



Priming  
the Talent  
Pipeline



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# Introduction



The University of California San Diego is committed to assuring that young people in our region and throughout the state are prepared for not only the rigors of university life but also for the world of work. This mission is central to the Chancellor's Strategic Plan, which states that UC San Diego will "focus on diversity, equity and inclusion" to enable "faculty, students and staff to excel" so that the university can provide "an opportunity for all to succeed." As the San Diego community becomes more diverse and the UC San Diego campus grows, "inclusiveness" has become an important guiding principle.

To that end, UC San Diego Extension has significantly expanded both the number and variety of programs designed to prepare young people for college as well as prime college students and graduates for meaningful careers. To highlight the reach and impact of Extension's pre-college and career preparation offerings, the Center for Research on the Regional Economy developed this report, which details the participation and outcome data for the 2015-16 academic year. In addition, the report looks at historical data for each of the programs and highlights new programs that were introduced in 2017. The research team developed a series of surveys to better understand the demographic and socio-economic characteristics of the participants as well as to secure feedback on the participants' experiences in each program.

The overall results of these initiatives are impressive. The numbers participating, the range of programs offered, the socio-economic and ethnic inclusiveness of the program participants, and the fact that one in three attending these programs are doing so at little or no charge reflects the Chancellor's priorities and directives. Especially notable is the performance of Academic Connections, Extension's three-week summer college preparation program that is held on the UC San Diego campus. Of the 881 Academic Connections students surveyed 96 percent have gone on to a four-year college, with 34 percent enrolled at UC schools and 21 percent of those at UC San Diego.



# Executive Summary

UC San Diego Extension offers five pre-college programs that are designed to help participants ignite a passion for lifelong learning, explore academic interests and prepare for the demands of college. Extension also helps prepare both undergraduates and graduate students for the transition to rewarding careers through its LAUNCH and GrAdvantage programs. This is achieved by augmenting their education with real-world, practical skills and access to employers and work settings.

The intent of all these programs is to demonstrate to young adults, as well as undergraduates and graduate students, the connection between academic competencies and employment opportunities and how meaningful work opportunities play a role in the larger economy and their communities.

# Executive Summary

## The Programs

The three prongs of UC San Diego Extension's effort to enhance access and opportunity to young adults, undergraduates and graduate students include College Pipeline Programs; STEAM Pipeline Programs; and Career Pipeline Programs.

### COLLEGE PIPELINE PROGRAMS



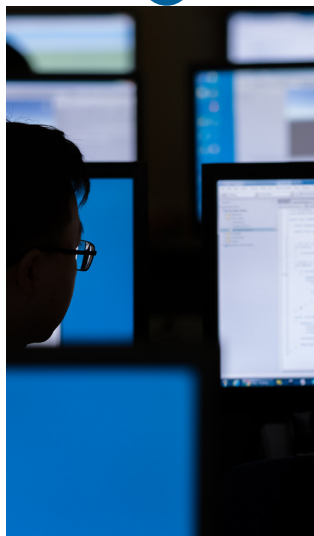
#### Academic Connections

This three-week residential on-campus program prepares qualified high school students for college, both socially and academically, and served 445 high schoolers in the 2015-16 academic year.



#### College Credit

This year-round initiative gives students the ability to explore an academic interest while obtaining college credit by offering 14 courses at seven sites, enrolling 532 students.



#### Test Prep

This program equips high school students with the test-taking strategies to improve their ACT and SAT scores and enhance their college acceptance chances. In addition, Extension offers test prep to undergraduates for the GRE, GMAT, LSAT and MCAT. Almost 2,200 students participated in these offerings in the 2015-16 academic year.

### STEAM PIPELINE PROGRAMS

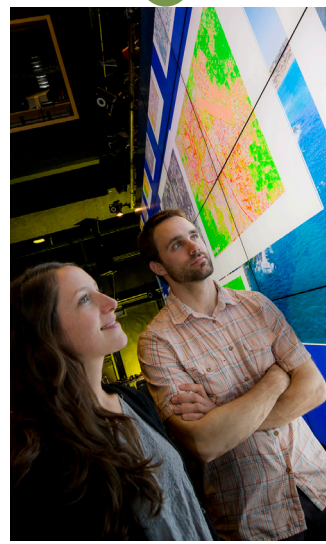


#### STEAM Curriculum

Extension offers a robust portfolio of courses in science, technology, engineering, arts and math, also known as STEAM, in a variety of formats. In 2015-16, 59 unique courses were offered with 620 enrollments.



## CAREER PIPELINE PROGRAMS



### Sally Ride Science

This program offers STEAM courses, including the Sally Ride Science Junior Academy summer program, for middle and high school students with a special focus on engaging girls. Founded in late 2015, 432 students enrolled in the first summer Junior Academy.

### LAUNCH

This program provides undergraduates in their junior or senior year the ability to earn an applied certificate along with their degree. Since 2013, 300 undergraduates have successfully pursued certificates simultaneously with completing their degrees.

### GrAdvantage

This initiative is designed to prepare graduate and post-doc students for in-demand jobs outside of academia. In its first two years, GrAdvantage has enrolled 86 graduate students.

# Executive Summary



These partnerships are essential to ensure the diversity of the students participating in our programs, especially the College Pipeline Programs, properly reflect the diversity of the San Diego region and mirror the state of California ethnic and socio-economic makeup.



# Partnerships



The success of all these programs is intrinsically tied to important partnerships with community groups seeking similar objectives. These partners include:

**Reality Changers**—Provides youth from disadvantaged backgrounds with the academic support, financial assistance and leadership training to become college graduates.

**Sycuan Education Department**—Offers positive programs to address the individual needs of each learner, infant to elder, in order to build a respectful, responsible citizenry who retain their identity and culture.

**Viejas Tribal Education Department**—Serves the Viejas Band of Kumeyaay Indians in the pursuit of lifelong learning through innovative educational programs.

**Barrio Logan College Institute**—Prepares children in Barrio Logan for college and careers through afterschool programs that begin in third grade and support them through college completion.

**San Diego County Foster Youth**—Offers foster youth students the opportunity to attend Academic Connections through a partnership with the County of San Diego and Promise2Kids. Funding for the program comes from the Kathy Watson Scholarship fund, which was established to support foster youth and first-generation students.

**Promise2Kids**—Provides more than 3,300 current and former foster youth in San Diego County with the tools, opportunities and guidance to grow into healthy, happy and successful adults.

**The Preuss School**—Is a unique charter middle and high school for low-income students who strive to become the first in their families to graduate from college that is located on the UC San Diego campus and serves students throughout the county.

**Imperial Valley County Office of Education**—Fulfills state mandates and develops county-wide programs to serve special student populations and also provides educational leadership, resources and services to schools and districts.

**Life Sciences Summer Institute**—Nourishes a passion for science and math in San Diego's next generation of scientists. The program is a collaboration with the San Diego Workforce Partnership, BIOCUM and the Southern California Biotechnology Center to develop the future workforce in the region's burgeoning life sciences industry by connecting high school students with leading life sciences companies in San Diego.

**Migrant Education Program for the Imperial County Office of Education**—Is a federally funded program to provide supplementary educational and support services to identified migrant students. Currently, the program serves approximately 7,754 migrant students ages 3–21 in 13 school districts in Imperial County.

**Vicente Fox Scholars**—Provides high-achieving students from central Mexico the ability to attend Academic Connections. The program is a partnership between Centro, an initiative of Vicente Fox, the former president of Mexico, Reality Changers and UC San Diego Extension.

# UC San Diego EXTENSION

Developing a robust talent pipeline that reflects the larger community is central to UC San Diego's mission to provide both excellence and equity. To that end, UC San Diego Extension has significantly expanded both the number and variety of programs designed to prepare young people for college as well as prime college students and graduates for meaningful careers.

