LTER Student Post-Summer Survey 2013

Summary Results & Recommendations

The Survey at a Glance

- **Distributed to students by LTER sites via email and social media in Fall 2013.**
- **Completed by 147 students from 14 LTER sites.**
- **Respondents participated in summer programs between 2005 and 2013.**
- **Survey questions were designed by the LTER Higher Education Working Group & Diversity Committee.**
- **Results were analyzed by Clarisse Hart (HFR; Higher Ed Working Group Co-Chair; not a social scientist).**

6 Key Findings

1. 97% of students report that their LTER summer research experience helped them refine their future educational & career goals "somewhat" or "a great deal." The experience may have a greater impact on particular groups of students (see table). Note: we recognize that student refinement of goals may not mean they choose to stay in STEM fields. However, students' open-ended comments for Question 11 in the full results below offer some additional information in this regard.

Did your [summer research] experience help you refine your future educational and career goals?

	Not at all	Very little	Somewhat	A great deal
2-yr college students (n=6)	0%	0%	17%	83%
First-gen college students (n=22)	0%	4%	23%	73%
Females (n=78)	0%	4%	24%	72%
ALL students (n=148)	*0%*	*3%*	*25%*	*72%*
Religious affiliation (n=24)	0%	0%	29%	71%
LGBTQ (n=16)	0%	6%	25%	69%
Veterans (n=3)	0%	0%	33%	67%
Racial/ethnic minorities (n=38)	0%	2%	37%	61%
Students w/ disabilities (n=4)	0%	0%	50%	50%

2. Three-quarters of students lived in housing provided by the research site/program. Students living on-site were slightly more likely to report that the summer helped them refine their career goals "a great deal" (76% of resident students v. 61% of non-resident students).

3. Organized educational & career activities, organized social activities, and – in particular – exposing students to research topics other than their own were all correlated with positive student outcomes.
    a. 75% of students who were exposed to research topics other than their own felt that the summer helped them refine their future goals "a great deal," versus 17% of students who did not have that exposure.
    b. 78% of students at sites with organized career and educational activities felt that the summer helped them refine their future goals "a great deal," versus 44% at sites without such programs.
    c. 76% of students at sites with organized social activities felt that the summer helped them refine their future goals "a great deal," versus 47% at sites without organized social activities.

4. The research mentor/supervisor is not the only person who influences student outcomes. Most students reported that there was someone other than their research mentor/supervisor they could consult with

questions about work/life issues. 75% of students reported that this additional contact's contributions enhanced their summer experience "a great deal."

Note: 20% of students report that a graduate student played this supporting role.

5. Students do not always disclose the non-visible things that make them different (first-generation college student, religious affiliation, LGBTQ, etc.).

	Disclosed to others?	
I identify as:	**Yes**	**No**
2-yr college student (n=6)	100%	0%
Racial/ethnic minority (n=38)	79%	21%
Physical/learning disability requiring special accommodations (n=4)	75%	25%
First-gen college student (n=22)	41%	59%
Religious affiliation (n=24)	38%	62%
Veteran (n=3)	33%	67%
LGBTQ (n=16)	25%	75%

Note: What students do disclose is changing over time. In the 2005-2010 student cohorts, 67% of first-generation college students disclosed this fact, while 29% of first-generation college students disclosed in the 2011-2013 cohorts.

6. In general, students at LTER sites report feeling "supported" in their differences (racial minority status, gender, etc.) by their research mentor, other support staff, and fellow students. However, for students who felt unsupported, the culprit was often their fellow students.

	I felt supported "not at all" or "very little" by…		
I identify as:	**Supervisor**	**Other staff**	**Peers**
Veteran	0%	0%	33%
Religious affiliation	9%	20%	27%
First-gen college student	8%	0%	27%
2-yr college student	0%	17%	17%
Physical/learning disability	14%	0%	13%
Racial/ethnic minority	7%	5%	7%
LGBTQ	8%	0%	8%
Female	4%	3%	0%

3 Recommendations

1. During the summer, sites should endeavor to provide students with educational & career activities, social activities, and exposure to research topics besides their own.
2. As sites continue to attract diverse students to their summer programs, research mentors/supervisors and secondary mentors should create a plan to ensure that a diversity of students can be supported and support each other in their site's learning/living environment.
    a. Admin/research staff (including graduate students) who provide secondary support to students should recognize the important role they play.

b. Several female students mentioned the importance of having a female research mentor or a peer cohort that includes other women.

