APPENDIX C

Science Course Questionnaire

(Adapted from: Partnerships for Reform Initiatives in Science and Mathematics T4 Undergraduate Initiative Science Student Questionnaire, 1999)

Mark the response that best fits your opinion about the following:

A. To what extent is each of the following statements true about this class?	**Not at all**	**Somewhat true**	**Moderately true**	**Very true**
1. To do well in this class, you have to know how to design scientific experiments	1	2	3	4
2. To do well in this class, you have to know a lot of scientific formulas	1	2	3	4
3. To do well in this class, you have to analyze information and reach logical conclusions	1	2	3	4
4. To do well in this class, you have to explain ideas clearly in writing and orall	1	2	3	4
5. To do well in this class, you have to connect ideas and apply them to new situations	1	2	3	4
6. To do well in this class, you have to work well with other students	1	2	3	4
7. To do well in this class, you have to be proficient in the use of computers and other modern science technology	1	2	3	4

B. In this science class, how often do students:	**Never**	**A few times this semester**	**One or two times a month**	**One or two times a week**	**Every session**
8. Listen and take notes as the instructor talks to the class	1	2	3	4	5
9. Observe the instructor doing a demonstration	1	2	3	4	5
10. Clarify concepts by responding to questions from the instructor	1	2	3	4	5
11. Explain concepts to other students	1	2	3	4	5
12. Use results from lab activities as evidence or examples in class discussions	1	2	3	4	5
13. Work in groups with other students to learn an idea or solve a problem	1	2	3	4	5
14. Make an oral presentation or demonstration for the class	1	2	3	4	5
15. Read from the textbook or other printed materials					
16. Answer questions from the textbook or a worksheet					
17. Use mathematics as a tool for problem-solving or to show relationships					
18. Take short answer tests (multiple choice, fill-in-the-blank, etc.					
19. Take tests with open-ended tasks (essay questions, performance tasks, etc.)					

20. Memorize information without applying it to an understanding of underlying concepts					
21. Work on entries for a science portfolio or journal					
22. Discuss how a science concept is used in everyday life or in different jobs					
23. Evaluate the validity of an argument or conclusion					
24. Discuss scientists who are women, minorities, or disabled					
25. Discuss how an idea from one branch of science (like biology) is related to ideas from other branches of science (like chemistry, physics, etc.)					

C. In hands-on activities, how often do you do the following:	**Never**	**A few times this semester**	**One or two times a month**	**Every session**
26. Do experiments following a given set of steps	1	2	3	4
27. Design your own scientific investigation	1	2	3	4
28. Work on investigative science projects that take a week or more	1	2	3	4
29. Figure out for yourself what observations or measurements to make	1	2	3	4
30. Identify variables and determine which variables to control	1	2	3	4
31. Represent data in a variety of ways (narrative, tables, graphs, pictures, etc.)	1	2	3	4
32. Identify quantitative relationships between variables, using graphs, formulas, etc.	1	2	3	4
33. Use computers to collect, analyze, or display data or results	1	2	3	4
34. Repeat investigations to collect more data or check results	1	2	3	4
35. Present findings and receive feedback from classmates	1	2	3	4
36. Look for alternative explanations for results, then determine the most appropriate one	1	2	3	4

D. Each item below contains two statements that describe some aspect of this course. If both statements are equally true about this course, mark "3". If one statement is somewhat more true than the other, mark the next number from the middles (either 2 or 4) on that statement's side. If one statement is much truer than the other, mark the number (either 1 or 5) closest to that statement

	Much Truer	Some what truer	About the same	Some what truer	Much truer	
37. Course focuses on learning important science concepts	1	2	3	4	5	Course focuses on learning how scientists think and work
38. Time for discussion of a topic is limited by the schedule on the syllabus	1	2	3	4	5	The class stays on a topic until most students understand it

39. Knowledge to be learned is contained in the text and illustrated by in-class activities	1	2	3	4	5	Knowledge to be learned is generated by discussing the results of the in-class activities
40. Work in the class is done individually	1	2	3	4	5	Work in class is done in groups
41. Concepts are discussed in class first, then experienced through inquiry-based activities	1	2	3	4	5	Concepts are experienced through inquiry-based activities, then discussed and elaborated on in class
42. Hands-on investigations are finished in one period	1	2	3	4	5	Inquiry-based activities extend over multiple periods
43. When investigating questions, the most important goal is getting the expected result	1	2	3	4	5	When investigating questions, the most important goal is making logical conclusions from the data
44. Grading is based mainly on how well you know terms and facts	1	2	3	4	5	Grading is based mainly on how well you analyze data, justify conclusions, and apply information to new situation.

E. To what extent have each of the activities listed below enhanced your knowledge and expertise as a biologist?	**Not at all**	**A little**	**Quite a bit**	**A lot**	**Not Applicable**
45. Listening to lecture	1	2	3	4	5
46. Conducting hands-on activities	1	2	3	4	5
47. Conducting your own research projects	1	2	3	4	5
48. Discussing ideas and scientific problems with your peers	1	2	3	4	5
49. Using computers	1	2	3	4	5
50. Using other modern technology	1	2	3	4	5
51. Writing papers, laboratory reports, etc.	1	2	3	4	5
52. Giving oral presentations	1	2	3	4	5
53. Working in groups	1	2	3	4	5
54. Critically evaluating the work of your peers or published literature	1	2	3	4	5
55. Working with case studies	1	2	3	4	5
56. Attending seminars by professionals in the field of biology	1	2	3	4	5