**Article Title:** Measuring Student Motivation in an Introductory Biology Class

**Journal Name:** American Biology Teacher

**Motivation Survey for Foundations of Biology (Pre-survey)**

**Description of the Survey**

Attention Foundations of Biology students. I will be administering an online motivation survey twice during the semester. The purpose of this survey is to better understand the motivations of Foundations of Biology students and learn how these motivations change over the course of the semester. Learning more about student motivation will help us create more interesting and engaging classroom materials for you and for future students. This survey is completely voluntary. Students who complete the BOTH surveys (administered at the beginning and at the end of the semester) will receive a small amount of extra credit (~7 pts). Students who complete the survey but opt out of the research study will still receive extra credit. Aside from the extra credit you stand to gain this survey will not affect your grade. While the survey does ask for your student ID this information will only be used to identify students who took the surveys, and to determine whether motivation affects class performance. All data will be analyzed in bulk after the semester is over and grades have been submitted. The information you provide will be used to make positive changes to this course. Your thoughtful honest answers are greatly appreciated.

1. (REQUIRED) Do you consent to have your data included anonymously in this study?

A. Yes, please include my data in this study to help improve future courses.

B. No, I prefer not to have my data included.

**Demographics Questions**

2. (REQUIRED) Please enter your Student ID below.

3. Are you taking this class as an Honors Student?

A. Yes

B. No

4. What gender do you most identify with?

A. Female

B. Male

C. Other

5. Ethnic background:

A. White or Caucasian

B. Hispanic or Latino

C. Black or African American

D. Native American or American Indian

E. Asian / Pacific Islander

F. Other

6. Choose the answer that best fits you. "I lived most of my life in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_".

A. The United States of America

B. Other

7. What is your class rank:

A. Freshman

B. Sophomore

C. Junior

D. Senior

8. What would you like the course instructors to do to motivate you this semester?

**Motivation Survey**

This first survey is to determine your baseline levels of motivation before taking this Foundations of Biology class. Please answer questions using your experiences from other science classes you've taken and your predictions about this class. These questions ONLY refer to your thoughts about the Molecular and Cellular Biology material that is covered in this class.

All of these questions are asked on a Likert scale ranging from 1(Not at all true) to 7 (Very True)

Note: Students saw these questions and the control question in a random order.

9. I will enjoy doing Molecular and Cellular Biology very much.

10. Doing Molecular and Cellular Biology will be fun.

11. I think Molecular and Cellular Biology will be very boring.

12. I think Molecular and Cellular Biology will not hold my attention at all.

13. I expect to find Molecular and Cellular Biology to be very interesting.

14. I think Molecular and Cellular Biology will be quite enjoyable.

15. While working with Molecular and Cell Biology I will likely think about how much I enjoy it.

16. I think I will be pretty good at Molecular and Cellular Biology.

17. I think I will do pretty well at Molecular and Cellular Biology, compared to other students.

18. After working at Molecular and Cellular Biology for awhile, I will feel pretty competent.

19. I will be satisfied with my performance at Molecular and Cellular Biology.

20. I will feel pretty skilled at Molecular and Cellular Biology.

21. I suspect that I can't do well on Molecular and Cellular Biology activities.

22. I believe Molecular and Cellular Biology could be of some value to me.

23. I would be willing to do more Molecular and Cellular Biology because it has some value to me.

24. I believe doing Molecular and Cellular Biology could be beneficial to me.

25. I think Molecular and Cell Biology activities are important.

26. I do not feel at all nervous about doing Molecular and Cellular Biology.

27. I expect to feel tense while doing Molecular and Cellular Biology.

28. I will feel relaxed while doing Molecular and Cellular Biology.

29. I am anxious about doing Molecular and Cellular Biology.

30. I will feel pressured while doing Molecular and Cellular Biology.

31. When it comes to Molecular and Cellular Biology, I prefer course material that really challenges me so I can learn new things.

32. When it comes to Molecular and Cellular Biology, I prefer course material that arouses my curiosity, even if it is difficult to learn.