3. One anonymous student response to the survey related that a sexual assault had occurred one summer but had gone unreported because students "had never learned any protocol for what we should do in that situation, what her rights would be, or who would be a safe person to talk to." Although sites' home universities are required by federal law to have staff and clear protocols to respond to these incidents, an informal poll among the LTER Higher Education Working Group revealed that few if any LTER sites have protocols for responding quickly and effectively to a student report of sexual assault. This must change. Steps to enact protocols:

   Before the summer begins:

   1. **Contact the office responsible for handling sexual assault (Title IX) cases at your university** to discuss how to handle the first 48 hours of a report. If you are a remote site, also **contact your local rape crisis center(s)** for additional resources.
   2. **Identify the best local hospital** where a student could be taken for medical care following an assault (a process that takes ~8 hours).
   3. **Identify staff contacts** at your site for reporting by students. Best practices dictate that at least one of these contacts be a woman.

   When students arrive:
   Provide contact information for confidential reporting of sexual assault/harassment in student orientation materials. For residential programs, also place this information in dorms.
   a. National Sexual Assault Hotline (RAINN network): 1-800-656-HOPE; http://rainn.org.
   b. University hotline for sexual assault response
   c. Local rape crisis center hotline
   d. Site-based contact information during business hours, and after hours.

Next Steps

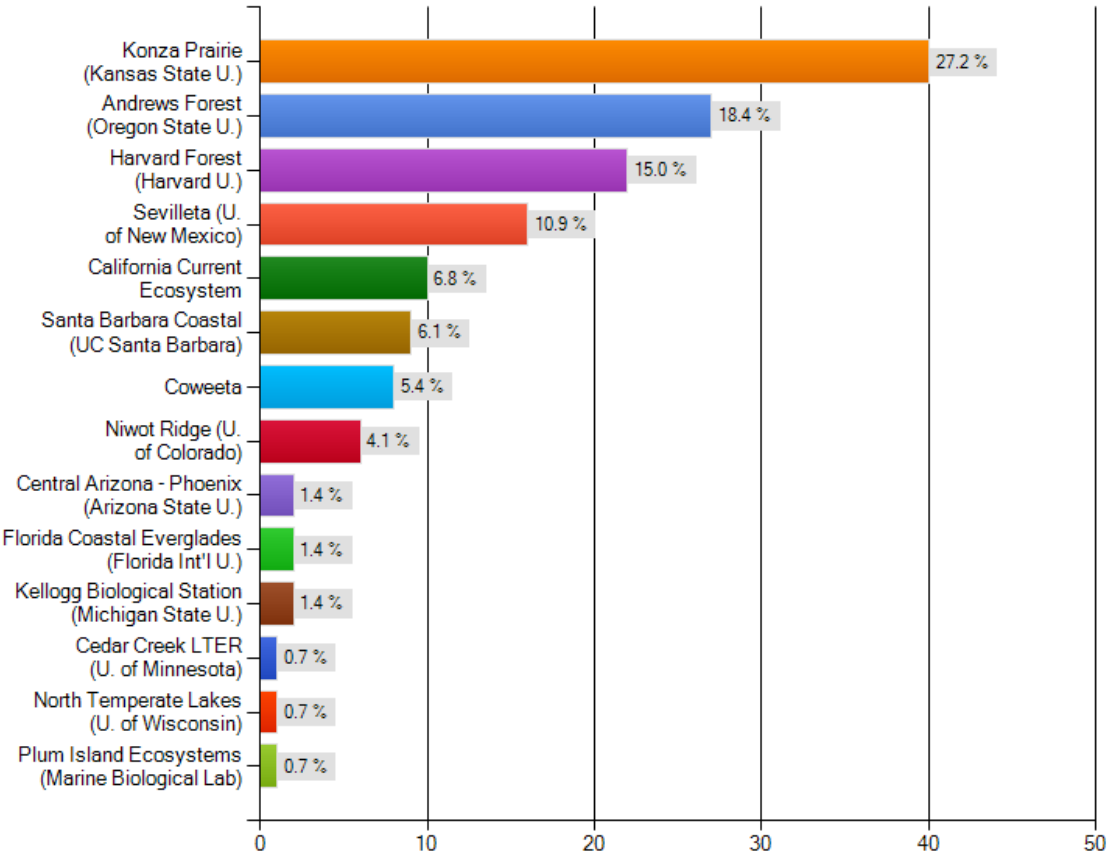
1. The Higher Ed/Diversity Working Groups welcome comments on these results and recommendations, including suggestions for new questions in follow-up surveys: contact Clarisse Hart (hart3@fas.harvard.edu; 978-756-6157).
2. There is a growing body of survey information currently being collected by LTER sites from summer research students and alumni. In the coming year, the Higher Education Working Group will seek to collaborate among site administrators to track summer students over the long-term, to report Network-wide 1) impacts on students' educational and career trajectories, 2) progress on providing a supportive and diverse living/learning environment.

