

The impact of the Amgen Scholars Program (ASP) on students' interest and knowledge regarding post-baccalaureate education (graduate and professional school).

 Public

Name of Assessment Project: The impact of the Amgen Scholars Program (ASP) on students' interest and knowledge regarding post-baccalaureate education (graduate and professional school).

Name(s) of Person(s) Responsible for Assessment Project:

Role

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Providing Department: Academic Enrichment Program

Other Units/Departments Involved in Assessment Project:

Program, Service, or Event Related to Assessment Project

The Amgen Scholars Program (ASP) is funded by the Amgen Foundation, a non-profit that seeks to advance science education. In 2007, the Amgen Foundation began ASP at 10 different host universities across the United States, including UC San Diego, to provide hundreds of selected undergraduate students an opportunity to engage in a hands-on research experience each summer. ASP provides pivotal research experiences for undergraduate students interested in pursuing a graduate degree and a career in science. The UCSD program provides undergraduates a 10 week summer research experience that includes multiple workshops, lectures, and networking activities, as well as a GRE preparation course. A signature component of the summer program is a summer symposium where students hear firsthand from leading scientists working in industry and academia. Amgen Scholars from across the US meet in California at UCLA and the symposium provides undergraduates with a valuable opportunity to network with other Amgen Scholars from across the U.S. as well as an introduction to research within industry. The Amgen Scholars Program at UC San Diego has built a reputation as one of the most desirable life science summer research programs, due to its world-class faculty, and desirable location as a host university due to weather as well as the proximity to a large number of biotechnology and pharmaceutical companies. As such, top-caliber students from large and small universities are attracted to the program, and many faculty mentors on campus are interested in hosting a student that has been selected as an Amgen Scholar.

This assessment is for the 10-week program that ran from June 24, 2013 to August 30, 2013.

Assessment Project Description

The goal of the Amgen Scholars Program is to advance science education by encouraging students that wish to pursue a graduate degree and a science career. The purpose of this assessment project was to see the influence the Amgen Scholars Program had on the students who were in the 2013 cohort regarding their desire to pursue graduate study. Specifically, we were interested in seeing if ASP helped students understand more about getting a PhD or MD/PhD as a first step towards a career in sciences. Since not all students have completed their undergraduate studies at the time of this assessment project, we limited our scope to see if ASP had affected their level of interest in graduate or professional school. We also wanted to look at how their experiences in ASP may have helped the student add to their learning toolkit to assist in their career development. The results of this study will inform how we plan programmatic events for this year, and for future cohorts. If students do show an increase in interest towards earning a PhD, we will ensure that the major components of the program stay intact. If there are areas that students feel we could improve on, we may return to the respondents to ask for feedback on the program, as well as design new elements to try out on the students to see how that improves their responses in future years.

Unit/Program Specific Goals and Learning Outcomes

The Amgen Scholars Program has two main objectives:

- To increase learning and networking opportunities for undergraduate students committed to pursuing science or engineering careers; and
- To spark the interest and broaden the perspective of undergraduate students considering scientific careers.

While not directly asking if these two objectives were achieved, this assessment touches on these points by examining at the students' goal of pursuing a graduate education, thus testing their commitment to the pursuit of science or engineering careers, and by asking which aspects of ASP helped them to decide on their eventual degree and/or career goals. This assessment also asked the students to consider their level of interest in graduate or professional careers before and after ASP. The change reflected in the individual responses can show that ASP may have been able to spark the interest and broaden the perspective of undergraduates considering scientific careers.