# Priming the Talent Pipeline

Enhancing Access and Opportunity through College and Career Preparation Programs

Total Scholarships \$3,525,344

Program Area	2012	2013	2014	2015	2016	Total
Academic Connections	\$117,900	\$192,400	\$332,200	\$323,540	\$420,840	\$1,386,880
Test Prep	\$140,200	\$284,252	\$179,000	\$143,600	\$153,888	\$900,940
LAUNCH	\$241,561	\$477,398	\$191,435	\$104,000	\$223,130	\$1,237,524

Students Served 4,365

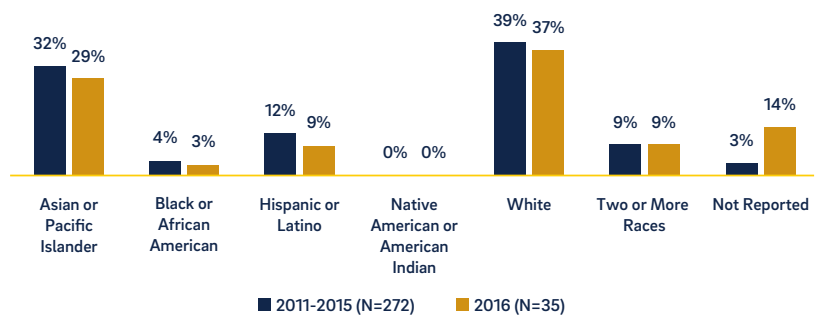
Program Area	2011	2012	2013	2014	2015	2016
Academic Connections	—	362	396	375	377	445
Test Prep	23	545	1,735	1,729	1,926	2,199
STEAM Courses	419	304	277	626	746	620
College Credit	--	--	34	238	487	532
LAUNCH Program*	--	--	168	9	17	106
Sally Ride Science	--	--	--	--	--	463
<b>TOTAL</b>	<b>442</b>	<b>1,211</b>	<b>2,610</b>	<b>2,977</b>	<b>3,553</b>	<b>4,365</b>

\* Student acceptances

886% growth



## Student Ethnicity



# Academic Connections

**96%** STUDENTS GOING TO A FOUR-YEAR COLLEGE

**41%** Students from families making under \$40,000

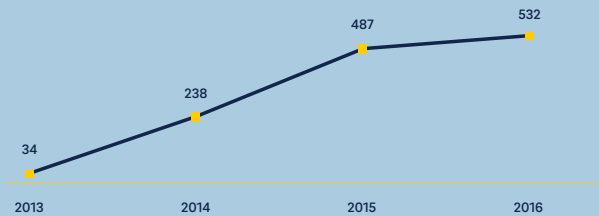
**\$420,840** Dollar amount of scholarships (AY15-16)

**21%** Students attending UC schools going to UC San Diego (2012-2016)

**34%** Students going to UC schools (2012-2016)

# College Credit

**14x** GROWTH SINCE 2013



**43%** students coming from families making under \$60,000 (AY15-16)

# Test Prep

**8x** GROWTH SINCE 2011



**124** Point increase in SAT scores

# STEAM Curriculum

**68%** GROWTH IN NUMBER OF COURSES (2011 TO 2016)

**1,942,865** Views for top five programs on the STEAM Channel

# Sally Ride Science

**82%** STUDENTS WHO PLAN TO ATTEND A FOUR-YEAR UNIVERSITY

**463** Students in first year of program (AY15-16)

# LAUNCH

**58%** STUDENTS SECURED FULL-TIME JOB

**\$223,130** Amount of scholarships

# GrAdvantage

**86** STUDENTS SERVED

**34%** increase in student confidence for career preparedness



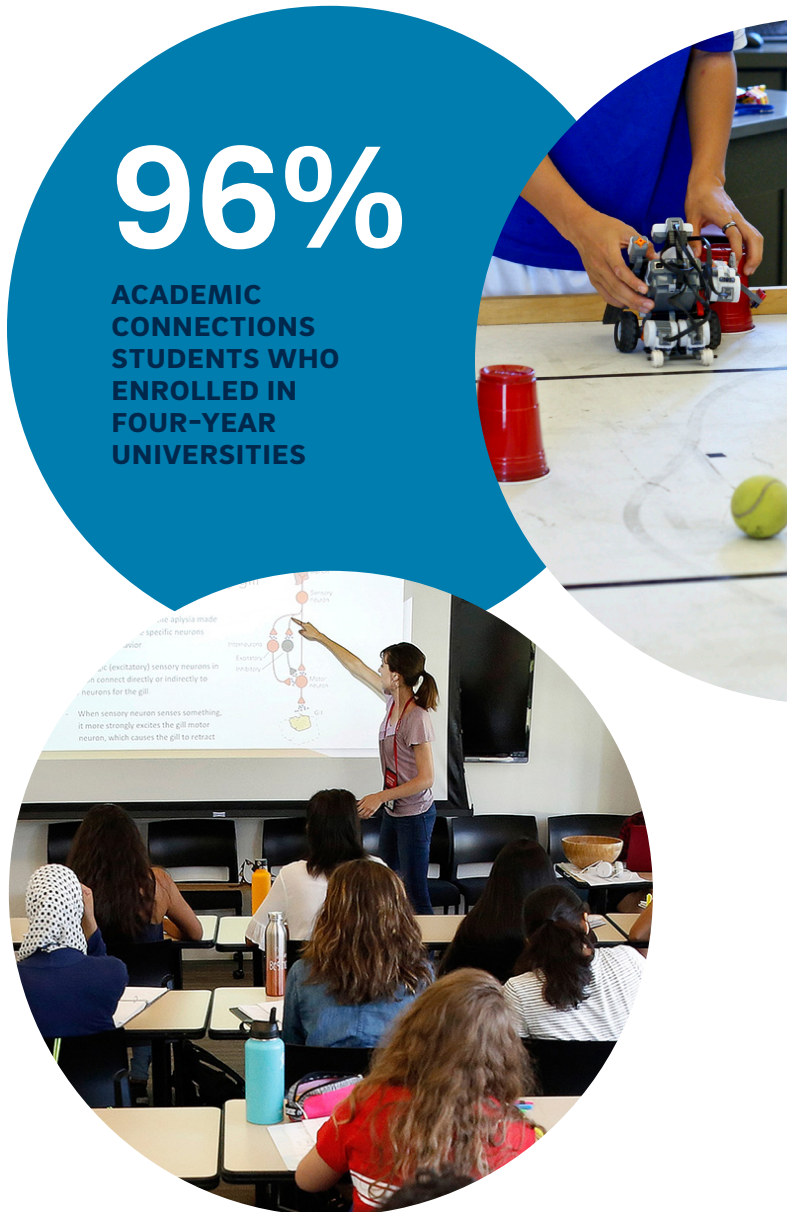
# College Pipeline Programs

## Academic Connections

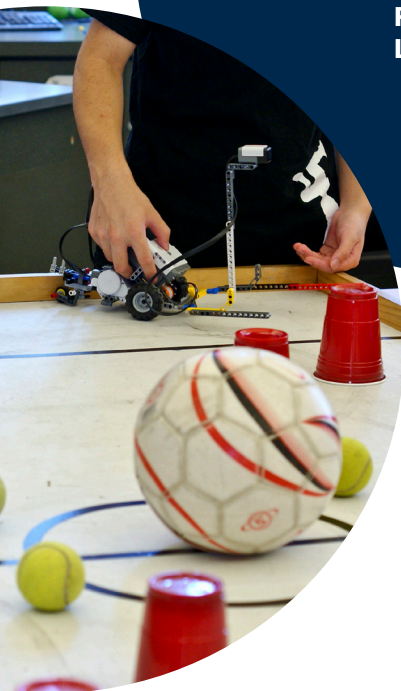
As Extension's flagship pre-college program, Academic Connections attracts students from a wide range of socio-economic backgrounds, with more than 40 percent of the 445 participants in 2015–16 coming from families making less than \$40,000 a year. More than 60 percent of the participants come from families making less than \$90,000 a year. It is highly inclusive with 34 percent identifying as Hispanic or Latino, 29 percent as Asian or Pacific Islander while only 1 percent as African American, an area where Extension needs to improve its outreach efforts. Some 80 percent of these students came from California represented by 219 schools across the country. These results are possible because 36 percent of those attending this highly competitive program received scholarships in 2015–16. In total \$400,846 in scholarships were awarded to support 34 percent of all participants. In addition, the research team tracked the higher education choices for 881 participating students and found that 96 percent enrolled in four-year universities, with 34 percent of participants enrolling at UC campuses and 21 percent of those attending UC San Diego.

96%

**ACADEMIC  
CONNECTIONS  
STUDENTS WHO  
ENROLLED IN  
FOUR-YEAR  
UNIVERSITIES**







**57%**

**COLLEGE CREDIT PARTICIPANTS FROM FAMILIES MAKING LESS THAN \$90,000**

## College Credit

This program had significant growth, increasing from just 34 students in 2013 to 532 students in 2015–16. Participants were able to receive college credit in a wide variety of topics including sociology, mathematics, computer science, philosophy and psychology. Participants reflect the economic and cultural diversity of California with nearly a third coming from households earning less than \$30,000 and 57 percent coming from families making less than \$90,000. In addition, 41 percent of program participants were Latino or Hispanic and 18 percent were Asian or Pacific Islander while only three percent were African American, which represents an area of outreach that needs continued improvement. Through a partnership with San Diego Unified School District, students at select high schools are able to take these college courses free of charge.

## Test Prep

This program has experienced exponential growth, increasing from just 29 participants in 2011 to 2,199 in 2015–16. Extension was able to provide scholarships of \$153,888 to make test prep more accessible to San Diego students providing individuals from all socio-economic backgrounds greater opportunity to properly prepare for critical college entrance exams. Of the 2015-16 participants, there were substantially fewer Latinos or Hispanics than in the other programs. Among the participants 29 percent identified as Asian or Pacific Islander, 9 percent as Hispanic or Latino and 3 percent as African American. The reasons for this student make-up are being carefully assessed.