APPENDIX

LTER Student Post-Summer Survey: FULL Set of Results as of Feb. 21, 2014

Distributed to students by LTER sites via email and social media on or after 9/11/13, with 147 respondents completing the survey.

1. Where did you complete your summer internship or work experience?



Other/Comments:

- University of Louisville
- Worked at Kansas State U. but in a lab not on the Konza.
- Also Niwot Ridge in 2006
- Oregon State University

2. In what year did you participate?

Year of Participation	Number of respondents
2013	53
2012	28
2011	21
2010	19
2009	10
2008	5
2007	6
2006	2
2005	1

3. What was the nature of your summer experience?

Paid Intern (includes REU)	141
Hourly technician	3
Earning course credit	2
Other: unpaid intern	2
Other: volunteer	3

4. Did you live in student housing provided by the research site/program?

Yes	109 (74%)
No	38 (26%)

Comments:

- Lived on a research vessel with other students
- Students were housed at an affiliated fraternity, which was contaminated by mercury and had to be evacuated part way through the summer.
- Not student housing but researcher housing at FBISC in Key Largo
- it was awesome!
- I am a student already at the University of Wisconsin, Madison so I already had an apartment to live in.
- wonderful large colonial houses!
- I commuted to Coweeta each day as it was close to home.
- Lived at my house ~8 minutes away
- The housing was excellent, I could not have asked for better!
- loved living at the andrews

5. How would you describe the student group at the site? You may select multiple answers.

	Response Percent	Response Count
I was the only student at the site.	2.7%	4
I did not interact with other students, although there were other students present.	6.8%	10
I lived with other students at the site.	69.6%	103
I worked with other students at the site.	72.3%	107
I socialized with other students at the site.	**84.5%**	**125**

Comments:

- Some classes were going on during my time as a researcher there so some of the time other students were present.
- It was a bit sparsely populated, but the other student I worked with directly was awesome!
- Some of the best people on the planet.
- The student group at KBS was the best part about it.
- I described it to a friend the first night as "This is Nerd Camp, except that people can buy beer." I stand by my statement; everyone was genuinely nice, and very willing to get into interesting discussions.
- I love the people I met in the program and am still very close to 2 of those people today - one of which is Jennifer Johnson, the REU director at the time.
- I interacted with another student for about half of the experiment but there were professional researchers of different fields I got to know well.
- The environment that was created by the students was very comfortable, and calm.
- I loved the other REU students, everyone was so supportive and accepting.
- They were amazing!
- I got to know some of the other undergraduates working in the lab, however I was the only student that was working on my project/ funded by LTER.
- I lived an interacted with a great group of scientists and researchers!
- They were some of the best people I have met to this day and many of us remain close friends.
- The students were all deeply interested in various scientific fields. Conversations regarding research were always present. Beyond the science, the student groups that lived on-site and the visiting students were always extremely friendly and courteous.
- We were pretty cordial around each other, but I never spent time with them outside of work.
- Good group
- In 2009 there were 21 REU students, we all lived and worked together.
- Good social group and community was present!
- There were several interns, but we did not interact much as our work consisted of analyzing remote sensing data and was suited to being worked on individually
- Harvard Forest encouraged interns to go on trips together and to hang out together by having ways to plan and reach out to others.

