CURE post-course survey

Respondent information

Please type your name, email address, institution, and course information. This information will be used confidentially to match pre-course data to post-course data.

| Name |
|--|
| Email address |
| Institution |
| Course department and number |
| Instructor's last name |
| Gender: |
| Male Female Prefer not to answer |
| Ethnicity: |
| Alaskan Native American Indian Asian American Black or African American Filipino Foreign National Hawaiian Hispanic/Latino Pacific Islander White Two or more races Other Prefer not to answer |

| O I am a high school student. |
|---|
| I am a first-year college undergraduate. I am a second-year college undergraduate. I am a third-year college undergraduate. I am a fourth-year college undergraduate. I am a graduate or medical student. Other Not applicable / Prefer not to answer |
| Did you declare a major or concentration yet? |
| O Yes O No |
| What major or concentration have you declared? Please write it here (include double majors, concentrations, etc.) |
| If you have not yet declared a major or concentration, please indicate if you considering a major/concentration in the sciences. O Definitely yes |
| It is likely I'm not sure It is unlikely Definitely no Prefer not to answer |
| It is likely I'm not sure It is unlikely Definitely no |

Course Elements

Please rate how much learning you gained from each element you experienced in this course.

The scale measuring your gain is from (no or very small gain) to (very large gain). Some elements may not have happened at all. If the item is not relevant or you prefer not to answer, please choose the "not applicable" option.

If students were expected to do the following course elements...

Level of gained experience

| Level of gained experience | | | | | | | | |
|---|----------|--------|----------|----------|-----------|------------------------------|--|--|
| | None | Little | Some | Much | Extensive | N.A./Prefer not to answer | | |
| a scripted lab or project in which the students know the expected outcome. | 0 | 0 | O | • | 0 | 0 | | |
| a lab or project in which only the instructor knows the outcome. | • | • | O | • | O | 0 | | |
| a lab or project where no one knows the outcome. | 0 | 0 | 0 | 0 | 0 | 0 | | |
| at least one project that is assigned and structured by the instructor. | 0 | 0 | O | 0 | 0 | 0 | | |
| a project in which students have some input into the research process and/or what is being studied. | 0 | 0 | 0 | 0 | • | O | | |
| a project entirely of student design. | O | 0 | O | 0 | 0 | 0 | | |
| work individually. | 0 | 0 | 0 | O | O | 0 | | |
| work as a whole class. | 0 | 0 | 0 | O | 0 | 0 | | |
| work in small groups. | 0 | O | O | O | 0 | 0 | | |
| become responsible for a part of the project. | 0 | • | • | • | O | 0 | | |
| read primary scientific literature. | 0 | 0 | 0 | 0 | O | 0 | | |
| write a research proposal. | O | O | O | O | 0 | O | | |
| collect data. | 0 | 0 | O | 0 | 0 | 0 | | |
| analyze data. | 0 | 0 | O | 0 | 0 | O | | |
| present results orally. | O | 0 | O | 0 | 0 | O | | |
| present results in written papers or reports. | 0 | • | O | • | O | O | | |
| present posters. | 0 | 0 | 0 | O | 0 | 0 | | |
| critique the work of other students. | 0 | 0 | 0 | O | 0 | 0 | | |
| listen to lectures. | 0 | 0 | 0 | 0 | O | 0 | | |
| read a textbook. | O | 0 | O | 0 | O | O | | |
| work on problem sets. | 0 | 0 | • | O | 0 | O | | |
| take tests in class. | • | 0 | O | 0 | O | O | | |
| discuss reading materials in class. | 0 | 0 | • | O | 0 | O | | |
| maintain lab notebook. | O | 0 | 0 | O | O | O | | |
| computer modeling. | O | 0 | O | O | O | 0 | | |

Benefits

In this section of the survey you will be asked to consider a variety of possible benefits you may have gained from your research experience. If for any reason you prefer not to answer, or consider the question irrelevant to you, please choose the "Not applicable / Prefer not to answer" option.