**\$153,888**

**TEST PREP SCHOLARSHIPS PROVIDED BY UC SAN DIEGO EXTENSION**

# STEAM Pipeline Programs



## STEAM Curriculum

Given the increasing significance of math and science to all fields of study and the increasing number of jobs that demand not only technical competencies but also the ability to creatively problem solve, UC San Diego Extension has aggressively expanded its STEAM (science, technology, engineering, arts and math) offerings. Since 2011, there has been a 69 percent growth in the number of courses available, increasing from 35 in 2011 to 59 courses in 2016. The number of participants in these challenging offerings also grew from 419 students in 2011 to 620 in 2016. More than half of all participants came from households with an annual income of less than \$80,000 and represented the ethnic diversity both of the region and the state. Of those who participated in the STEAM curriculum, 85 percent said they planned to attend a four-year college and another 5 percent planned to attend community college. In partnership with UCTV, UC San Diego Extension also launched The STE[+a]M web channel to make its curriculum and programs available to students and teachers throughout the country and across the globe. The STE[+a]M Channel's top five programs alone have logged more than 2 million views.

**2 MILLION**

**THE STE[+a]M CHANNEL'S TOP FIVE PROGRAMS ALONE HAVE LOGGED MORE THAN 2 MILLION VIEWS**



# 82%

SALLY RIDE SCIENCE PARTICIPANTS  
WHO SAY THEY PLAN TO ATTEND A  
FOUR-YEAR UNIVERSITY



## Sally Ride Science

This program launched in 2016 after UC San Diego acquired the educational company astronaut Sally Ride co-founded to inspire the next generation to pursue careers in science, technology, engineering and math. During the 2015-16 academic year, Extension offered 44 courses through Sally Ride Science that attracted 463 participants. Of those who attended a Sally Ride Science course, 82 percent said they planned to attend a four-year university and another 14 percent said they planned to attend a community college. Nearly a third of those who attended a Sally Ride Science program, which were developed as part of Extension's collaboration with the San Diego Public Library, said their family qualified for free or reduced lunch.



# Career Pipeline Programs

## LAUNCH

To augment the in-depth knowledge provided by a four-year degree with the practical skills needed to jumpstart a successful career, Extension created the LAUNCH program for juniors and seniors at UC San Diego. In addition to practical and technical skills, the program helps students develop soft skills and improve their networking capabilities. There are currently 137 students enrolled in 38 different programs. Nearly 50 percent of the participants in the program said it was highly related to the occupation they planned to pursue after graduating and approximately 58 percent of survey respondents said they had secured a full-time job since completing the program. To be able to offer the certificates at no cost to participating students, Extension awarded \$223,130 in scholarships in 2016 alone.

58%

**SAID THEY HAD SECURED  
A FULL-TIME JOB SINCE  
COMPLETING THE PROGRAM**

## GrAdvantage

To help graduate students prepare for in-demand jobs outside of academia, UC San Diego Extension helps oversee the GrAdvantage program in partnership with the Graduate Division, Career Services Center, Graduate Student Association and the Postdoctoral and Visiting Scholars Affairs. Because only about 25 percent of today's PhD students are likely to find employment as professors, there is a commitment across campus to introduce graduate students to a broad range of career options. In the 2015-16 academic year, 51 students enrolled, including nine postdocs, 18 students and 24 PhD students. These students came from a wide range of disciplines including anthropology, finance, engineering and neurosurgery. Throughout the program, students were surveyed about the various competencies they were taught. There was an increase of 37 percent in student agreement with the statement "my graduate/postdoctoral experience is positive." Over the course of the program, there also was a 34 percent increase in student agreement with the statement "I feel confident that I am prepared for my career after graduation/postdoctoral position."



86

**STUDENTS SERVED  
BY GRADVANTAGE**



# PRE-COLLEGE PROGRAMS

(AY 2015-16)



## **ACADEMIC CONNECTIONS**

### **Mission and Goals**

The goal of the Academic Connections program is to provide high school students with hands-on experience in college matter courses, leadership skills, as well as how to live in a diverse community. Students have the opportunity to immerse themselves in college life and learning at UC San Diego, a top-ranked research university.

### **Program Description**

Academic Connections is a pre-college summer academic and residential experience for high school students. The program offers sessions in five locations: San Diego, Hawaii, Arizona, Catalina Island and Washington DC. Students who complete the program receive three to six units of UC San Diego Extension credit, accepted by most high schools and colleges. Students can apply for Research Studies or Research Scholars, with the former focusing on college subject matter courses and the latter providing hands-on experience working in faculty-led labs. Participants of the Research Studies component choose one of approximately 25, three-week courses. Courses vary by session but have included disciplines such as archaeology, cognitive science, game development, marine microbiology, neuroscience, philosophical ethics, sociology, bioinformatics, and mechanical and electrical engineering. Appendix A lists offerings for the 2016 program. Students also have the opportunity to enroll in SAT preparation to develop test-taking skills and to participate in supplementary daily workshops and study sessions. UC San Diego doctoral students design and teach the Research Studies. Research Scholar courses are led by UC San Diego faculty researchers, providing students the opportunity to work in research labs. Classes meet five hours a day, with a maximum of 22 students per class to ensure quality interaction with instructors and instructional assistants.

Participants in both programs live on-campus and experience firsthand what it's like to live in a college environment. Residence halls are managed by experienced and qualified staff with supervision being provided at all times by the Resident Dean, Assistant Resident Dean, office personnel and residential assistants. Students can also participate in recreational and social activities as well as off-campus excursions. These activities include arts and crafts, dances, music, sports, talent shows and more. All activities are planned and supervised by trained personnel.

## **CALIBER AND NUMBER OF STUDENT PARTICIPANTS**

### **Caliber of Participants**

Students wanting to participate in the Research Studies and Research Scholars programs must apply to be accepted. Applicants for the Research Studies component must have a weighted cumulative GPA of 3.3 or higher while those for the Research Scholars component must have a weighted cumulative GPA of 3.8 or higher. Applicants for both programs must provide a recommendation from a teacher or counselor. The average weighted cumulative GPA for students who attended the 2016 program was 3.79, illustrating academic ability.

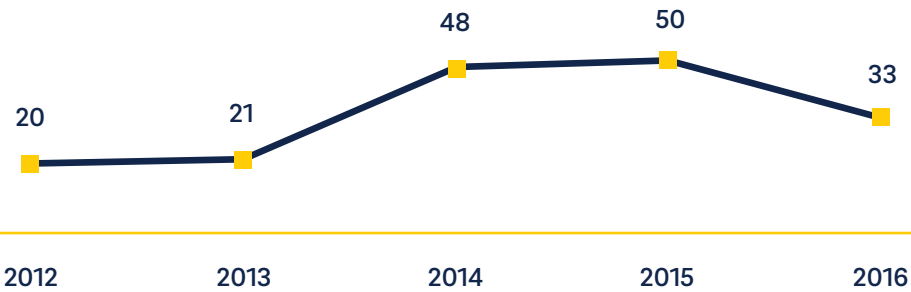
### **Number of Participants**

Figure 3 shows the number of students participating in Academic Connections from 2012 to 2016, demonstrating a 23 percent growth. The program continued to experience a steady increase in the number of participants, from 377 in 2015 to 445 in 2016. The establishment of partnerships with numerous nonprofits and community organizations has made Academic Connections accessible to more students. Similarly, a growing number of UC San Diego faculty participating in the Research Scholars component has led to the acceptance of more students, from 20 in 2012 to 33 in 2016.

Figure 3: Number of Participants by Year



Figure 4: Number of Research Scholars by Year



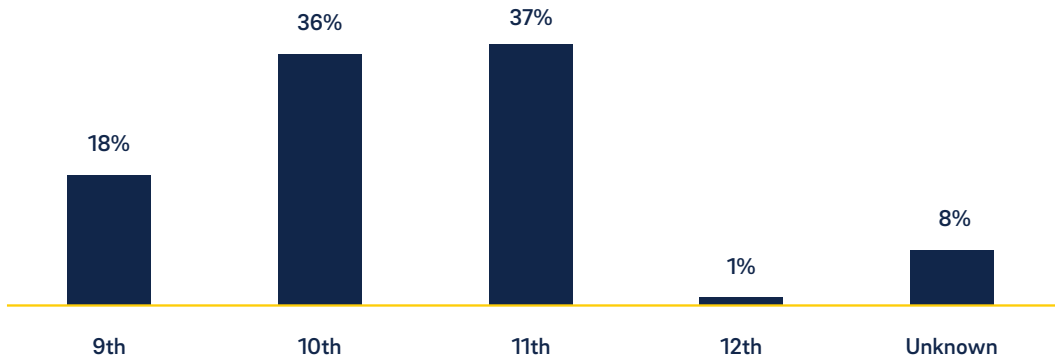
## DEMOGRAPHICS OF STUDENT PARTICIPANTS

### Grade Level of Participants

Students entering high school are eligible to enroll in Academic Connections. Figure 5 shows the breakdown of participants by reported grade levels for the 2016 program. Eighteen percent applied as freshmen, 36 percent as sophomores, 37 percent as juniors, and 1 percent as seniors. Suspect or missing data were categorized as unknown.<sup>1</sup>

<sup>1</sup> Applicants were asked to report their highest level of education during the application process. The research team was informed that a number of students inaccurately reported their grade levels and were thus categorized as unknown.