33. The most satisfying thing for me in the Molecular and Cellular Biology part of this course is trying to understand the content as thoroughly as possible.

34. When I have the opportunity in this class, I will choose Molecular and Cellular Biology assignments and activities that I can learn from even if they don't guarantee a good grade.

35. I believe I will receive an excellent grade in this class.

36. I'm certain I can understand the most difficult Molecular and Cellular Biology material presented in the readings for this course.

37. I'm confident I can learn the basic Molecular and Cellular Biology concepts taught in this course.

38. I'm confident I will understand the most complex Molecular and Cellular Biology material presented by the instructor in this course.

39. I'm confident I will be able to do an excellent job on the Molecular and Cellular Biology assignments and tests in this course.

40. I expect to do well in the Molecular and Cellular Biology portion of this class.

41. I'm certain I can master the Molecular and Cellular Biology skills that will be taught in this class.

42. Considering the difficulty of the Molecular and Cellular Biology portion of this course, the teacher, and my skills, I think I will do well in this class.

43. I think I will be able to use what I learn about Molecular and Cellular Biology in other courses.

44. It is important for me to learn the Molecular and Cellular Biology material in this class.

45. I am very interested in the Molecular and Cellular Biology part of this course.

46. I think the Molecular and Cellular Biology material in this class is useful for me to learn.

47. I will like the Molecular and Cell Biology subject matter of this course.

48. Understanding the Molecular and Cellular Biology subject matter of this course is very important to me.

49. When I answer Molecular and Cellular Biology questions on a test, I will likely think about how poorly I am doing compared with other students.

50. When I take a test that includes questions about Molecular and Cellular Biology, I will likely think about items on other parts of the test I can't answer.

51. When tested on Molecular and Cellular Biology I will likely think of the consequences of failing.

52. I will have an uneasy, upset feeling when I take an exam that includes questions about Molecular and Cell Biology.

53. I expect to feel my heart beating fast while answering Molecular and Cellular Biology questions on an exam.

54. Control Question: Your university is in which state?

**Motivation Survey for Foundations of Biology (Post-survey)**

**Description of the Survey**

Attention Foundations of Biology students. This is the second (and final) motivation survey this semester. The purpose of this survey is to better understand the motivations of Foundations of Biology students and learn how these motivations change over the course of the semester. Learning more about student motivation will help us create more interesting and engaging classroom materials for you and for future students. This survey is completely voluntary. Students who complete the BOTH surveys (administered at the beginning and at the end of the semester) will receive a small amount of extra credit (~7 pts). Students who complete the survey but opt out of the research study will still receive extra credit. Aside from the extra credit you stand to gain this survey will not affect your grade. While the survey does ask for your student ID this information will only be used to identify students who took the surveys, and to determine whether motivation affects class performance. All data will be analyzed in bulk after the semester is over and grades have been submitted. The information you provide will be used to make positive changes to this course. Your thoughtful honest answers are greatly appreciated.

1. (REQUIRED) Do you still consent to have your data included anonymously in this study?

A. Yes, please include my data in this study to help improve future courses.

B. No, I prefer not to have my data included.

**Demographics Questions**

2. (REQUIRED) Please enter your Student ID below.

3. Are you enrolled in the honors section of this course?

A. Yes

B. No

4. What gender do you most identify with?

A. Female

B. Male

C. Other

5. Ethnic background:

A. White or Caucasian

B. Hispanic or Latino

C. Black or African American

D. Native American or American Indian

E. Asian / Pacific Islander

F. Other

6. Choose the answer that best fits you. "I lived most of my life in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_".

A. The United States of America

B. Other

7. What is your class rank:

A. Freshman

B. Sophomore

C. Junior

D. Senior

8. What else do you wish the instructors would have done to motivate you this semester?

**Motivation Survey**

This second motivation survey is to determine your levels of motivation after taking the Molecular and Cellular Biology material in the Foundations of Biology class. It will look similar to the previous motivation survey you took but some questions will be different so please read each question carefully. Please answer the questions based only on your experiences with the Molecular and Cellular Biology material in this class.

