005) and grading (University of Delaware, 2010), to facilitating group work (Price, 2006), leading discussion (Wallace, 1974) and helping other TAs (Beard *et. al.*, 2000). My role included helping individual students, facilitating group work, leading class discussion, assisting with further planning and revision, grading presentations, meeting with students to get their honest feedback on the course, and establishing assessment criteria and techniques.

It was very rewarding to not only implement but evaluate the plans made over the summer. The assessment process was an integral part of the course, and allowed for revisions as the course progressed. Being so involved, in both teaching and curriculum assessment, taught me broader lessons (long term planning, management, etc) as well as specific techniques (grading strategies, socratic method, etc), that I found myself using for how I approached my other classes and activities.

It seemed my discussions with students made a difference in what they got out of the course, particularly through helping them to understand what was expected from them. I frequently found that students would go ahead, unsure, rather than ask for clarification or look up

guidelines. Sometimes encouragement was helpful in stimulating class discussion, or in working things out within a group. Students also came to me with questions or problems, and did not have to worry that their comments would be relayed to Dr. Hufford or their classmates because I let them know at the outset that anything I would pass along would not be associated with them. This anonymity was very important to the assessment process. During and after the course I interviewed students for their feedback, and they were very candid with me, and provided excellent suggestions and comments. They could also see the results of their input, because Dr. Hufford and I worked to revise the course in progress based on the comments of the class and our own observations. Facilitating the students' ability to freely contribute to the course was perhaps the most rewarding part of my experience.

I continued to assist with the course, and its assessment and revision, through its third year. My role, now funded, shifted focus to outside of class, particularly in facilitating group work with the addition of a final group project, and continuing to provide feedback. In fall 2003, I had the honor of presenting our results at the National Association of Biology Teachers conference. After the third year of the course, another professor was not found to continue the course and so it was not offered my senior year. I hope that the work and progress of honors biology will be resumed in the future.

In the meantime, approaches we developed were applied to a larger course for non-majors later taught by Dr. Hufford. I continued to be involved through the new program of Learning Facilitators. As a coordinator, I was a contact for the learning facilitators and could assist with questions or difficulties. In this role, as in my experiences with the Honors course, some

discussion was helpful to clarify the approach taken with the course and what the expectations were. However, the dynamics of this program were very different from the Honors course, and offered less personal involvement and discussion. It was helpful to me to contrast this course with the honors course, and to explore how to modify approaches to fit the larger class and purely non-major perspective.

## Conclusions

My experiences as a teaching associate formed the centerpiece for my undergraduate career. I gained a greater appreciation for, and developed, teaching skills, including organization, curriculum selection, assignment development, and assessment. I also solidified my understanding of basic biology. I learned about assessment research techniques, and I learned from the students in the class. As a student, it was very helpful to gain insight from a teacher's perspective. My experiences working with Dr. Hufford enhanced the tools I could use to approach my courses, personal interactions, and other endeavors. I feel that my preparation for my career and contribution to society was enhanced by my experiences as an undergraduate teaching associate, and hope that others might also benefit from such experiences. I continued to be excited about developing innovative teaching strategies with professors and developed my own educational materials. Now educational outreach is a key component of my sustainability projects in Mexico and the United States, and I see educational outreach as a necessary part of any research endeavor.

Involving the students more directly in the assessment process really emphasized the effectiveness of the course, making it truly student-centered. I provided not just my own student perspective, but those shared with me through interactions with the students in the class. The course could be geared more appropriately for the particular students, and benefited in the long run from their real-time insight. Active participation of students in the assessment process resulted in more active participation of the students in general. The teaching associate, students, professor, and the university benefit from being able to offer and support such a strengthened course. I hope that faculty reading this will consider the value of this experience, and can draw inspiration for organizing similar partnerships.

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