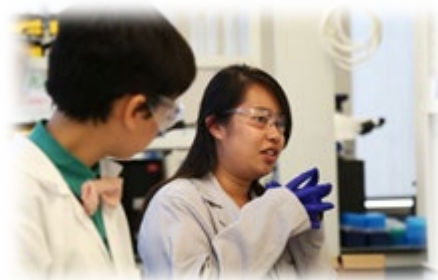


## Summer Science Camp for Rural Wisconsin High School Students 2018: Demystifying Science Academic and Career Opportunities

### Discovery's Rural Science Camp

The [Morgridge Institute for Research](#), a private, interdisciplinary biomedical research organization affiliated with the [University of Wisconsin–Madison](#), has offered a Summer Science Camp for students and teachers from rural Wisconsin high schools annually since 2007. In 2014, the Morgridge Institute for Research began offering two of these four-day Summer Science Camps in the [Discovery Building](#) on the



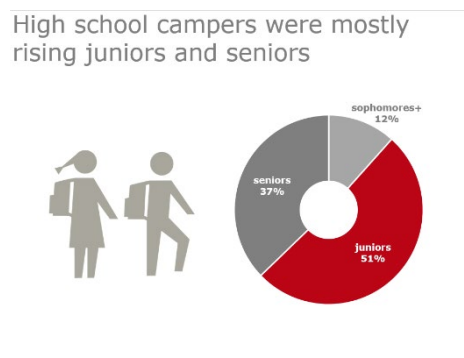
campus of UW–Madison. For each camp, teachers from five high schools in rural areas select and accompany five students to the camp. Camp activities include lectures and lab activities guided by leading researchers in the interdisciplinary field of Regenerative Biology. For rural high schoolers, the camp experience includes overnight stays in the UW–Madison dormitories and evening activities. A day-camp version of the program is also offered to Madison area middle schoolers during two other weeks during the summer.

There is no cost for camp participants except for transportation to and from Madison. Moreover, in some cases, transportation reimbursement funds are available. The purpose of the camp is to provide an opportunity to high school students in rural Wisconsin communities to experience the academic excellence and cultural adventures of UW–Madison. The hope is that this unique experience will motivate students to consider higher education and careers in Science, Technology, Engineering, and Math (STEM).

### Evaluation Results

For several years now, a systematic program evaluation, drawn in part from [Activation Lab](#) survey models for evaluating STEM learning, has helped program managers gauge participant satisfaction with the program and identify opportunities for program improvement. In the summer of 2018, 9 high school teachers and 127 students – 84 middle schoolers and 43 high schoolers – completed event satisfaction surveys about their Summer Science Camp experience. The survey was available to students on Chromebooks on the last day of their camp experience.

Evaluation activities also included two post-camp focused feedback discussions with teachers and informal discussions with, and observations of, staff, students, and teachers during the camp. Data were analyzed using a framework of evaluation questions (EQs). EQ1 was, What kinds of experiences do the students have with science? EQ2 was, How does having scientists as presenters affect campers' experiences? EQ3 was, How does having scientists as presenters add to the camp experience? EQ4 was, How do camp experiences influence teachers' teaching and students' career paths?



Findings suggest that the camp experience is demystifying students' conceptions of life as a scientist. According to teacher and student testimony, the Summer Science Camp influences students' ambition

to pursue science studies and careers. Specific results show that *students had a variety types of experiences* with science: observed lab demonstrations; attended lectures; learned about new science topics and careers; went on campus and lab tours; designed lab experiments; worked with scientists; applied what they learned at school in the lab; saw cutting-edge science in action; and experienced labs they couldn't have had at their own school. *Overall, campers and teachers were very satisfied* with the camp. Campers gave positive responses about the authenticity of presenters, the location of the camp on the UW–Madison campus, and opportunities to discover and apply science and to see science in action. *Specific suggestions* campers gave to improve the camp were to decrease lecture time or break up lectures in to shorter segments, offer more interaction among students, and offer more chances to see the UW–Madison campus. When asked what *value scientist presenters brought* to their experience, campers said that the presenters felt like ‘real people’ with whom they could connect, who supported a collaborative learning experience, and who welcomed and accepted them as part of the science community. Responses also indicated that *camp experiences influenced the way students and teachers think about science*. That is, most students said that camp experiences and getting to know scientists greatly influenced how much they like and value science, the likelihood they will go to college, and the likelihood they will study science at college. Most teachers said that the camp experience greatly influenced their comfort level with the science they teach and, likewise, greatly influenced their ability to bring cutting-edge science into their classroom.

Camp program managers are using these results to improve the camp experience for the summer of 2019. They are creating participant guides for several groups. Guidelines for scientist will focus on how to use active learning strategies and breaks during lectures and lab activities. Guidelines for teachers will include preparatory material that they can review with students before the camp. For teachers, chaperones, and staff, guidelines will offer simple tips about behavior in the laboratory space. Program managers are also planning for a 2019 program that offers students more chances to reflect periodically throughout the camp on their learning and experience and to mix more with campers from other schools.

The evaluation for 2019 will again include the survey for campers. In addition, focused teacher discussions will be aligned with the evaluation questions (described above) and an observation instrument will enable the team to better understand student experiences during lectures and labs.

### **A Study about the Science Trajectories of Camp Alumni**

Since 2007, more than 300 students from rural Wisconsin high schools have attended the camp. This population has less access to the many educational advantages that regular internet access affords their urban counterparts. Moreover, research shows, they are less likely to apply to and enroll in college or university than urban youth. However, almost no studies have examined what studies and careers students pursue after experiencing an out-of-school science camp.

To better understand how the Summer Science Camp's science experiences affected students' post-secondary academic and career choices, and their attitudes towards science as adults, the Morgridge Institute for Research is investigating several design options for carrying out a study of camp alumni. Results will add to the small but growing pool of data about how experiences with science camp programs may open academic and career opportunities for underrepresented populations in STEM.

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