The Student Affairs Learning Outcomes were each addressed throughout the program, and assessed in the survey by asking the students if they strongly disagreed, somewhat disagreed, neutral, somewhat agreed, or strongly agreed. SALO 1: Think Critically and Solve Problems was assessed in this question – ASP helped you learn how to think critically and problem solve. SALO 2: Communicate Effectively was assessed in this question – ASP helped you work on your communication skills. SALO 3: Advance a Plan for Personal, Academic, and Professional Success was addressed in this question – ASP helped you refine your future career and/or degree goals. SALO 4: Lead in a Diverse Global Society was assessed in these questions – ASP helped you learn how to work in teams and/or with diverse groups, and ASP exposed you to a diversity of ideas, people, and/or cultures. SALO 5: Engage in Healthy Lifestyle was assessed in these questions – ASP helped you learn how to manage stress more effectively, ASP helped you learn to balance research and personal life, and You were able to achieve a healthy balance between research and personal life during ASP. SALO 6: Promote Social Justice and Community Responsibility was assessed in this question – You learned/felt a sense of community responsibility due to your participation in ASP.

Relationship to Think Critically and Solve Problems, Communicate Effectively,

Student Affairs Advance a Plan for Personal, Academic, and Professional Success,

Learning Outcomes: Lead in a Diverse Global Society, Engage in a Healthy Lifestyle,
Promote Social Justice and Community Responsibility

Assessment Project 6/23/2013

Start:

Assessment Project 7/16/2014

End:

Population/Sample

All 30 students from the 2013 cohort participated in the full ASP program, and included 15 students from UCSD and 15 students from visiting universities. All were also given an opportunity to participate in the survey, and in the end we had a total of 13 respondents (n=13), including both UCSD and visiting students. Of the 10 students that provided their names, five were UCSD students, and five were visiting students, including three from non-R1 universities. Additionally, of the students that provided their name, six were male and four were female. The students were given the option to respond anonymously so they could feel free to give an honest opinion of their experiences.

Type of Assessment: Student learning outcomes and/or behavioral outcomes,
Program/department review

Other Assessment

Type(s):

Assessment Methods: Surveys

Other Assessment

Method(s):

Data Collection Tools

Surveys were sent to all 30 students in the 2013 cohort, and we received responses from 13 students (43% response rate). We were able to draw some conclusions from these surveys that will be presented in this assessment report.

The survey we sent was via our department's installation of Machforms, an online form creator that also can receive the individual responses to the survey.

Data Analysis Methods

The evidence from the survey results were compiled into the results that we present in this assessment report. It will be used to analyze areas of changed (or unchanged) knowledge and abilities. It also provides a snapshot of the status of scholars so program leaders can have a better sense of the scholars' experiences and any areas that need more emphasis in the program for future cohorts. A copy of the web-based survey that was administered can be found in the Appendix section at the end of this report.

Presentation of Findings

The findings of the survey were collected via Machforms and are presented in this report via text descriptions and graphs that show the survey responses from the students.

Progress:  100%

Link Assessment Project in Campus Labs Baseline

Name

Source Type

No items to display.

Summary of Findings

Overall Summary

Thirteen of the 30 participants in the 2013 Amgen Scholars Program cohort at UC San Diego completed the survey. This survey was intended to get an understanding of the self-reported impact of ASP on their future education and career plans. Highlights of the survey results are below:

Current status

- 31% (4) applied and were accepted into programs for graduate study (PhD, MS, MD/PhD)
- 31% (4) are working in a science-related field
- 31% (4) are currently still undergraduates
- 8% (1) is not working or going to school currently
- 54% (7) intend to apply for graduate study (PhD, MS, MD/PhD)
- 8% (1) intends to apply for professional school (MD, law, pharmacy, dental, public health)

Degree goal

- 100% (13) intend for Graduate Study to be their final degree goal (PhD, MS, MD/PhD)

Career goals

- 85% (11) are considering working in academia (lecturer, researcher, professor)
- 77% (10) are considering working in industry (biotech and pharmaceuticals)
- 31% (4) are considering working in government (research, grant process, science policy)
- 23% (3) are considering becoming entrepreneurs
- 8% (1) is considering science writing
- 8% (1) is considering working in patent law/IP/Technology Transfer

ASP Influence on Degree and Career Goals

Program respondents were asked how the Amgen Scholars Program helped them decide on their degree and career goals – all 13 students provided responses that were grouped into themes. Below is a sample of responses categorized by theme with a listing of percentages / number of students whose response fit into that category. Responses may exceed 100% since students may have listed more than one aspect of ASP.