| | No gain or very small gain | Small gain | Moderate gain | Large gain | Very large gain | N.A./ Prefer not to answer |
|--|----------------------------------|---------------|------------------|---------------|-----------------------|----------------------------------|
| Clarification of a career path | O | O | O | 0 | O | 0 |
| Skill in the interpretation of results | O | • | O | O | O | O |
| Tolerance for obstacles faced in the research process | • | 0 | 0 | O | • | 0 |
| Readiness for more demanding research | 0 | 0 | 0 | O | 0 | 0 |
| Understanding how knowledge is constructed | 0 | 0 | 0 | O | 0 | 0 |
| Understanding of the research process in your field | • | 0 | 0 | O | • | 0 |
| Ability to integrate theory and practice | O | • | O | O | O | O |
| Understanding of how scientists work on real problems | 0 | • | 0 | O | • | O |
| Understanding that scientific assertions require supporting evidence | O | 0 | 0 | O | • | O |
| Ability to analyze data and other information | O | • | 0 | O | • | O |
| Understanding science | O | 0 | O | 0 | O | 0 |
| Learning ethical conduct in your field | O | • | O | O | O | O |
| Learning laboratory techniques | 0 | • | 0 | 0 | O | 0 |
| Ability to read and understand primary literature | 0 | 0 | O | O | 0 | 0 |
| Skill in how to give an effective oral presentation | 0 | 0 | 0 | O | 0 | 0 |
| Skill in science writing | O | • | O | 0 | O | O |
| Self-confidence | O | • | 0 | 0 | O | O |
| Understanding of how scientists think | O | O | O | O | O | O |
| Learning to work independently | O | O | O | O | O | O |
| Becoming part of a learning community | 0 | 0 | 0 | O | 0 | 0 |
| Confidence in my potential to be a teacher of science | 0 | • | 0 | • | • | 0 |

Overall evaluation

For each item below please rate your own agreement with the item.

| | Strongly disagree | Disagree | Neutral | Agree | Strongly agree | N.A./Prefer not to answer |
|--|-------------------|----------|----------|----------|----------------|------------------------------|
| This course was a good way of learning about the subject matter. | O | O | O | • | O | O |
| This course was a good way of learning about the process of scientific research. | 0 | O | 0 | O | 0 | O |
| This course had a positive effect on my interest in science. | O | O | 0 | • | O | O |
| I was able to ask questions in this class and get helpful responses. | • | O | 0 | • | • | O |

Your opinions about science

In the pretest you responded to questions about science. Below the questions are posed again. Your answers will help us decide between two hypotheses, that the opinions are reliable over time (test-retest reliability) or that the opinions change as a result of your experience.

For each item below please rate your agreement with the item.

| | Strongly disagree | Disagree | Neutral | Agree | Strongly agree | N.A./Prefer not to answer |
|---|-------------------|----------|----------|-------|----------------|------------------------------|
| Even if I forget the facts, I'll still be able to use the thinking skills I learn in science. | • | 0 | 0 | 0 | 0 | 0 |
| You can rely on scientific results to be true and correct. | 0 | 0 | 0 | 0 | 0 | 0 |
| The process of writing in science is helpful for understanding scientific ideas. | 0 | 0 | O | 0 | 0 | 0 |
| When scientific results conflict with my personal experience, I follow my experience in making choices. | • | • | O | 0 | • | 0 |
| Students who do not major/concentrate in science should not have to take science courses. | • | 0 | • | 0 | 0 | 0 |
| I wish science instructors would just tell us what we need to know so we can learn it. | O | 0 | 0 | 0 | 0 | 0 |
| Creativity does not play a role in science. | 0 | 0 | 0 | 0 | 0 | 0 |
| Science is not connected to non-science fields such as history, literature, economics, or art. | • | 0 | • | 0 | 0 | 0 |
| When experts disagree on a science question, it's because they don't know all the facts yet. | O | O | 0 | 0 | 0 | 0 |
| I get personal satisfaction when I solve a scientific problem by figuring it out myself. | O | O | O | 0 | 0 | 0 |
| Since nothing in science is known for certain, all theories are equally valid. | 0 | 0 | 0 | 0 | 0 | O |

| | Strongly disagree | Disagree | Neutral | Agree | Strongly agree | N.A./Prefer not to answer |
|--|-------------------|----------|---------|-------|----------------|------------------------------|
| Science is essentially an accumulation of facts, rules, and formulas. | • | • | 0 | • | • | O |
| I can do well in science courses. | 0 | 0 | 0 | • | 0 | 0 |
| Real scientists don't follow the scientific method in a straight line. | 0 | 0 | 0 | • | 0 | 0 |
| There is too much emphasis in science classes on figuring things out for yourself. | 0 | 0 | 0 | 0 | 0 | 0 |
| Only scientific experts are qualified to make judgments on scientific issues. | 0 | 0 | 0 | • | 0 | O |
| Scientists know what the results of their experiments will be before they start. | 0 | O | 0 | 0 | 0 | O |
| Explaining science ideas to others has helped me understand the ideas better. | 0 | 0 | 0 | 0 | 0 | Э |
| The main job of the instructor is to structure the work so that we can learn it ourselves. | • | 0 | O | • | 0 | 0 |
| Scientists play with statistics to support their own ideas. | O | O | O | • | 0 | 0 |
| Lab experiments are used to confirm information studied in science class. | 0 | 0 | O | • | O | Э |
| If an experiment shows that something doesn't work, the experiment was a failure. | 0 | 0 | 0 | • | 0 | 0 |