Figure 5: Academic Connections Participants by Grade Levels (N=445)



### Gender of Participants

A greater number of female than male students participated in Academic Connections (Figure 6). Four percent of participants did not report this data.

Figure 6: Academic Connections Participants by Gender (N=445)

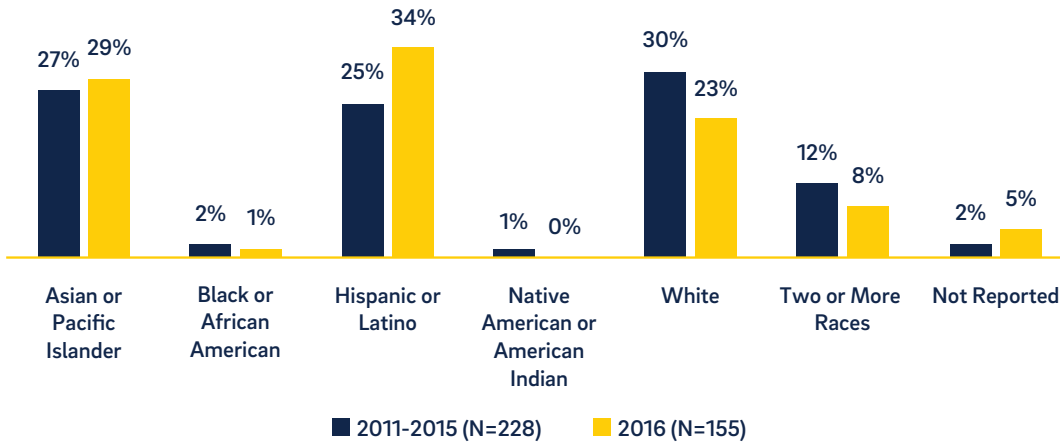




## Ethnicity of Participants

The research team distributed a follow-up survey to program participants to obtain additional demographic information. Figure 7 is a breakdown of participants by ethnicity. Responses illustrated a greater proportion of Hispanic or Latino and Asian or Pacific Islanders enrollment in 2016 compared to previous years.

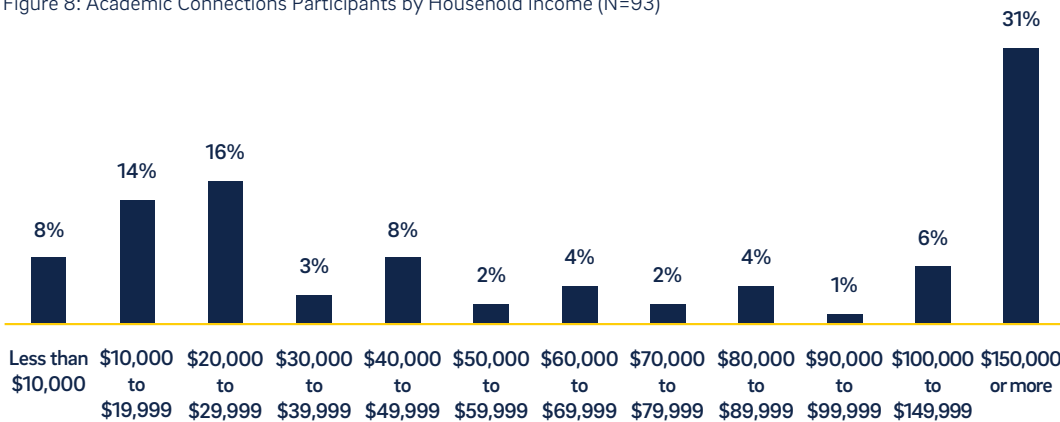
Figure 7: Participants by Ethnicity<sup>2</sup>



## Household Income

The follow-up survey also asked program participants to report their parents' annual household income (Figure 8). According to the Self-Sufficiency Standard, the required annual income for a family of two adults and one teenager to adequately meet basic necessities is \$43,354 in California and \$47,232 in San Diego County.<sup>3</sup> Approximately 41 percent of program participants did not meet San Diego County's Self-Sufficiency Standard. Alternatively, 37 percent of respondents reported an annual household income of \$100,000 or more. Forty percent of responses (N=62) were excluded from analysis.<sup>4</sup>

Figure 8: Academic Connections Participants by Household Income (N=93)



## Geographic Diversity of Participants

Participants originated from multiple geographic locations, demonstrating the growing reach of Academic Connections. Eighty percent of students were California residents, primarily residing in San Diego, San Jose, Cupertino, Carlsbad and Compton. The program also attracted a number of non-California residents from cities such as Chicago, Lafayette and Las Vegas. Additionally, international students from Mexico, China, South Africa and Spain attended Academic Connections. Figures 9, 10, and 11 illustrate the domestic geographic clusters of 2016 program participants.

Figure 9: Map of the United States

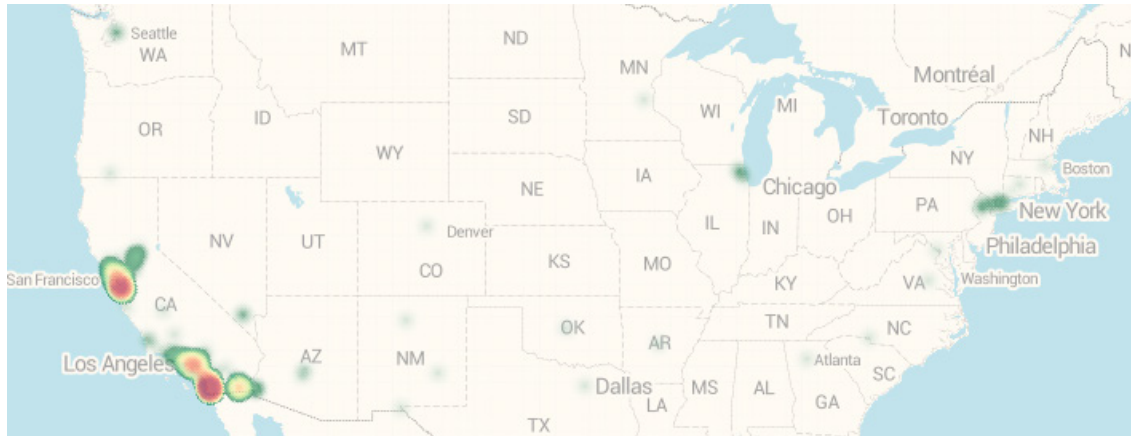


Figure 10: Map of North San Diego

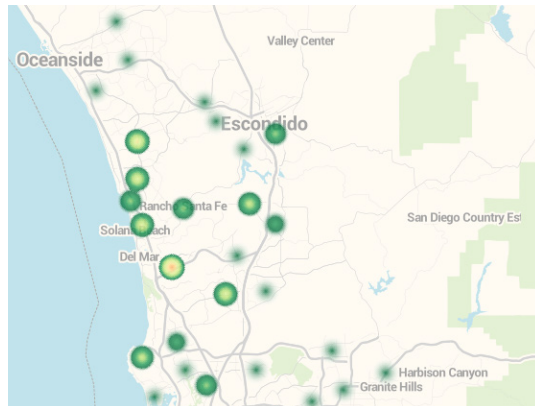
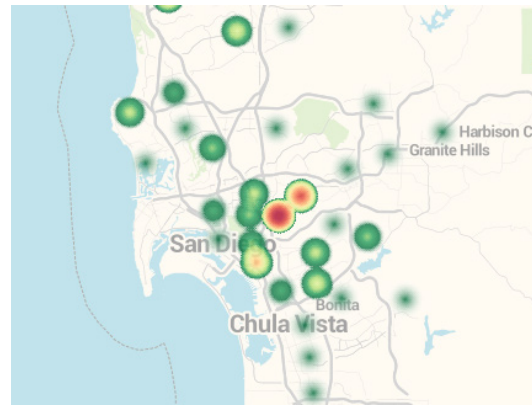


Figure 11: Map of South San Diego



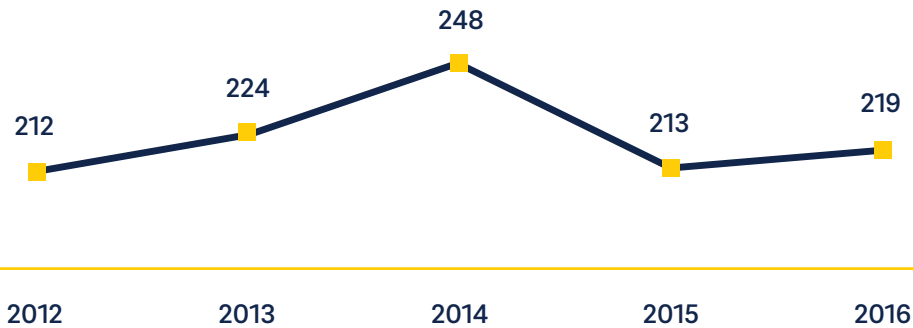
<sup>2</sup> Percentages may not equal 100 due to rounding.

