

## APPENDIX 1

### Final assessment, Biology 1001, Fall 2006

#### Science attitudes

Please rate questions 1- 9 on the following scale:

A. Not confident; B. A little confident; C. Somewhat confident; D. Highly confident; E. Extremely confident

I. Presently, I am CONFIDENT I can ...

1. Discuss scientific concepts with my friends or family

A. Not confident; B. A little confident; C. Somewhat confident; D. Highly confident; E. Extremely confident

2. Think critically about scientific findings I read about in the media

A. Not confident; B. A little confident; C. Somewhat confident; D. Highly confident; E. Extremely confident

3. Determine what is -- and is not -- valid scientific evidence

A. Not confident; B. A little confident; C. Somewhat confident; D. Highly confident; E. Extremely confident

4. Make an argument using scientific evidence

A. Not confident; B. A little confident; C. Somewhat confident; D. Highly confident; E. Extremely confident

5. Determine the difference between science and “pseudo-science”

A. Not confident; B. A little confident; C. Somewhat confident; D. Highly confident; E. Extremely confident

6. Interpret tables and graphs

A. Not confident; B. A little confident; C. Somewhat confident; D. Highly confident; E. Extremely confident

7. Pose questions that can be addressed by collecting and evaluating scientific evidence

A. Not confident; B. A little confident; C. Somewhat confident; D. Highly confident; E. Extremely confident

8. Understand scientific processes behind important scientific issues in the media

A. Not confident; B. A little confident; C. Somewhat confident; D. Highly confident; E. Extremely confident

9. Understand the science content of this course

A. Not confident; B. A little confident; C. Somewhat confident; D. Highly confident; E. Extremely confident

II. Presently, I am interested in ...

10. Discussing science with friends or family

A. Not interested; B. A little interested; C. Somewhat interested; D. Highly interested; E. Extremely interested

11. Reading about science and its relation to civic issues

A. Not interested; B. A little interested; C. Somewhat interested; D. Highly interested; E. Extremely interested

12. Reading articles about science in magazines, journals or on the internet

A. Not interested; B. A little interested; C. Somewhat interested; D. Highly interested; E. Extremely interested

13. Taking additional science courses after this one

A. Not interested; B. A little interested; C. Somewhat interested; D. Highly interested; E. Extremely interested

14. Majoring in a science-related field

A. Not interested; B. A little interested; C. Somewhat interested; D. Highly interested; E. Extremely interested

15. Exploring career opportunities in science

A. Not interested; B. A little interested; C. Somewhat interested; D. Highly interested; E. Extremely interested

16. Joining a science club or organization

A. Not interested; B. A little interested; C. Somewhat interested; D. Highly interested; E. Extremely interested

17. Attending graduate school in a science-related field

A. Not interested; B. A little interested; C. Somewhat interested; D. Highly interested; E. Extremely interested

18. Teaching science

A. Not interested; B. A little interested; C. Somewhat interested; D. Highly interested; E. Extremely interested

### **CLASS PREPARATION**

Please rank the value, in terms of preparing for exams, for each of the following activities. Please use the following scale:

A. didn't do/not applicable; B. useless; C. Somewhat useful; D. Highly useful; E. Extremely useful

19. doing the assigned reading in the text

20. reviewing course outlines posted on webCT

21. coming to class

22. visiting the tutorial room in MCB

23. meeting with the instructors outside of class

24. working with a study group

25. practicing sample questions posted on webCT

26. working with my group on in-class activities

27. attending class during mini-lectures

28. preparing for unannounced quizzes

29. consulting outside sources for help

30. checking exam answer keys in the tutorial room in MCB

## **IN-CLASS ACTIVITIES**

Please rank the value, in terms of helping you understand fundamental concepts, for each of the following activities. Please use the following scale:

A. don't remember/didn't attend; B. useless; C. Somewhat useful; D. Highly useful; E. Extremely useful

31. Fatal attraction in rats, testing hypotheses by interpreting authentic data
32. Tournament of kitchen utensils
33. WHIPPO (whale/hippo evolution and classification)
34. Penis size; Ratites (comparative anatomy; biogeography)
35. Fatal Familial Insomnia: genetic locus
36. DNA concept map
37. Pipe cleaner biology (mendelian inheritance)
38. "Protein Scramble" matching game
39. Mutation generation/karyotype analysis
40. BOB (bag of beans) & population genetics
41. Rock pocket mice (hypotheses about directional selection)
42. Are humans evolving? (Italian birth weight data, CCR5 mutation data, sickle-cell anemia)
43. Helpers at the nest: pied kingfishers
44. Sexy peacocks and choosy peahens
45. Testing hypotheses about human mate choice with the personals
46. Rock pocket mice, disruptive selection
47. Sticklebacks and species concepts
48. History of Life scramble
49. Hominin skulls and human evolution
50. Sea Otter case study

## **GROUP WORK**

Please rank the value, in terms of encouraging your participation, of each of the following categories of group activities. Please use the following scale:

A. don't remember/didn't attend; B. useless; C. Somewhat useful; D. Highly useful; E. Extremely useful

51. Process of Science activities (generating hypotheses, designing experiments, interpreting graphs, etc.)
52. Immediate Feedback Assessment Technique forms (IFATs)
53. Question massages
54. Manipulatives (pipe cleaners, adhesives, beans, etc.)
55. Magic 8-ball and document scanner interface

### **IFAT-SPECIFIC QUESTIONS**

Please rate your agreement with the following statements. Please use the following scale:

A. don't remember/didn't attend; B. disagree strongly; C. disagree; D. agree; E. agree strongly

56. I enjoy the group interaction encouraged by the IFAT

57. I did not like using the IFAT form and would prefer never to see it again

58. Knowing whether or not I/we got the right answer immediately on the IFAT helped me learn

59. With the IFAT, knowing right away when I was wrong helped me correct my misconceptions on a problem.

60. I get a real feeling of satisfaction whenever I get the correct answer on my first try

61. I get a real feeling of disappointment whenever I get the wrong answer on my first try

62. I feel that I may have done better on mid-term exams because of what I learned with the IFAT activities.

63. How likely are you to major in science in college?

a. Very likely

b. Somewhat likely

c. Somewhat unlikely

d. Very unlikely

e. not applicable (non-degree student or other designation) or don't know

64. How likely are you to major in *health science* in college?

a. Very likely

b. Somewhat likely

c. Somewhat unlikely

d. Very unlikely

e. not applicable (non-degree student or other designation) or don't know