6. Besides your supervisor/research mentor, was there someone (a program coordinator or other) whom you could go to with questions about your work/life issues on site?

	Response Percent	R
Yes	**91.9%**	
No	8.1%	

Comments/Please describe this person's role [NOTE: open-ended responses grouped into broad categories]:

Program coordinator	49
Residential advisor/proctor	11
Other research/admin staff	30
Grad student	30
Field station manager	5

7. If you answered yes to Question 6, did that person's contributions enhance your summer experience?

	Response Percent	Response Count
Not at all	0.7%	1
Very little	1.4%	2
Somewhat	19.9%	28
A great deal	**71.6%**	**101**
N/A	6.4%	9

Comments:

- Kelly was AWESOME
- Our program coordinators (two professors at Kansas State University) were extremely helpful and improved my experience!
- The managers were great! Really nice and helpful
- She was super helpful in every way!
- Monica is awesome. And that was the general consensus.
- Unbelievable growth and exposure I obtain from various people at FBISC
- ya meeting my friends Kim, Jackie, and Niles changed my life
- The program director organized learning and social events, which were appreciated, but her attitude and interaction style with interns was difficult to work with.
- I honestly can't imagine the summer being even close to as enjoyable without this program coordinator.
- The network of willing assistance was very beneficial for all work, growth, and learning experiences.
- Yes they organized lots of activities
- He was an asset to our group.
- Between somewhat and a great deal. I was fine, but it was nice to have people to talk to with a bit more experience than me.

- Yeah! It would have been OK without her, but it was definitely much more fun with.
- I haven't had any experience with other LTER sites, but the CAP one has been extremely supportive (compared to other undergrad research experiences at national labs/etc)

8. Were there social activities (evening, weekend) to encourage student interaction? You may select multiple answers.

	Response Percent	Response Count
Yes, organized by my supervisor/research mentor	30.4%	45
Yes, organized by a program coordinator or other	68.9%	102
Yes, organized by other students	**70.3%**	**104**
No	11.5%	17
N/A - I was the only student.	2.0%	3

Please describe these activities [NOTE: open-ended responses grouped into broad categories]:

Field Trips	34
Potlucks, Picnics, Birthdays, & Ice Cream Socials	28
Camping/backpacking/hiking	23
Sports (esp. rock climbing)	11
House Activities: movies, campfire, games	11
Other	11

9. Were there organized educational and career development activities (e.g. evening seminars, a career panel)? You may select multiple answers.

	Response Percent	Response Count
Yes, organized by my supervisor/research mentor	27.2%	40
Yes, organized by a program coordinator or other	**78.2%**	**115**
Yes, organized by other students	2.7%	4
No	17.0%	25

Please describe these activities [NOTE: open-ended responses grouped into broad categories]:

Seminars/Workshops	46
Career and/or Grad school events	17
Research-focused field trips	7

Ecological ethics events	7
Book discussions/Journal Club	3
End-of-summer presentation	3
Grant-writing info	2

10. Were you exposed to other research topics besides your own?

	Response Percent	Response Count
Yes, organized by my supervisor/research mentor	51.7%	76
Yes, organized by a program coordinator or other	**80.3%**	**118**
Yes, organized by other students	33.3%	49
No	4.1%	6

Comments:

- The NSF came and did a review while I was there and I was able to attend several of the events for them.
- Got involved with other Graduate and REU students' projects.
- NSF came for a Site review and I was able to attend presentations
- We help some high students to do research and make their presentations.
- I also learned about other research projects through working/socializing with other students in the mornings hiking up to our project sites
- Enjoyed getting to know multiple fields of work and other projects. It gave me opportunities to learn new skills and broaden my possible fields and professions I can pursue.
- I assisted several graduate students with their projects in addition to my own.
- Often talked to others about their research, given relevant literature to read
- Most of this I answered in the previous box.
- I was exposed to many research topics but it was not organized but rather by the fact that FBISC is so multidisciplinary and in a place where there is a lot of researchers and programs with different focus.
- Yes being able to help other people with their projects was quite interesting and very helpful for my own as well. As I saw how people out their projects together I used ideas for my own.
- We learned about a lot of different research at the seminars, but also about each others research.
- I was exposed to the other research topics from the other graduate students in the lab, as well as in the seminars I attended.
- Seminars had related topics, and other students had small events.
- Aside from the seminars, we learned from each other and the researchers who visited the Sev throughout our stay.
- All of the students collaborated to help others out on their research projects and thus got exposed to their research. There was also a final presentation that each student gave and others attended.
- As a technician I was enlisted to help the set up, maintain, record data, etc. for multiple projects that spanned multiple research fields. Sampling soil, leaves, streams, seeds, water quality, etc.
- At the lunch seminars, researchers gave a formal presentation of their research. At the end of the program, there was a student symposium to demonstrate other students' research, and research projects were a common topic to discuss.
- Just my talking - nothing organized.
- math and CS
- There was a tour of Harvard Forest at one point in which we saw labs and greenhouses and field projects and therefore got some idea of what other students and mentors were working on.
- weekly seminars conducted by resident researchers
- Our entire group had some sessions at the Andrews, and a lot of it was not applicable to my specific project but was good information and educational nonetheless. That period lasted about 2-3 weeks out of the 10 week program.
- Yes, from activities described above.

- Other students would talk about research among each other and had a student symposium; also had the once a week presentation of scientific research.
- assisting house-mates with their research.

11. Did your experience help refine your future educational and career goals?

	Response Percent	Response Count
Not at all	0.0%	0
Very little	2.7%	4
Somewhat	25.0%	37
A great deal	**72.3%**	**107**

Comments:

- My research as an REU was what made me interested in my current field of research.
- This provided valuable insight into how I wanted to spend my future pursuing academic science.
- Participating in the CCE LTER REU helped me get a better idea of grad student life and helped shape my career goals
- I still have no idea what I want to do, but the research was an amazing experience.
- My interactions with other students in the program and advice and research experience solidified my desire to be a scientist.
- Helped give me ideas on what I do/do not want in a career. Very informational, exposure to many different experiences, first hand or through primary sources.
- I loved the experience, but still don't know what I want to do.
- This program helped me decide to go to graduate school.
- It may have left me more fickle and in a pickle but only because I was exposed to the wide range of careers and workplaces that I hadn't considered before.
- Solidified interest in research, especially in ornithology, even if I didn't stay in same area within ornithology.
- I learned a lot about the process of scientific research and what being a 'professional' scientist entails.
- Gave me a clearer vision of where I might see myself several years down the road. It definitely contributed to my decision to go to grad school, however, the challenge remains in choosing the right field albeit how much I've narrowed it down. It also has given me a very clear list of skills I wish to obtain in my future education.
- I am planning on pursuing research in grad school similar to my research this summer.
- I had never heard of ecological or evolutionary genetics and genomics before the REU. Now I'm in grad school doing exactly that. It was very valuable.
- This was my first concrete research experiment, and it cemented my interest in ecological research and academia. I now attend the same University as my REU and will be completing my PhD here, with the same advisor I had as an REU.
- It confirmed my love of field research, and helped to direct my focus on ecological concepts and behavioral studies.
- I enjoy both my work individually and being involved with a community of individuals with diverse research foci.
- This program helped me decide what topics I was interested in pursuing in my graduate career. I also received a lot of advice from my mentor about how to go about applying and how to narrow my choice schools down.
- I was able to learn about specific research methods as well as the diversity of ecological research approaches, which has helped me grow as a scientist since then.
- I now understand how much field work I am capable of doing in relation to lab work.
- Encouraged me to pursue research and work on an honors thesis
- My experience at KBS is the most beneficial to my career goals that I have had thus far.
- I think I want to go into mathematical modeling as a result of this summer. Still trying to refine that a bit more (and get a job for a nest egg before grad school), but this summer really helped me to refine what I am interested in.
- This program introduced me the creative and exciting part of science and played a major role in the research opportunities I was able to get in the future! I can't say enough positive things about my REU experience.

