



CLASS

(Colorado Learning Attitudes about Science Survey)

Please read the following consent document before proceeding with the survey below.

Pressing submit at the end of this survey signals your consent.

INFORMED CONSENT DOCUMENT

You are invited to participate in a research project to improve the learning and appreciation of science with the use of technology. This project is conducted under the direction of Dr. Carl Wieman, Distinguished Professor of Physics, JILA Box 440, University of Colorado, Boulder, Colorado 80309 (303-492-7746). Other investigators include Dr. Noah Finkelstein, Dr. Michael Dubson (303-492-4938), Dr. Steven Pollock (303-492-2495), Dr. Kathy Perkins (303-492-4367), Dr. Sarah McKagan (303-492-7815), Dr. Linda Koch (303-492-7815), Dr. Jennifer Knight, Wendy Adams (303-735-0627), Noah Podolefsky, Patrick Kohl, Chris Keller, Kara Gray, Danielle Harlow (303-492-4331), Aaron Svoboda, Elias Quinn, Jack Barbera, Mindy Gratny, Sarah Kennedy, Françoise Benay, Laurie Langdon, Andrea Bair, Jia Shi, Jennifer Stempien, and others of the Physics, Chemistry, and Biology Departments at the University of Colorado, Boulder, Campus Box 390,

BIO 120 Students

Please enter your name (Last, First):

Please enter the last 6 digits of your student ID number:

Introduction

Here are a number of statements that may or may not describe your beliefs about learning biology. You are asked to rate each statement by selecting a number between 1 and 5 where the numbers mean the following:

1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly Agree

Choose one of the above five choices that **best expresses your feeling** about the statement. If you don't understand a statement, leave it blank. If you have no strong opinion, choose 3.

We are asking that you express your own beliefs. **Your answers will not affect your grade.** Your instructor will never see your individual answers, only whether you participated and the class results as a whole. This information will be very helpful to us in an effort to design more effective biology courses.

Survey (8-10 minutes)

1. My curiosity about the living world led me to study biology

Strongly Disagree 1 2 3 4 5 Strongly Agree

not answered

2. I think about the biology I experience in everyday life.

Strongly Disagree 1 2 3 4 5 Strongly Agree

not answered

3. After I study a topic in biology and feel that I understand it, I have difficulty applying that information to answer questions on the same topic.

Strongly Disagree 1 2 3 4 5 Strongly Agree

not answered

4. Knowledge in biology consists of many disconnected topics.

Strongly Disagree 1 2 3 4 5 Strongly Agree

not answered

5. When I am answering a biology question, I find it difficult to put what I know into my own words.

Strongly Disagree 1 2 3 4 5 Strongly Agree

not answered

6. I do not expect the rules of biological principles to help my understanding of the ideas.

Strongly Disagree 1 2 3 4 5 Strongly Agree

not answered

7. To understand biology, I sometimes think about my personal experiences and relate them to the topic being analyzed.

Strongly Disagree 1 2 3 4 5 Strongly Agree

not answered

8. If I get stuck on answering a biology question on my first try, I usually try to figure out a different way that works.

Strongly Disagree 1 2 3 4 5 Strongly Agree

not answered

9. I want to study biology because I want to make a contribution to society.

Strongly Disagree 1 2 3 4 5 Strongly Agree

not answered

10. If I don't remember a particular approach needed for a question on an exam, there's nothing much I can do (legally!) to come up with it.

Strongly Disagree 1 2 3 4 5 Strongly Agree

not answered

11. If I want to apply a method or idea used for understanding one biological problem to another problem, the problems must involve very similar situations.