62% (8) Visit to Amgen Headquarters during Amgen Symposium

- "The Amgen campus tour really opened up my eyes to how magnificent research in the industry can be."
- "Touring the Amgen headquarters and talking with the head of UCSD's graduate programs left the

most memorable impressions on me.”

- “By touring the AMGEN facilities and speaking with the scientist I was given a very unique opportunity to get a feel for industry life.”

54% (7) Hands-on research

- “The ASP helped me realize how much I really love to work hands-on in a lab. After having a summer lab experience, I realized that I definitely want to pursue a career in medical research. Working in a neurobiology lab helped to confirm that I want to pursue research in neurodegenerative disease.”
- “ASP helped me secure a position in a lab that I continued to work in through my senior year, and currently full time after graduation.”
- “I also learned I love research.”

23% (3) Networking

- “Being around other high-performing students really inspired me to work hard and helped me strategize my life plans.”
- “Meeting with other scholars and scientists at UCLA [Amgen Symposium].”
- “Hearing about the other Amgen scholars plans and interests helped me decide what I wanted to do.”

23% (3) Lectures and seminars

- “The panel of graduate students that talked to us was very beneficial.”
- “Amgen [Scholars Program] largely introduced me to graduate school option and biotechnology through lectures, seminars, and the symposium.”

Level of Interest in Graduate or Professional School

A major goal of ASP is to encourage students towards study in graduate or professional school. In order to get a snapshot of how the students felt ASP may have affected their degree goals, participants were asked about their level of interest in graduate or professional school, *before* and *after* ASP. One thing to note: these questions were asked of the students nearly a year after beginning the program.

Figure 1 depicts the responses for each individual. Survey participants had varying answers for their level of interest *before* the program (range of 2 to 5, with 5 indicating “very high interest”). Of these, a total of six students indicated that they had “very high interest” (level 5) to begin with. Most (12 of the 13 respondents) indicated that their level of interest *after* the program was “very high” (level 5) with just 1 student indicating a level of 4.

ASP Overall Take-away Lessons

Program respondents were asked what their overall take-away lessons were from ASP – 11 students provided responses that were grouped into themes. Below is a sample of responses categorized by theme with a listing of percentages / number of students whose response fit into that category. Responses may exceed 100% since students may have listed more than one take-away lesson.

55% (6) Networking

- "People are amazing! It was very influential to be surrounded by highly motivated individuals and made me want to apply myself more and work harder."
- "Opportunity to bond with like-minded peers from across the country."
- "I was able to network with many brilliant scientists from various different fields and enjoy conversing with them in the 10-week long program."

45% (5) Research Experience

- "It was a very good opportunity, and I learned a lot about the intensity of research at a research institution that I never could have learned at West Chester."
- "Stronger skills in research."
- "Wealth of research experience."

36% (4) Preparation for future degree/career

- "All of the seminars throughout the summer were also very helpful in helping me to get a handle on everything I need to be doing in order to prepare for graduate school."
- "It will definitely prepare me for whatever I end up choosing to pursue in the future."

18% (2) Science communication Skills

- "I learned how to be more organized and how to communicate my ideas and data from lab."

18% (2) A look into industry research

- "The window into industry was appreciated. It was interesting to know the problems faced by industry such as patent issues and the FDA process. In addition, seeing how many departments are necessary for large-scale drug discovery and production was very interesting."

ASP Influence

Students were asked a variety of questions to gauge the influence of ASP on their career and degree goals. Namely, did ASP help in these various areas: refining future career and/or degree goals; improving communication skills; achieving work/life balance during the program; thinking critically and problem solving; sense of community responsibility; exposing the student to a diversity of ideas, people, and cultures during the program; learning work/life balance; decision to attend graduate or professional school; managing stress effectively; and learning how to work in teams and/or with diverse groups.

