Supplemental Material

CBE—Life Sciences Education

Ambrosino and Rivera

Student Pre-Course Survey. ** Indicates open-ended question.

Understanding

1. Presently, I understand...						
1.1 The following concepts that will be explored in this class:	not applicable	not at all	just a little	somewhat	a lot	a great deal
1.1.1 The ecology of coral reefs						
1.1.2 The scientific process						
1.1.3 The effects of atmospheric carbon dioxide on ocean chemistry.						
1.1.4 The effects of ocean acidification on marine organisms.						
1.1.5 The effects of water quality on the fertilization processes of marine organisms, particularly sea urchins.						
1.1.6 The general physics of sound.						
1.1.7 How many marine organisms, such as snapping shrimp, use sound in the ocean.						
1.1.8 The significance of organism diversity in ecosystem health.						
1.1.9 The role of coral skeletal structure in reef ecology.						
1.1.10 The effects of climate change on coral growth and survival.						
**1.2 What do you hope to understand about marine science and research at the end of the class that you do not know now?						

Science Applications

2. Please rate your level of agreement with the following statements:	strongly disagree	disagree	neutral	agree	strongly agree	not applicable
2.1 Marine science concepts relate to my own everyday life.						
2.2 The study of marine science is important to society.						
2.3 The study of marine science helps people address real world issues.						

Skills

3. Presently, I can...	not applicable	not at all	just a little	somewhat	a lot	a great deal

3.1 Use the scientific process to ask a question and develop a hypothesis.
3.2 Develop an experiment to test a hypothesis
3.3 Analyze and interpret experimental data to evaluate a hypothesis
3.4 Communicate the results of a research project in written format.
3.5 Communicate the results of a research project in oral format.
3.6 Work effectively with others
**3.7 What do you hope to be able to do at the end of this class that you cannot do now?

Attitudes

4. Presently, I am...	not applicable	not at all	just a little	somewhat	a lot	a great deal
4.1 Enthusiastic about marine science						
4.2 Interested in discussing marine science with friends or family						
4.3 Interested in a career in marine science						
4.4 Confident that I understand marine science						
4.5 Confident that I can use the scientific process to execute a research project						
4.6 Willing to work with others to accomplish a research project						
**4.7 Please comment on your present level of interest in science.						

Integration of learning

5. Presently, I am in the habit of...	not applicable	not at all	just a little	somewhat	a lot	a great deal
5.1 Connecting key ideas I learn in my classes with other knowledge						
5.2 Applying what I learn in classes to other situations						
**5.3 Please comment on how you expect this experience to integrate with (mix, blend with) your studies, career, and/or life?						
**5.4 Do you expect your experience and knowledge gained from this program to benefit your community?						

Major

6. At the present time:	Marine Science	Something in the Sciences	Something NOT in the Sciences	Undecided	Not sure I want to attend college
6.1 What do you want to major in college?					
**6.2 If you have a specific college in mind, please tell us what it is:					
**6.3 If you have a specific major in mind, please tell us what it is:					
**6.4 Please tell us why you do/don't want to attend college:					

Science Literacy and Additional Comments

7. Please comment on the following questions:
7.1 How would you define or describe the following terms in your own words?
**7.1.1 Science
**7.1.2 Scientific Method
**7.2 Who or what is a scientist?
**7.3 Do you have any other comments?

Student Post-Course Survey. ** Indicates open-ended question.

Understanding

1. Presently, I understand...	not applicable	not at all	just a little	somewhat	a lot	a great deal
1.1 The following concepts that we explored in this class:						
1.1.1 The ecology of coral reefs						
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1.1.9 The role of coral skeletal structure in reef ecology.						
1.1.10 The effects of climate change on coral growth and survival.						
**1.2 What did you learn about marine science and research through this program that you did not know previously?						

Science Applications

2. Please rate your level of agreement with the following statements:	strongly disagree	disagree	neutral	agree	strongly agree	not applicable
2.1 Marine science concepts relate to my own everyday life.						
2.2 The study of marine science is important to society.						
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**3.7 What skills besides the ones already mentioned have you gained through this program?

Attitudes

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4.5 Confident that I can use the scientific process to execute a research project						
4.6 Willing to work with others to accomplish a research project						
**4.7 How has your interest in science changed as a result of this program?						

Integration of learning

5. Presently, I am in the habit of...	not applicable	not at all	just a little	somewhat	a lot	a great deal
5.1 Connecting key ideas I learn in my classes with other knowledge						
5.2 Applying what I learn in classes to other situations						
**5.3 Please comment on how the knowledge gained through this program will integrate with (mix, blend with) your studies, career, and/or life?						
**5.4 Has your experience and knowledge gained from this program benefited your community?						

Major

6. At the present time:	Marine Science	Something in the Sciences	Something NOT in the Sciences	Undecided	Not sure I want to attend college
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**6.2 If you have a specific college in mind, please tell us what it is:					
**6.3 If you have a specific major in mind, please tell us what it is:					
**6.4 Please tell us why you do/don't want to attend college:					

Program Evaluation

7. Please rate your interest in the following topics/activities/ lectures presented to you throughout the duration of the program.	not at all interested	a little interested	somewhat interested	highly interested	extremely interested	not applicable
7.1 Coral reef ecology lecture/ photoquad reef monitoring activity						
7.2 Ocean acidification lecture/lab activity						
7.3 Sea urchin fertilization lecture/field collecting/ lab activity.						
7.4 The bioacoustics of snapping shrimp lecture/lab activity						
7.5 Scientific method lecture and scientific paper homework assignment and in class discussion						
7.6 Career day in presentations, discussions, and resources						
**7.7 Please comment on what this program has taught you about the importance of learning about the marine environment.						
**7.8 Please comment on what this program has taught you about humans' relationship with the marine environment.						
**7.9 Do you have any other comments on the laboratory content modules or activities?						

Group research project evaluation

8. How much do you agree with the following statements?	strongly disagree	disagree	neutral	agree	strongly agree	not applicable
8.1 My participation in the group research project was enjoyable						

8.2 As a result of my group research project experience, I feel confident that I can execute a research project on my own.

**8.3 Please comment on what you liked and did not like about the group research experience.

Science Literacy and Additional Comments

9. Please comment on the following questions:

9.1 How would you define or describe the following terms in your own words?

**9.1.1 Science

**9.1.2 Scientific Method

**9.1.3 Who or what is a scientist?

**9.2 What advice would you give to future students?

**9.3 Do you have any other comments?

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Mentoring and Leadership

7. I feel confident about my ability to...	not confident	a little confident	somewhat confident	highly confident	extremely confident	not applicable
7.1 Lead by example, not just by words.						
7.2 Seek help when I don't know the answer to a particular question.						
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7.4 Act professionally and respect others' time and opinions.						
7.5 Adapt and be flexible when faced with frustrating situations and/or personalities.						
7.6 Observe and identify strengths among group members to enhance group collaboration.						
7.7 Self reflect, and identify my own strengths or areas that need improvement.						

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