<sup>3</sup> California Family Economic Self-Sufficiency Standard. (2014). Insight Center for Community Economic Development and Dr. Diana Pearce, Center for Women's Welfare, School of Social Work, University of Washington.

<sup>4</sup> Respondents answered 'Prefer not to answer/I don't know' and were thus excluded from analysis.

In addition to the various geographic locations, Academic Connections participants attended differing schools. Eighty percent attended public schools and 15 percent private. Approximately 1 percent of students were home-schooled. Figure 12 exhibits the number of individual schools represented in the program by year.<sup>5</sup> Schools with the largest representation of students in 2016 included Hoover High School, Sabes San Cristobal, Health Sciences High and Middle College, Torrey Pines High School and La Jolla High School.

Figure 12: Number of Individual Schools by Year



### PROGRAM FUNDING, COSTS AND PARTNERS

Academic Connections is a self-supported program that does not receive any state or federal funding. The Department will continue to solicit donors and funders to contribute to established on-campus endowment.

#### Program Costs

Tuition for Academic Connections varies based on the session (Figure 13). International students are required to pay \$5,500 for all programs. Fees include tuition, housing, meals, field trips and extra-curricular activities. Students can also request single rooms, airport shuttles or SAT preparation at an additional cost.

Figure 13: Program Costs

Program	Fee
San Diego	\$3,800
Hawaii	\$3,000
Arizona and New Mexico	\$2,700
San Diego/Washington, DC	\$4,600
International Students	\$5,500

<sup>5</sup> Number of individual schools based on data reported by students. This excludes home schooling.

## Scholarships and Partners

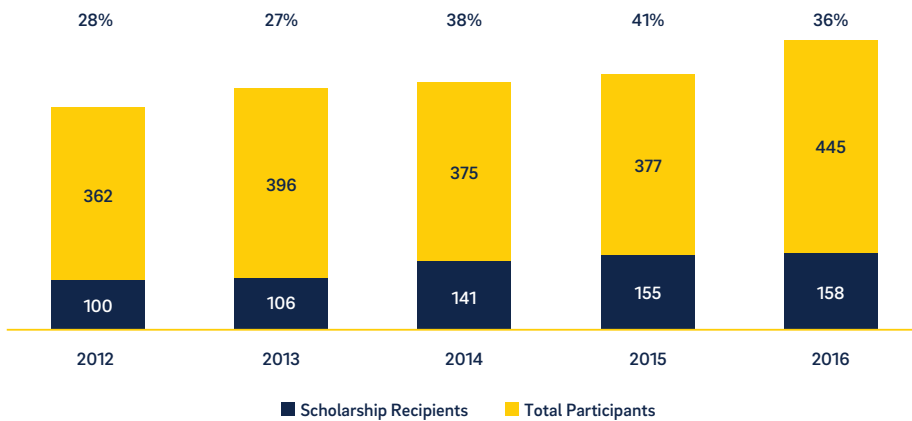
Academic Connections provides scholarships and financial assistance for underserved students in the community. From 2012 to 2016, 660 students received a total of \$1,386,886 in aid. Please refer to Figure 14.

Figure 14: Scholarships by Year



The program has provided financial assistance to 34 percent of attendees during the past five years. Figure 15 details the number of participants and the number of scholarship recipients by year. The program has endeavored to expand the availability of financial assistance to encourage participation of students from all segments of society. Scholarship funds are from donors and partnerships, as well as from students that can pay full tuition for the program.

Figure 15: Scholarship Recipients





Academic Connections has established fundamental partnerships with numerous nonprofit and community organizations. The following is a list of Academic Connections' key partners:

**Reality Changers** transforms lives, schools and communities by providing youth from disadvantaged backgrounds with the academic support, financial assistance and leadership training to become first-generation college students.

**Promises2Kids** is a nonprofit organization originally founded more than 30 years ago as the Child Abuse Prevention Foundation of San Diego County. Since 1981, Promises2Kids has responded to the needs of foster children and provided support to children removed from their home due to abuse and neglect.

**Barrio Logan College Institute** is located in Barrio Logan, a part of the San Diego community that is rich in both culture and pride but that is grossly underserved. Located in a traditionally low-income community BLCI promotes higher education as a ticket out of poverty. Working together with disadvantaged families, BLCI ensures that 100 percent of its students enroll in college. BLCI also helps students succeed in college programs across the nation.

**The Kohala Center** is an independent, community-based center for research, conservation and education. The center turns research and ancestral knowledge into action, so that communities in Hawai'i and around the world can thrive—ecologically, economically, culturally and socially.

**Life Sciences Summer Institute** nourishes a passion for science and math in San Diego's next generation of scientists. The program was created by San Diego Workforce Partnership in collaboration with BIOCUM and the Southern California Biotechnology Center at Miramar College to strengthen science and math education in San Diego County and develop a future workforce for the region's burgeoning life sciences industry.

**The Preuss School** is a unique charter middle and high school for low-income students who strive to become the first in their families to graduate from college. Located on the UC San Diego campus, students come from throughout San Diego County to take advantage of an environment that encourages intellectual risk-taking while offering an array of academic support.

**The Viejas & Sycuan Bands of the Kumeyaay Nation** is one of the remaining 12 bands of the Kumeyaay Indian Nation, residing on a 1,600-acre reservation in the Viejas Valley, east of the community of Alpine in San Diego County, California.

**The University of Hawai'i, Hilo** is located on the Big Island of Hawai'i, the largest island in the Hawaiian Archipelago. UC San Diego and the University of Hawai'i, Hilo have been collaborating to provide high-achieving high school students the opportunity to work hand-in-hand with prominent faculty researchers and graduate students around the Big Island of Hawai'i, exploring the causes and effects of climate change on earth's systems.

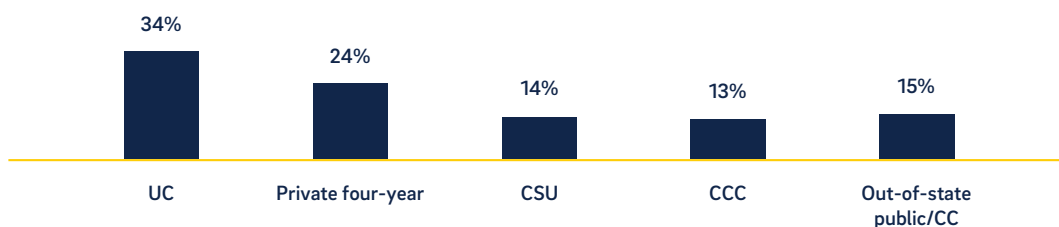
**University of Arizona** is a public research university in Tucson, Arizona. UC San Diego and the University of Arizona have been collaborating to provide high-achieving high school students the opportunity to work hand-in-hand with prominent faculty researchers and graduate students in the biomes and labs of the Biosphere 2 complex, exploring causes and effects of climate change on earth's systems.

## ACADEMIC DEVELOPMENT

### Enrollment in Higher Education

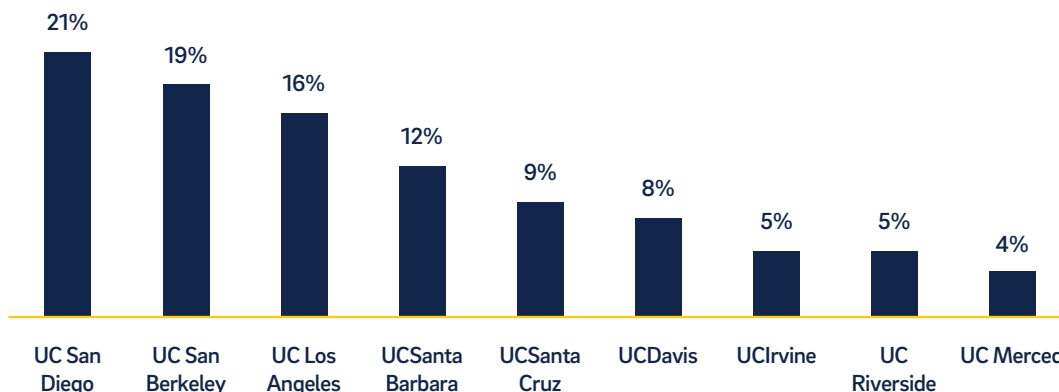
Of the 1,722 students that participated in Academic Connections from 2012 to 2016, UC San Diego Extension obtained higher education enrollment data for 881 students.<sup>6</sup> The research team used National Student Clearinghouse, a database that provides student enrollment and degree verification for colleges and universities in the United States. Of the program participants enrolled in higher education, 34 percent enrolled at UC campuses, 24 percent at private universities, 14 percent at California State University campuses and 13 percent at California community college campuses. Fourteen percent enrolled in out-of-state public two-year or four-year institutions; 6 percent attended two-year and 94 percent four-year institutions. Findings illustrate that nearly 69 percent of participants attended institutions in California.

