

MBEX-2 survey (Hall, 2013).

1) Insert instructions for answering Likert-style statements at the following places:

- Before statement 1 – Add simple Likert-style statement for practice. Scoring statements 1-25: 1 = strongly disagree, 2 = disagree, 3 = neutral or ambivalent, 4 = agree, and 5 = strongly agree
- Before statement 25 – Explain the change to scenario Likert-style statements. Scoring statements 26-29: 1 = strongly agree more with A, 2 = agree more with A, 3 = neutral or ambivalent, 4 = agree more with B, and 5 = strongly agree more with B.

2) Insert additional Likert-style statements or open-ended questions that are specific to the surveyed course in the 30-32 slots as desired.

1. Learning biology is mainly a matter of memorizing the various facts presented.
2. Time should not be taken out of biology courses to present physics.
3. Knowledge in biology consists of many unrelated facts.
4. I believe it is possible to get a "C" or better in this course without understanding the course topics very well.
5. It is beneficial to me, as a biologist, also to be proficient in physics.
6. If biology professors gave really clear lectures, then most good students could learn the material without having to spend a lot of time thinking outside of class.
7. I am more interested in general biological principles than the specific facts that demonstrate those principles.
8. Knowledge of evolutionary processes is relatively unimportant for understanding human biology.
9. Mathematics helps me make deeper sense of biological phenomena.
10. We use this statement to discard survey respondents who are not reading the questions. Please select agree - option 4 - for this question to preserve your answers. (Do not mark option 5.)
11. The knowledge I acquired in this biology class is directly applicable to important issues currently facing the world.
12. Studying the simple organisms in this class, like bacteria, jellyfish, and worms, tells me very little about how human systems work.

13. Ideas I learned in physics are rarely useful in biology.
14. Math provides another way of describing biological phenomena, but rarely provides a deeper or better understanding.
15. Biology classes should be designed to help the students master the factual material for doing well on the MCATs, GREs, and other professional exams.
16. Physics helps me make sense of biological phenomena.
17. Ideas I learned in math are rarely useful in biology.
18. This biology class gives me knowledge and skills to think critically about biological topics in current events.
19. Biology class should just present all the different facts. Trying to present the unifying theories doesn't really help us understand anything.
20. Ideas I learned in biology are rarely useful in physics.
21. Memorizing all of my lecture notes in this class verbatim is all I need to do to get an "A" in this course.
22. It is beneficial to me, as a biologist, also to be proficient in math.
23. Physics is largely irrelevant for understanding biological processes.
24. It is beneficial to me, as a biologist, also to be proficient in chemistry.
25. I expect my exam performance in biology courses to reflect how well I can:
A. recall course materials the way they are presented in class.
B. apply course materials in situations not discussed in class.
26. Justin and Dave are studying together for an upcoming test and discussing the best way for them to study.
Justin: When I'm learning biology concepts for a test, I like to put things in my own words, so that they make sense to me.
Dave: But putting things in your own words doesn't help you do well in the class. The textbook and lectures were written by people who know biology really well. You should learn things the way the textbook and lectures present them.
A. Justin's study method is more effective.
B. Dave's study method is more effective.

27. Brandon and Jamal are discussing how a good biology textbook should be organized.

Brandon: A good biology textbook should show how the material in one chapter relates to the material in other chapters. It shouldn't treat each chapter as separate because they're not really separate.

Jamal: But most of the time, each chapter is about a different topic and those topics don't always have much to do with each other. The textbook should keep everything separate, instead of blending it all together.

A. Brandon's textbook organization is better

B. Jamal's textbook organization is better.

28. Of the following test formats, which is best for measuring how well students understand the material in biology?

A. A large collection of short-answer or multiple-choice questions, each of which covers one specific fact or concept.

B. A small number of longer questions and problems, each of which covers several facts and concepts.

29. Samantha and London are studying for an upcoming test on evolution.

Samantha: In order to do well on this test, I'm just going to concentrate on understanding the few underlying principles, which I will be able to apply to different situations.

London: I don't think understanding the principles tells you enough about every situation, I think I'm going to focus on memorizing as many different ways that organisms have evolved as I can.

A. It is better to study like Samantha.

B. It is better to study like London.

30. Instructor choice of an open-ended question (OEQ)

31. Instructor choice of an open-ended question (OEQ)

32. Instructor choice of an open-ended question (OEQ)