Follow-up survey

Long Term Impact of Undergraduate Research

Please enter your name or program identifier:

Name or identifier _________________________________________

Please indicate the college or university where you are regularly enrolled:

Institution ________________________________________________

Did you carry out your research at the college or university where you are regularly enrolled?

☐ Yes
☐ No

If you answered "No", please indicate the institution, location, or laboratory where you carried out your research:

Research institution ________________________________________

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

Anticipated year of graduation

Year of graduation _________________
What is your academic major (best fit):
- Biology
- Chemistry
- Physics
- Earth & Planetary Sciences
- Math
- Computer Science
- Biochemistry
- Bioinformatics
- Psychology
- Neurobiology
- Engineering
- Education
- Other: Social Sciences
- Other: Humanities
- Other: Natural Sciences
- Other
- Undecided
- Not applicable / Prefer not to answer

What is your field of research (best fit)?
- Biology
- Chemistry
- Physics
- Earth & Planetary Sciences
- Math
- Computer Science
- Biochemistry
- Bioinformatics
- Psychology
- Neurobiology
- Engineering
- Education
- Other: Social Sciences
- Other: Humanities
- Other: Natural Sciences
- Other
- Undecided
- Not applicable / Prefer not to answer

How long ago did you have your research experience?
- Less than 6 months
- 6 to 12 months
- 1 to 2 years
- Over 2 years
Had you participated in prior research?

- No. I have not had a prior research experience.
- Yes, during one academic year (typically ~10 hr/week for at least one semester).
- Yes, during a prior summer (typically full time for at least six weeks).
- Yes, during a prior academic year and a summer.
- Yes, during prior years and/or several summers.

Now that you have had time to consider, please evaluate your future again. **Do you have plans to continue your education beyond your undergraduate degree?** Please check the most likely plan.

- My goal is to go to graduate school for a Ph.D. degree in a biology-related field.
- My goal is to go to graduate school for a Ph.D. degree in the physical sciences (including engineering, math, and computer science).
- My goal is to go to graduate school for an MA in the life sciences.
- My goal is to go to graduate school for an MA in the physical sciences (including math, engineering, computer science, etc.).
- My goal is to go to graduate school for an MA or Ph.D. degree in a field other than science.
- My goal is to go to medical school for an M.D. degree.
- My goal is to go to school for an M.D./Ph.D.
- My goal is to go to school for other health professions.
- My goal is to go to school for a professional degree such as law or business.
- My goal is to teach or to go to school to obtain a teaching certification.
- My goal is to join the Peace Corps, Teach for America, or similar organization.
- My goal is to work, then go to school for my M.D., Ph.D., or other professional degree.
- I plan to work in a science related career without going to school after college.
- I plan to work in a non-science career without going to school after college.
- Not applicable / Prefer not to answer.

This question is about how your research experience influenced your plan for postgraduate education. Please choose one.

- I had a plan for postgraduate education before I began this research project and the plan has not changed.
- I was considering postgraduate education and my research experience has confirmed this choice.
- I had no plan for postgraduate education, but my research experience has changed my mind.
- Now I plan to continue my education in science.
- I had a plan for postgraduate education in science, but my research experience has convinced me that this is not what I want.
- I had no plans for postgraduate education before I started the research project, and I have not changed my mind.
- Prefer not answer

Was your experience a summer research experience?

- Yes
- No
How long did you continue to work on your summer project?

- It was completed during the summer
- One semester (or quarter, etc)
- Two semesters
- Other _________________________

Now that time has passed, how do you reflect on summer research as a learning experience (use the scale below).

- Summer in the lab was a waste of time for me - I didn't learn much.
- Well, it was better than working just for a salary, but I don't think I learned a lot.
- I feel neutral about it - there are definitely good things, but also not so good things about a summer in the lab.
- I had a good time, I learned a lot, I'd do it again. The summer was fantastic!
- In my mind, this is the way to learn what science is about.
- Not applicable / Prefer not to answer.

Research projects often lead to an opportunity for communication. Here is a list of the ways research may be communicated. Please check the kinds of communication in which you participated.

- An academic paper read by your research mentor, including variations such as an honors thesis or senior project.
- A poster presentation on campus.
- A poster presentation off campus, for example, at a conference or professional meeting.
- A talk or colloquium on campus.
- A talk or colloquium off campus, for example, at a conference or professional meeting.
- A manuscript intended for a professional journal or on-line journal.
- A manuscript intended as a technical report to be read by other researchers in this area.
- A manuscript intended for a student-only scientific journal.
- A performance or demonstration.
- A web site or an Internet presentation.
- None of the above.

Since working in a department for your research experience, have you taken courses in the same department?

- Yes
- No

Do you feel that your research experience affected your behavior in these courses?

- Yes
- No
Behavior

To what extent do you consider the following to be ways in which your behavior has changed?

<table>
<thead>
<tr>
<th>Change in behavior</th>
<th>No change</th>
<th>Small change</th>
<th>Moderate change</th>
<th>Large change</th>
<th>Very large change</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel that I have become better able to think independently and formulate my own ideas.</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>I feel that I have become more intrinsically motivated to learn.</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>I feel that I have become a more active learner.</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>
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.

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

Please tell us in a few sentences what was most important to you about your research experience.