- Being exposed to so many different routes and amazing people actually made it harder for me to sit down and think of a specific topic to study and concentrate on. If anything, I want to be even broader than I have ever been. But I have gained and continue to gain valuable skills that will serve me in the future thanks to this program.
- Oh ya, honestly I was a community college student going to Colorado State University for Conservation Biology, but in a lot of my 100 level classes I definitely ahead of the game. Reading and looking up scholarly articles, I really understood where they were coming from as researchers. So reading and analyzing reports were easy. I basically taught myself all the basics of a 102 biolife course to put together a research project and present it, which made my experience here at CSU a lot more applicable.
- It changed my life. Now I am better person and scientist.
- I was able to receive more focused experience in my field of interest(epidemiology). I was also able to connect with faculty in various departments to express my with my interests as well as plans to move forward post-undergrad.
- I don't know if I actually want to continue in research work. I am happy to have had the experience, and now I'm working in community engagement in the non profit sector. I'm going to see if that is a better fit for me in relation to conservation.
- I found that I really enjoy doing research and I would like to incorporate it into my future education and career. I am excited to be continuing my research this semester and I hope to continue throughout my undergraduate experience at the University of Wisconsin. I also hope to do research some day in dental school.
- Really beneficial experience; taught me how to really apply myself and do ecological research. Plus the setting helped!
- My experience helped me learn more about the nature of science and scientific research. I also was able to learn what other researchers from not only the US but beyond were doing and how they had gotten to where they were.
- It helped cement my belief that I should pursue a career in ecological research.
- I really got to experience the full process of scientific research much more fully than I ever have before.
- The experience solidified my career and academic goals for pursuing research. It also propelled me into future summer research experiences and greatly enhanced my application for admittance to graduate school.
- I learned so much about how to work with others and how to put together my own research methods. This summer really cemented my plans to pursue a career in ecology
- This experience made my passion for science evolve and made me realize how much I enjoyed field work.
- It was a good first taste of real field work and an excellent experience in general.
- The experience was able to provide first hand experience with the mechanics of a scientific experiment. During coursework, you're generally exposed to the results or set up of data collection, but rarely the execution of experiments.
- After participating in this internship, I applied for graduate school and I feel that this experience solidified my interest in conducting further research.
- Research helped me open my eyes to new field
- I went on to complete a Ph.D.
- My time at the HJ has significantly aided in my personal goals and career development. I will never forget my experiences at the HJ.
- I was introduced to science in a work environment, which I hadn't been exposed to before, and it more solidified that I wanted to have a career in the sciences.
- It helped me know what my options were in biology.
- It gave me insight into how research is performed and a potential path I might want to follow in the future.
- made me want to do more research
- The experience of working at Harvard Forest for a summer (with 20-something other undergrads study ecology) made me realize that graduate school was a logical next step for me if I wanted to continue in ecology. I hadn't really considered this idea prior to the REU program, but being surrounded by other students (some further along in their undergrad program than I) who were looking at grad schools as well as attending the panel with current grad students and post-docs, and also talking with my mentors about my (non-existent) future plans -- all of these things made me start to consider grad school in my future. Eight years later, I'm four years into a PhD program in natural resources, and I'd say that my REU experience played a big role in pushing me in that direction.
- I decided I like research
- My EISI experience was incredible. I was exposed to new research and research methodology (I had little fieldwork experience prior to the internship). I also made many lasting friendships and connections. Overall I would say that the experience really helped prepare me for graduate school.

12. We recognize that our programs bring together individuals from many different backgrounds. We strive to provide summer experiences that are supportive and beneficial for all. Your feedback will help our programs evolve to meet this goal.

The questions below are all OPTIONAL. The data we collect here will be analyzed in aggregate and not individually. Thank you for your input!