Figure 16: Higher Education Destinations (N=881)



Among those enrolled at UC campuses, 21 percent enrolled at UC San Diego, 19 percent at UC Berkeley, 16 percent at UC Los Angeles, 12 percent at UC Santa Barbara, 9 percent at UC Santa Cruz, 8 percent at UC Davis, 5 percent at UC Irvine, 5 percent at UC Riverside, and 4 percent at UC Merced

Figure 17: UC Higher Education Destinations (N=303)



After UC and CSU, the top fifteen universities at which Academic Connections participants most often enrolled were: 1) University of Southern California, 2) New York University, 3) University of Washington at Seattle, 4) University of Oregon, 5) University of San Diego, 6) Johns Hopkins University, 7) Purdue University at West Lafayette, 8) University of Colorado at Boulder, 9) University of Illinois at Urbana, 10) Santa Clara University, 11) University of Arizona, 12) University of Texas at Boulder, 13) Arizona State University, 14) Chapman University and 15) Lewis & Clark College.

<sup>6</sup> Higher education enrollment data unavailable for individuals: 1) still attending middle or high school; 2) that opted out of disclosing information with third parties; and 3) not pursuing a higher education degree.

## **PROGRAM EVALUATION**

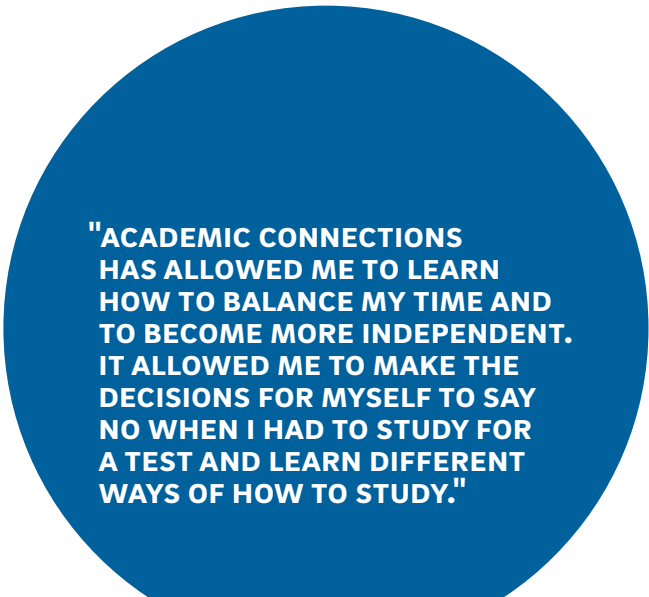
### **Student Satisfaction**

A survey was distributed to program participants to better understand the value and impact of Academic Connections. Nearly 96 percent of respondents perceived the program as academically valuable. Students explained that the program provided exposure to college coursework and expectations as well as the environment, better preparing them for enrollment in higher education. Many also described learning the importance of effective time management, communication and organizational skills.


In addition to acquiring the aforementioned soft skills, many learned how to accurately conduct scientific research and obtained technical skill sets applicable to coursework in high school. Survey responses indicated that 97 percent of participants believed the program influenced their overall educational goals, with 45 percent reporting a significant impact. Academic Connections introduced students to various careers, helped determine and set both academic and career goals, and influenced their choice of study and school when applying to colleges and/or universities.

Ninety-nine percent believed that Academic Connections was an overall valuable opportunity and 97 percent would recommend the program to others. The program experienced an increase in student satisfaction compared to the survey responses of 2011 to 2015 participants. Eighty-four percent would be inclined to participate in Academic Connections had they been making the decision today.

Students also submitted course evaluations shortly after completing program courses. Respondents were asked whether they were satisfied with their experiences. Ninety-seven percent of respondents were pleased with the course and instructor, illustrating a growing degree of satisfaction compared to previous years.



**"ACADEMIC CONNECTIONS HAS ALLOWED ME TO LEARN HOW TO BALANCE MY TIME AND TO BECOME MORE INDEPENDENT. IT ALLOWED ME TO MAKE THE DECISIONS FOR MYSELF TO SAY NO WHEN I HAD TO STUDY FOR A TEST AND LEARN DIFFERENT WAYS OF HOW TO STUDY."**



**"IT HAS ALLOWED ME TO EXPERIENCE AN ABBREVIATED VERSION OF A COLLEGE COURSE FOR THREE WEEKS AND HAS SET A PRECEDENT FOR FUTURE COLLEGE COURSES AS WELL AS CURRENT ONES."**

## COLLEGE CREDIT

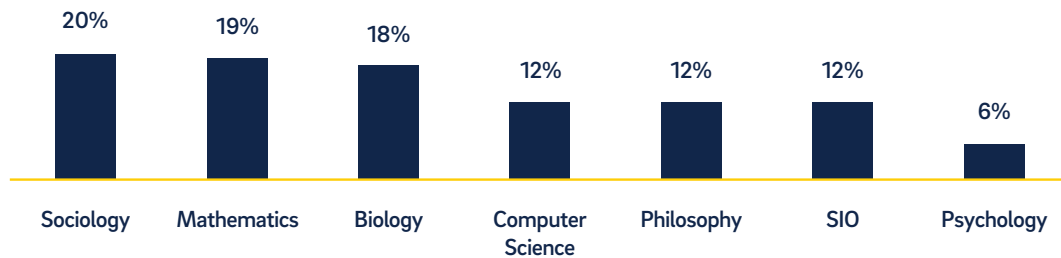
### Program Description

College Credit allows qualified high school students to enroll in lower division UC San Diego courses for college credit. These courses are equivalent to a main campus undergraduate course and are transferable for units/subject credits toward a bachelor's degree at all UC campuses. Students are eligible for enrollment as long as course prerequisites have successfully been met.

The benefits of this initiative include: (1) providing the opportunity for students to explore and learn about their academic interests, (2) increasing the number of college credits students can obtain while still in high school, (3) making higher education more accessible, affordable and attractive by bridging the divide between high school and college, (4) facilitating the transition of motivated students to higher education, (5) creating an outreach mechanism to the broader San Diego region and (6) challenging talented high school students to use their academic year in a more productive manner.

As of 2016, 14 courses in various disciplines have been approved for College Credit. Of the students who participated in the program during the 2015–16 academic year, 20 percent enrolled in sociology courses followed by mathematics and biology. Courses are taught by UC San Diego graduate or doctoral students vetted by UC San Diego. Each course has an average of 31 students, with class sizes ranging from 11 to 69.

Figure 18: Distribution of Students per Discipline (N=532)<sup>9</sup>



Students completed evaluations for courses taken during the College Credit program. Respondents were asked whether they were satisfied with their experiences in the program. Ninety-three percent of respondents were satisfied with the course and 95 percent with the instructor for the academic year. Student course satisfaction experienced a 1 percent decline compared to previous years.

<sup>9</sup> Percentages may not equal 100 percent due to rounding.

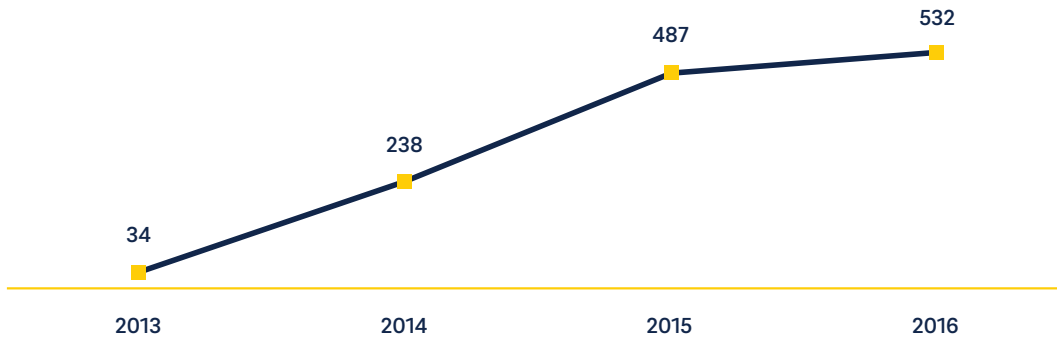


## NUMBER AND DEMOGRAPHICS OF STUDENT PARTICIPANTS

### Number of Participants

The College Credit program continued to experience a significant growth in the number of participants, from 34 students in 2013 to 532 in 2016. Figure 19 shows the number of participants by year.