In general, the respondents indicated that ASP helped positively (somewhat agree or agreed strongly) in all the areas that were asked on the survey (**Figure 2**). The areas with the biggest impact were refining future career and/or degree goals, improving communication skills, and achieving work/life balance during ASP, with 92% (12) choosing "somewhat agree" or "strongly agree" for all three areas. Areas that may not have been emphasized as much in ASP for 2013 include: managing stress effectively and working in teams or diverse groups, which only had 69% (9) indicating ASP helped in these areas.

One category, the lower percentage (69%) indicating that ASP helped in the decision to attend graduate or professional school, can be linked to Figure 1. In that prior question, we saw that 6 of the

13 students indicated that they had come into the program with a “very high interest” (level 5) in graduate or professional school. Thus, it’s very likely that ASP did not influence their decision much given that they may have already been committed to attending graduate or professional school before the program. Indeed, 4 of the 6 that indicated a prior “very high interest” in graduate or professional study selected the option that ASP did not help with their decision (somewhat disagree) or was “neutral” in helping with that decision. Of these 4, three had applied and gotten into graduate school this past spring (2014).

 Figure 1 Amgen Assessment

 Figure 2 Amgen Assessment

Impact of Assessment

These findings will definitely be used to help this year’s cohort as much as possible, although the program has already completed 4 of the 10 weeks at the writing of this report. It will also be used to better plan for future years of this program so that we reinforce the goals of inspiring students to pursue scientific careers and to increase learning and networking opportunities for those already committed to pursuing careers in science or engineering.

It was interesting to note how much of an impact the tour of the Amgen Headquarters had on the students that responded. This aspect was a brand new aspect of the Amgen Symposium weekend, and apparently it struck a chord with the students. The tours and mini seminars with Amgen scientists will continue to be a part of the programming for the Amgen Symposium for the coming years, and it’s exciting to see the students getting a lot out of that part of the program.

As we had expected, students really appreciate the networking aspect of ASP, as well as the hands-on research. Given the lower positive responses to the seminar and symposia, we will consider how these can be strengthened in future years to ensure students feel this part of the program really is valuable.

We will want to celebrate that 100% of students surveyed responded that they intend to pursue graduate study (PhD, MS, MD/PhD). Further, ASP strongly bolstered the idea of pursuing graduate or professional school studies for at least 92% of the students that responded.

The ASP does still have some work to do in order to refine the program. We could use some work in helping the students learn how to manage stress more effectively, find a good work/life balance, and exposing them to more diversity.

Lessons Learned




The survey responses all came in well, but were not 100%. It may help in the future to ask earlier, and ask often. This is my first real assessment project and it was definitely a learning process, mostly because I didn’t know how to start and what I was aiming for. It would have helped to have explored the assessment website earlier and looked at the template to get an idea of what was expected to be in the report. In addition, I think starting to fill in portions of the template near the beginning of the assessment project would be helpful so the report isn’t as time consuming near the deadline. It also helped to talk to colleagues about the report, although I did that a bit late, as well. Their experiences with the report and their assessment project were helpful in learning what I could do for my own project. This question of whether or not we’re helping our students gain the tools to help them with their career and degree goals is good, although I’m not sure it’s necessary to reassess this particular aspect of the program every year – I think a revisit in 2-3 years after some changes have been implemented would be a better time frame.

Supplemental Information

Raw data and charts are in the attached excel file titled "Amgen 2013 post-program survey data 071814.xlsx".

The text of the questions from the survey are in the attached PDF document titled "Appendix - Survey Amgen Assessment.pdf"

The complete assessment report is already compiled into a PDF document titled "Assessment - Amgen Scholars Program 2013-2014.pdf".

-  Amgen 2013 post-program survey data 071814
-  Appendix - Survey Amgen Assessment
-  Assessment - Amgen Scholars Program 2013-2014

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