Today a Biology Course Must be More than a Biology Class

William J. Brett

Department of Life Science
Indiana State University
Terre Haute, IN  47809

Prior to the start of the 1990-91 academic year, Indiana State University revised its general education program. Courses taken for general education credit must include significant speaking, listening, writing, and reading components. In an attempt to meet these requirements, I revised the Life Science 112 “Human Aspects of Biology” course. The course was designed to present five major topics or problems of concern to humans. The biological material was chosen to help the student consider these problems. Eight tasks, in addition to standard exams, were required for students’ course evaluation.

Problems:
- environment and pollution
- populations
- food supply
- genetics and genetic engineering

Tasks:
- submitting pertinent newspaper articles with the students’ comments
- summarizing articles from scientific journals
- attending departmental seminars
- presenting seminars
- evaluating the student seminars
- preparing and presenting library research project
- evaluating the research projects
- preparing test questions.

The syllabus informed the students that about 36% of the grade would be determined by completion of material outside formal examinations. This method of evaluation required the student to become involved in the course and to remain involved for the entire semester, rather than just three or four times a semester when exams are given. The main objective of this type of course presentation was to relate biology to every day life and to provide experiences which would permit, in fact encourage, the student to maintain a lifelong interest and participation in matters of a biological nature.

The students’ response to the course can be summarized by three general statements: 1) they found the course interesting; 2) they were able to participate more than in other courses; and 3) they thought there was too much work.

An evaluation of the record of work completed for the course and students’ comments resulted in a reduction of the required material; the departmental seminars and summaries of scientific articles were dropped. Whereas both of these items worked well with students in the biology majors’ course, they did not seem to be as valuable in a general education course.

In the Fall, 1992, I was asked to teach a L. Sci. 112 course for Honors. To regress, Dr. Mulkey and I had directed NSF Young Scholars programs during the summers of 1989, 1990, and 1992. Ethical and social aspects of the biological material were included in the material for the Young Scholars programs. Dr. David Johnson, a faculty member in the Department of Humanities, had participated in the program. This interdisciplinary approach was well received by the Young Scholars; therefore, we thought we would try a similar approach in the Human Biology course for Honors students. The course was well received and Dr. Johnson and I offered it again in the Fall of 1993 and are presently offering it during the Fall semester, 1994. In addition to four exams presented during the course, the students are required to submit a minimum of 10 newspaper or popular magazine articles with a brief report explaining the significance of the article to them, two 500 word essays covering some aspect of the course, and a written essay selected from three possible
topics which serves as the final exam. Examples of essay topics include: (1) Does the type of life style we now practice make it possible or impossible to maintain a “healthy” environment; (2) What methods could or should be employed to reduce cases of STDs; and (3) What are the social and moral issues associated with: 1) population growth, 2) reproductive technologies, or 3) aging. That is, they took one issue to indicate what makes the issue problematic and to suggest a solution or answer (by making use of a “duty” approach or a “consequentialist” approach).

The schedule is arranged so that Dr. Johnson offers about 26% of the material. An outline of the schedule is included to illustrate how this is done.

Team teaching a course with a professor from the Humanities Department makes the course more interesting, pertinent, and challenging. The risk of indoctrinating rather than educating is always present. A report from the Hastings Center “Values on Campus—Ethics and Values Programs in the Undergraduate Curriculum” by Bruce Jennings, James Lindemann Nelson, and Erick Prenes was helpful to us in considering this problem. A few quotes from the article seem apropos. “What is the role of education in inculcating values that are essential to social cohesion?” “How should the distinction between values education and indoctrination be understood?” “Are there ‘fundamental moral propositions’ or ‘core values’ that we ought to teach?” “One participant suggested that a distinction can be defensibly drawn between (a) fundamental propositions or values that higher education should inculcate (such as academic integrity, honesty, nondiscrimination, and respect of persons); and (2) various positions on moral controversies (such as abortion or foreign policy) that colleges should equip students to think critically about without insisting on a particular position or view.” “Do institutions and faculty have an obligation to model ‘moral behavior?’” Dr. Johnson and I do not have answers to these questions, but our awareness of them influences how we present certain topics.

Most teachers are painfully aware that it is difficult to determine the value of their course for the students. An exam usually tests for what the instructor emphasized to the students. And that
value may be relatively short-lived as later tests over the same material have indicated. Many schools, including our own, use Student Evaluation Forms. Positive results mainly indicate whether the student did or did not enjoy the course. This enjoyment is often based upon the grade the student anticipates or how entertaining the instructor is. The students' evaluation of this course were relatively high. The students enjoyed the presentations from two instructors; additionally, they had gained a significant amount of information. But how does one determine the long term value(s) of a course? This is particularly important in the case of General Education courses. Whereas biology majors will get many more exposures to similar material, General Education students usually get only one shot at science, hopefully biology, at the college level. Their decisions as voting, working, and consuming adults will be influenced by their scientific background or lack of such.

Dr. David Johnson and I believe that there are advantages to a combined Biology/Humanities course. Can we substantiate this belief? Maybe the following items will help provide an answer.

1. Student evaluation forms indicate that students, almost unanimously, found the course interesting. Realizing that learning is an active process, students' interest is conducive to learning.

2. Attendance in this course is much better than in the other biology courses, both General Education courses and under-division Life Science majors' courses.

3. The written essays display a greater understanding of the implications of biological information and manifestations than is found on short essay questions in other classes.

4. There is considerably more class discussion than in "similar" classes. The department offers 8 Life Science 112 classes.

5. The comments accompanying the newspaper articles give evidence that the students examine the material from both biological and ethical/social aspects. The ultimate answer to these questions will only be provided in the future when these students make decisions as citizens in an ever warming, more diverse and crowded, and more electronically communicating world. One thing we are sure of, both Dr. Johnson and I enjoy this class very much and our attendance is almost perfect.

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