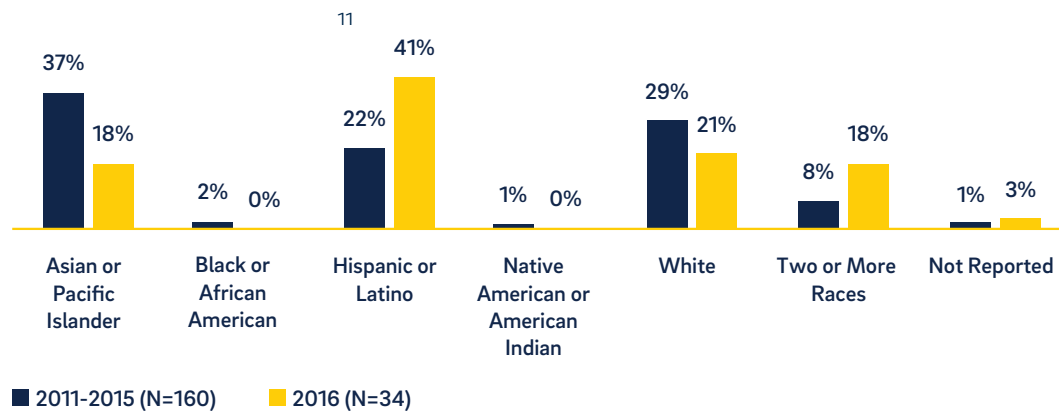
Figure 19: Number of Participants by Year



### Demographics of Participants

Students who enrolled in College Credit were given a follow-up survey to obtain additional demographic information.<sup>10</sup> Figure 20 is a breakdown of participants by ethnicity.

Figure 20: Participants by Ethnicity <sup>11</sup>



<sup>10</sup> Only students who directly signed up for College Credit via Extension were sent the follow-up survey, as the research team did not have access to the e-mail addresses of other participants.

<sup>11</sup> Percentages may not equal 100 due to rounding.

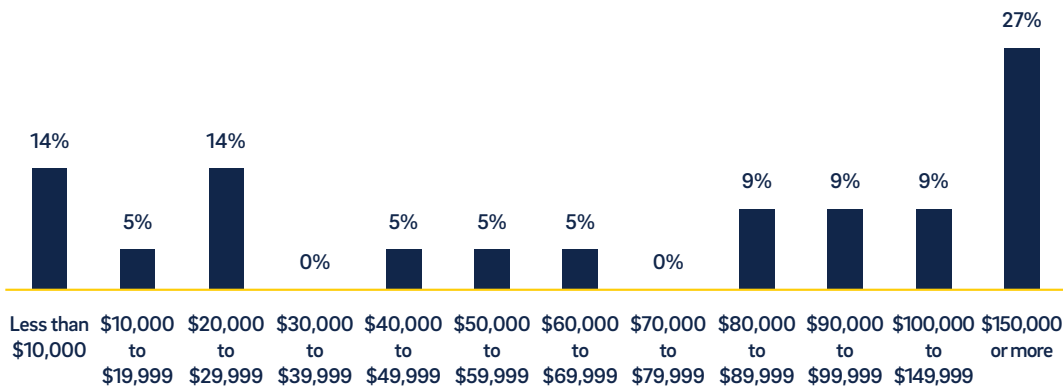
## COLLEGE READINESS FACTORS

Annual household income and parental educational attainment significantly impact the quality of academic achievement and college readiness in children.<sup>12</sup> According to a study conducted by the U.S. Department of Education, children with parents who have a higher level of educational attainment score better on the National Assessment of Educational Progress compared to their counterparts. Other long-term implications on children include a greater likelihood of pursuing higher education and prestigious occupational prospects.<sup>13</sup> By distributing a follow-up survey, the research team obtained information about students' annual household income and parental educational attainment levels to assess college readiness.

### Household Income

Students were asked to report their parents' annual household income to better understand the socioeconomic landscape of program participants and to assess college readiness (Figure 21). According to the Self-Sufficiency Standard, the required annual income for a family of two adults and one teenager to adequately meet basic necessities is \$43,354 in California and \$47,232 in San Diego County.<sup>14</sup> Nearly one-third of participants had a household income lower than San Diego County's Self-Sufficiency Standard; 36 percent had an income of \$100,000 or greater. Thirty-five percent of responses (N=12) were excluded from analysis.<sup>15</sup>

Figure 21: Participants by Household Income (N=22)



<sup>12</sup> Aud, S., Fox, M., and KewalRamani, A. (2010). Status and Trends in the Education of Racial and Ethnic Groups 2010 (NCES 2010-015). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

<sup>13</sup> Dubow, Eric F., Paul Boxer, and L. Rowell Huesmann. "Long-Term Effects of Parents' Education on Children's Educational and Occupational Success: Mediation by Family Interactions, Child Aggression, and Teenage Aspirations." *Merrill-Palmer quarterly* (Wayne State University. Press) 55.3 (2009): 224-249.PMC. Web. 6 Oct. 2016.

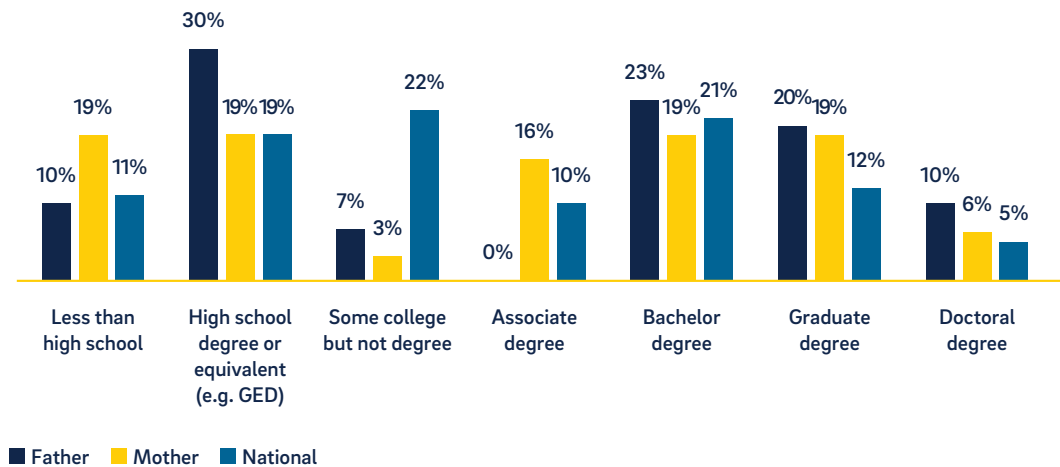
<sup>14</sup> California Family Economic Self-Sufficiency Standard. (2014). Insight Center for Community Economic Development and Dr. Diana Pearce, Center for Women's Welfare, School of Social Work, University of Washington.

<sup>15</sup> Respondents answered "Prefer not to answer/I don't know" and were thus excluded from analysis.

## Educational Attainment of Parents

More than 50 percent of fathers and 44 percent of mothers obtained a bachelor's degree or higher compared to 38 percent nationwide. Nine percent of responses were excluded from analysis.<sup>16</sup>

Figure 22: Highest Level of Educational Attainment of Parents (Father N=30, Mother N=32)<sup>17</sup>



## PROGRAM COSTS AND PARTNERS

Tuition for the College Credit program varies based on enrollment options. Students attending schools outside of the San Diego Unified School District are charged \$400 per course. Alternatively, students attending select high schools within the District are eligible to register at no cost. UC San Diego Extension established a partnership with the San Diego Unified School District in Fall 2015 charging \$10,000 per contract course. These contract courses are hosted at the sites of participating schools for students to attend.

<sup>16</sup> Respondents answered 'Prefer not to answer/I don't know' and were thus excluded from analysis.

<sup>17</sup> National data obtained from U.S. Department of Commerce, Census Bureau, American Community Survey (ACS), 2014. Digest of Education Statistics 2015, table 104.70.

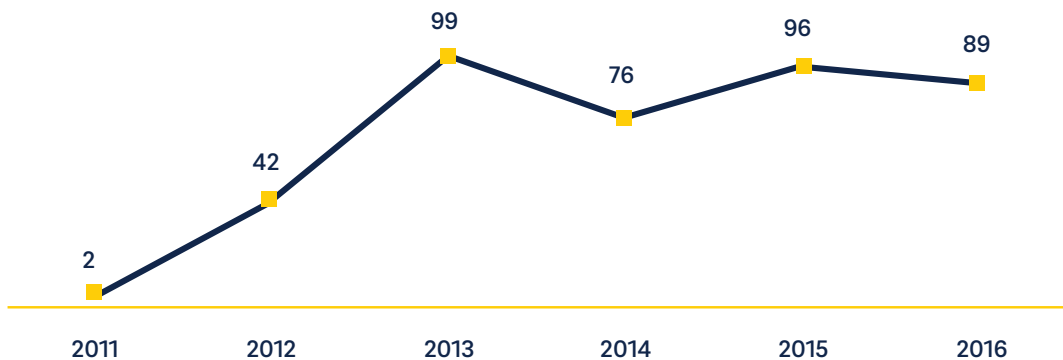
## TEST PREP

### Program Description

The Test Prep program equips high school and undergraduate students with effective test preparation in a condensed amount of time. Courses focus on topics that impact results and provide students with effective test-taking strategies designed to increase scores. Extension offers sessions for the following standardized tests: ACT, SAT, GRE, GMAT, LSAT and MCAT.

Figure 23 shows the number of courses offered by year, from two in 2011 to 89 in 2016.

