Addressing the Age-Old Question: How Does Biology Apply to My Major?

Brian Wells Shawn E. Neff

Undergraduates may not reflect the passion for biology felt by the instructor, and they may have difficulty believing that biology pertains to their personal lives (Nastase & Scharmann 1991). General Biology as a life science course was created to make the rigorous biological topics such as zoology, microbiology and botany relevant and practical to the learner (Lung 1999). Often times the students’ first question as they enter the classroom is “But how does biology apply to my major?” The original intent of a General Biology course demands that we answer the question throughout the duration of a semester.

We began a proactive attack on answering the question—before it was asked. On the first class day we asked our students: “How does biology apply to your major?” Victoria Costa (1993) employed the same approach through the application of a course question to stimulate student interest in a college level chemistry course. Costa asked her students, “How does chemistry impact my personal life and society?” (p. 49). She determined that the best place to begin teaching was with the questions asked by the students. The questions such as how does biology apply to me or why should I have to take chemistry when I’m an accounting major are not to be dismissed as disrespect. Assuming these questions are of sincere origins will open up opportunities to create a meaningful experience for beginning college students. Costa stated, “When we fail to address student questions about the relevance of science to their personal lives, we perpetuate ambivalent attitudes toward science” (p. 49).

Method

On the first day of General Biology classes we formed groups of three students comprised of biology majors and nonmajors fulfilling their general education component. Then we had them provide answers to the following assignment: List three ways that you think biology applies to your major. We stressed to each group that the answer often would be found in the depths of their own creativity. The students planning on majoring in biology, veterinary science, pre-medicine, or nursing usually finished quickly while the theater, English, social science and business majors struggled with varying degrees of success. After about 10 minutes of trying to answer this question, we asked each student to introduce himself or herself and provide one way that biology applied to his/her major. What the students did not know was that they were forming the foundation for their semester-long independent project.

The following assignment was then used to build an independent project designed to each student’s career or academic plans. It immersed them in an in-depth exploration to answer the question of “How does biology apply to my major?” At the end of the first day of class we asked the students to write a two to three-page paper describing three ways that biology applied to their career choice or major. If the student was undecided in his/her major we asked him/her to describe three careers that would be based on the study of biology. In addition, a student statement that “biology does not apply to my major” was accepted as long as he/she could provide written justification.

After students answered these questions, some more creatively than others, we took their answers and developed the rest of their semester project. We chose each student’s best description of a way that biology applied to his or her major and developed a case scenario that would have to be researched in-depth to develop a response. This part of the development resulted in a labor-intensive process challenging our knowledge of the discipline and our creativity for developing meaningful research projects. The culminating product was a series of over 50 independent assignments that we found to be useful semester after semester. We would develop the assignments (usually in the form of case scenarios) on a sheet of paper outlining the response that was expected from the student. The case scenario was then returned to the students to provide them with the rest of their semester project. (Samples of case scenarios with assignments are provided in Figures 1 and 2).