Do you consider yourself:

Answer Options	This does not apply to me.	I identify this way, and I DID share this information.	I identify this way, but I DID NOT share this info.	I prefer not to answer this question.
Racial/ethnic minority	75	30	8	5
LGBTQ	95	4	12	1
Veteran	106	1	2	1
Female	40	78	0	1
2-year college student	102	6	0	1
First-generation college student	89	9	13	1
Religious affiliation	80	9	15	5
Physical/learning disability that requires special accommodations	104	3	1	1

How supported did you feel by your supervisor/research mentor?

Answer Options	This does not apply to me.	Not at all	Very little	Somewhat	A great deal
Racial/ethnic minority	40	1	2	8	33
LGBTQ	44	1	0	3	8
Veteran	46	0	0	1	2
Female	20	1	2	6	61
2-year college student	42	0	0	1	6
First-generation college student	41	1	0	2	9
Religious affiliation	42	1	0	5	5
Physical/learning disability that	42	0	1	0	6

requires special accommodations					

How supported did you feel by a program coordinator or other?					
Answer Options	**This does not apply to me.**	**Not at all**	**Very little**	**Somewhat**	**A great deal**
Racial/ethnic minority	43	1	1	6	31
LGBTQ	45	0	0	3	8
Veteran	47	0	0	0	2
Female	20	2	0	6	61
2-year college student	42	0	1	1	4
First-generation college student	41	0	0	2	7
Religious affiliation	43	1	1	4	4
Physical/learning disability that requires special accommodations	42	0	0	1	6

How supported did you feel by fellow students?					
Answer Options	**This does not apply to me.**	**Not at all**	**Very little**	**Somewhat**	**A great deal**
Racial/ethnic minority	41	1	2	6	33
LGBTQ	43	0	1	4	8
Veteran	45	1	0	0	2
Female	20	0	0	6	64
2-year college student	43	0	1	1	4
First-generation college student	42	0	3	2	6
Religious affiliation	43	1	2	2	6
Physical/learning disability that requires special accommodations	41	1	0	1	6

Comments:

- I felt no bias towards my identity and affiliations.

- These questions are not comprehensive enough. I felt supported for sure, but this space offers no area to describe if you were ever made uncomfortable by being a minority/LGBTQ/woman.
- I thoroughly enjoyed working under Dr. Walter Dodds and gaining experience and knowledge continuously throughout the summer.
- ...I'm honestly not sure whether my religious beliefs came up in the context of any discussion, aside from mentioning that I sang in the church choir. And I'm not sure how intentional it is (biological sciences tend to skew female), but it was encouraging to see that half the people in my program were female. I actually got more questions about what it was like to attend a women's college than I did about my religion, by a long shot - especially b/c I identified as a CS person.
- Environment was caring and nurturing
- I feel there's a bit of a stigma associated with community colleges here in the East. In the midwest community college isn't necessarily worse then the state schools, it's just cheaper with smaller class sizes.
- My mentor was a female, and many of the technicians were female, so I did not feel that this was a problem.
- it was great being exposed to positive female role models in STEM careers
- I identify as trans but am passing cis and I had no reason to bring it up outside of close relationships I developed. I never felt the need to bring it up around anyone but a very select few other students, my peers, who got to know me well on a personal level.Whenever I mentioned it people were fine with it. Really a non-issue. I stutter and while it impedes my ability to speak with utmost fluency, it did not cause any problems and I felt perfectly well supported and understood.
- White male.
- I can't exactly hide the fact I am female but it wasn't an issue such that I needed support...
- I didn't feel out of place at the program because I am female; I think at least half of the research students were cis women, as was everyone in my research team, so it just didn't come up in the context of research work. I didn't feel intimidated or out of place. HOWEVER, and this is very, very important, at the end of the summer, a woman in my research group was raped by another student. When that happened, I realized that we had never learned any protocol for what we should do in that situation, what her rights would be, or who would be a safe person to talk to. The only available program coordinator at that part of the summer was a man, and she was very unwilling to go to the police. She also wasn't ready for the pushback of prosecuting someone who we lived and worked with, and because she was only in state for a few more weeks, and didn't think she had any other options, she decided not to tell anyone it had happened.
- My mentor was a female, so I felt very comfortable asking her about being a female in the field of ecology.