Strongly Disagree 1 2 3 4 5 Strongly Agree

not answered

12. I enjoy figuring out answers to biology questions.

Strongly Disagree 1 2 3 4 5 Strongly Agree

not answered

13. It is important for the government to approve new scientific ideas before they can be widely accepted.

Strongly Disagree 1 2 3 4 5 Strongly Agree

not answered

14. Learning biology changes my ideas about how the natural world works.

Strongly Disagree 1 2 3 4 5 Strongly Agree

not answered

15. To learn biology, I only need to memorize facts and definitions.

Strongly Disagree 1 2 3 4 5 Strongly Agree

not answered

16. Reasoning skills used to understand biology can be helpful to my everyday life.

Strongly Disagree 1 2 3 4 5 Strongly Agree

not answered

17. It is a valuable use of my time to study the fundamental experiments behind biological ideas.

Strongly Disagree 1 2 3 4 5 Strongly Agree

not answered

18. If I had plenty of time, I would take a biology class outside of my major requirements just for fun.

Strongly Disagree 1 2 3 4 5 Strongly Agree

not answered

19. The subject of biology has little relation to what I experience in the real world.

Strongly Disagree 1 2 3 4 5 Strongly Agree

not answered

20. There are times I think about or solve a biology question in more than one way to help my understanding.

Strongly Disagree 1 2 3 4 5 Strongly Agree

not answered

21. If I get stuck on a biology question, there is no chance I'll figure it out on my own.

Strongly Disagree 1 2 3 4 5 Strongly Agree

not answered

22. When studying biology, I relate the important information to what I already know rather than just memorizing it the way it is presented.

Strongly Disagree 1 2 3 4 5 Strongly Agree

not answered

23. There is usually only one correct approach to solving a biology problem.

Strongly Disagree 1 2 3 4 5 Strongly Agree

not answered

24. When I am not pressed for time, I will continue to work on a biology problem until I understand why something works the way it does.

Strongly Disagree 1 2 3 4 5 Strongly Agree

not answered

25. Learning biology that is not directly relevant to or applicable to human health is not worth my time.

Strongly Disagree 1 2 3 4 5 Strongly Agree

not answered

26. Mathematical skills are important for understanding biology.

Strongly Disagree 1 2 3 4 5 Strongly Agree

not answered

27. I enjoy explaining biological ideas that I learn about to my friends.

Strongly Disagree 1 2 3 4 5 Strongly Agree

not answered

28. We use this statement to discard the survey of people who are not reading the questions. Please select agree (not strongly agree) for this question to preserve your answers.

Strongly Disagree 1 2 3 4 5 Strongly Agree

not answered

29. The general public misunderstands many biological ideas.

Strongly Disagree 1 2 3 4 5 Strongly Agree

not answered

30. I do not spend more than a few minutes stuck on a biology question before giving up or seeking help from someone else.

Strongly Disagree 1 2 3 4 5 Strongly Agree

not answered

31. Biological principles are just to be memorized.

Strongly Disagree 1 2 3 4 5 Strongly Agree

not answered

32. For me, biology is primarily about learning known facts as opposed to investigating the unknown.

Strongly Disagree 1 2 3 4 5 Strongly Agree

not answered

Background Questions (3-4 minutes)

1. I am a?

2. How old are you?

3. What is your gender?

4. What is your race/ethnicity (select the one with which you most identify)?

5. What is your current declared major?

6. If you plan to change your major, please choose the major you intend to switch to.

7. Currently, what is your level of interest in biology?

Very Low Low Moderate High Very High

not answered

Why?

8. Do your future plans include ...

biology related grad school? yes no

medical school? yes no

pursue a career in the medical field, but not medical school? yes no

teaching K-12 science? yes no

pharmacy school? yes no

Other

Specify

We thank you for taking the time to fill out this survey. Your participation is really helpful because knowing more about students' beliefs about biology helps improve our teaching practices.

I ... agree do not agree ... to permit the investigators to obtain and use my course grades, attendance records, and GPA for this research to improve this and other courses in science. This information will be seen only by the researchers. Identifying information (name, ID) will only be used to combine these survey answers and the coursework data and will be deleted prior to any subsequent analysis.

By pressing submit you are agreeing to participate in this research project as outlined in the "Informed Consent Document" above.

If you do not want to participate, simply do not answer the questions and submit only your name and ID.