The following questions are answered on a Likert scale ranging from 1 (Not at all true) to 7 (Very True).

Note: Students saw these questions and the control question in a random order.

9. I enjoyed doing Molecular and Cellular Biology very much.

10. Molecular and Cellular Biology was fun.

11. I thought Molecular and Cellular Biology was very boring.

12. Molecular and Cellular Biology did not hold my attention at all.

13. I would describe Molecular and Cellular Biology as very interesting.

14. I thought Molecular and Cellular Biology was quite enjoyable.

15. While working with Molecular and Cell Biology I was thinking about how much I enjoyed it.

16. I think I am pretty good at Molecular and Cellular Biology.

17. I think I did pretty well at Molecular and Cellular Biology, compared to other students.

18. After working at Molecular and Cellular Biology for awhile, I felt pretty competent.

19. I am satisfied with my performance at Molecular and Cellular Biology.

20. I was pretty skilled at Molecular and Cellular Biology.

21. The Molecular and Cellular Biology questions and activities were ones that I couldn't do very well.

22. I believe Molecular and Cellular Biology could be of some value to me.

23. I would be willing to do more Molecular and Cellular Biology because it has some value to me.

24. I believe doing Molecular and Cellular Biology was beneficial to me.

25. I think Molecular and Cell Biology activities are important.

26. I did not feel at all nervous about doing Molecular and Cellular Biology.

27. I felt very tense while doing Molecular and Cellular Biology.

28. I was very relaxed while doing Molecular and Cellular Biology.

29. I was anxious while working on Molecular and Cellular Biology tasks.

30. I felt pressured while doing Molecular and Cellular Biology tasks.

31. When it comes to Molecular and Cellular Biology, I preferred course material that really challenged me so I could learn new things.

32. When it comes to Molecular and Cellular Biology, I preferred course material that aroused my curiosity, even when it was difficult to learn.

33. The most satisfying thing for me in the Molecular and Cellular Biology part of this course was trying to understand the content as thoroughly as possible.

34. When I had the opportunity in this class, I choose Molecular and Cellular Biology assignments and activities that I could learn from even when they didn't guarantee a good grade.

35. I believe I will receive an excellent grade in this class.

36. I'm certain I can understand the most difficult Molecular and Cellular Biology material presented in the readings for this course.

37. I'm confident I learned the basic Molecular and Cellular Biology concepts taught in this course.

38. I'm confident I can understand the most complex Molecular and Cellular Biology material presented by the instructor in this course.

39. I'm confident that I did an excellent job on the Molecular and Cellular Biology assignments and tests in this course.

40. I did well in the Molecular and Cellular Biology portion of this class.

41. I'm certain that I mastered the Molecular and Cellular Biology skills that were taught in this class.

42. Considering the difficulty of the Molecular and Cellular Biology portion of this course, the teacher, and my skills, I think I did well in this class.

43. I think I will be able to use what I learn about Molecular and Cellular Biology in other courses.

44. It was important for me to learn the Molecular and Cellular Biology material in this class.

45. I was very interested in the Molecular and Cellular Biology part of this course.

46. I think the Molecular and Cellular Biology material in this class was useful for me to learn.

47. I liked the Molecular and Cell Biology subject matter of this course.

48. Understanding the Molecular and Cellular Biology subject matter of this course was very important to me.

49. When I answered Molecular and Cellular Biology questions on tests, I thought about how poorly I was doing compared with other students.

50. When I took tests that included questions about Molecular and Cellular Biology, I thought about items on other parts of the test that I couldn't answer.

51. When tested on Molecular and Cellular Biology I thought of the consequences of failing.

52. I had an uneasy, upset feeling when I took exams that included questions about Molecular and Cell Biology.

53. I felt my heart beating fast while answering Molecular and Cellular Biology questions on an exam.

54. Control Question: Your University is in which state?

55. How do you feel your motivation has changed over the course of this semester?

A. Increased a lot

B. Increased a little

C. Stayed the same

D. Decreased a little

E. Decreased a lot