Figure 23: Number of Courses by Year

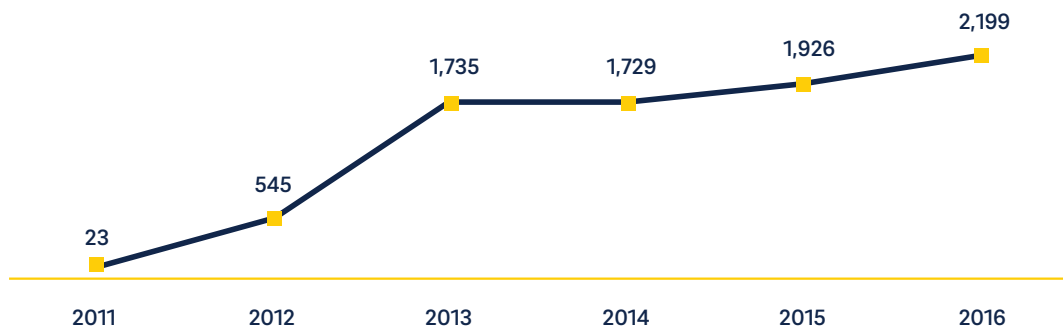


## NUMBER AND DEMOGRAPHICS OF STUDENT PARTICIPANTS

### Number of Participants

The program continued to progressively enroll a greater number of participants, experiencing a 14 percent growth in students from 1,926 in 2015 to 2,199 in 2016. Enrollments sharply increased from 2011 to 2013 as Test Prep became available to students outside of Academic Connections. Additionally, the establishment of two contracts with the San Diego Unified School District has augmented the number of participants.

Figure 24: Number of Participants by Year



Of the 2,199 students who participated in Test Prep, 600 students were emailed a survey asking demographic and college readiness factors.<sup>18</sup> Of the 600 students that were emailed, 35 students responded to the survey.

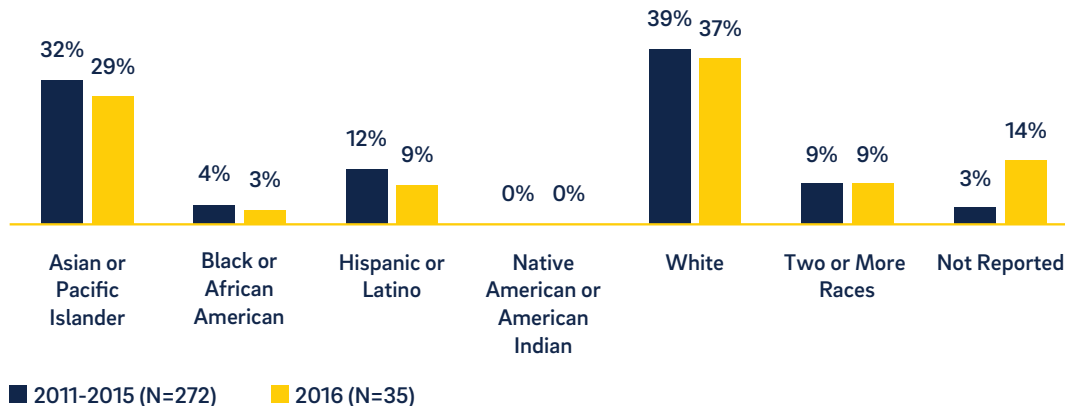
<sup>18</sup> Only students who directly signed up for Test Prep via Extension were sent this evaluation, as the research team did not have access to the e-mail addresses of other participants.



## Demographics of Participants

Students who enrolled in Test Prep were distributed a follow-up survey to obtain additional demographic information.<sup>19</sup> Figure 25 is a breakdown of participants by ethnicity.

Figure 25: Participants by Ethnicity<sup>20</sup>



## PROGRAM FUNDING, COSTS AND PARTNERS

### Program Costs

Tuition for Test Prep varies based on the method of enrollment. Students independently pursuing SAT and/or ACT test preparation outside of participating schools are required to pay \$325 per course. Similarly, undergraduates pursuing sessions must pay \$500 for each course. Alternatively, students attending select high schools within the San Diego Unified School District are eligible for enrollment in preparatory courses at no cost. UC San Diego Extension has established two contracts with the District; a 21st Century Grant for a limited number of schools in Fall 2015 and a contract of \$300,000 beginning Fall 2016. The District pays \$3,000 per course, with a maximum enrollment of 30 students. Active UC San Diego undergraduate students can also register for Test Prep courses at no cost under UC San Diego’s Student Grant Program.

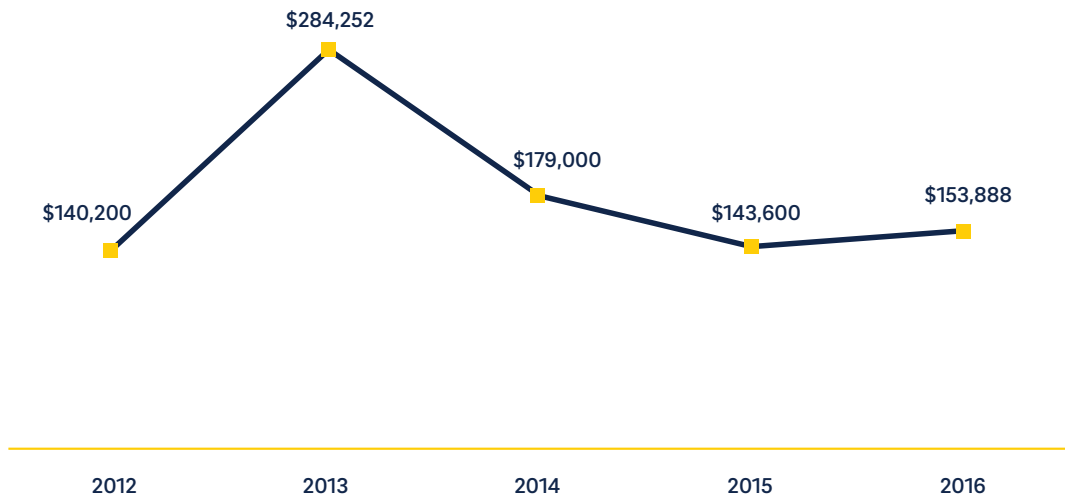
<sup>19</sup> Only students who directly signed up for Test Prep via Extension were sent the follow-up survey, as the research team did not have access to the e-mail addresses of other participants.

<sup>20</sup> Percentages may not equal 100 due to rounding. 2014. Digest of Education Statistics 2015, table 104.70.

## Scholarships and Partners

Figure 26 shows scholarships awarded by year. These scholarships make Test Prep more accessible to San Diego’s students and provide individuals of all socioeconomic backgrounds greater opportunities for preparation. Grants also help undergraduate students better prepare for admission to graduate programs.

Figure 26: Scholarship Amounts by Year



## PROGRAM SATISFACTION

### Student Satisfaction (N=35)

Sixty-six percent of survey respondents believed that the Test Prep program was valuable. Students believed the program enabled them to better understand the content of the tests, acquire effective test-taking strategies and have the opportunity to complete practice tests. Students also mentioned learning tips and techniques to answer questions more efficiently and effectively. While students found the courses valuable for myriad reasons, the overwhelming majority thought the value of the program stemmed from its focus on teaching effective test-taking strategies and approaches.

Figure 27 provides a breakdown of programmatic outcomes. Sixty-five percent of respondents felt more prepared to take the exam and 62 percent felt more confident. Only 36 percent reported experiencing an improvement in score.

Figure 27: Programmatic Outcomes



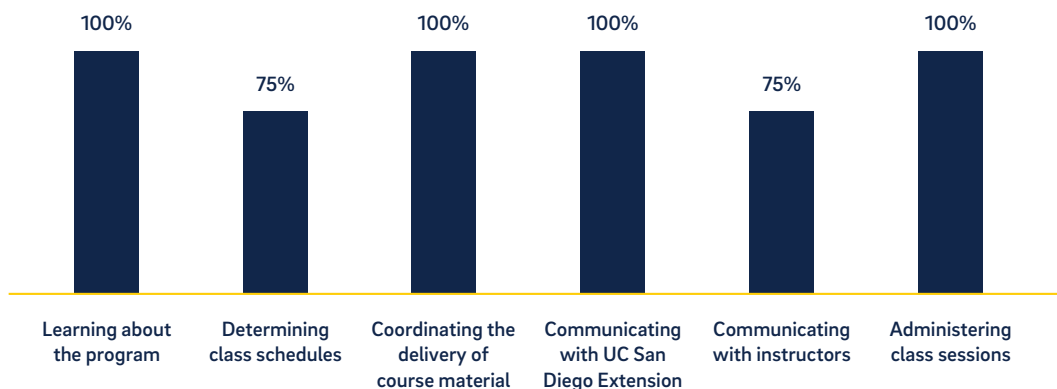
Overall, 69 percent of students would recommend the Test Prep program to others. Furthermore, students were asked to complete an evaluation immediately upon completion of the course. This evaluation was only available to students who pursued independent enrollment.<sup>21</sup> Participants were asked whether they were satisfied with their experiences in the program. Seventy-seven percent of respondents were satisfied with the course and 83 percent with the instructor.<sup>22,23</sup> Course and instructor satisfaction experienced a 5 percent and 2 percent decline, respectively, compared to previous years.

### Administrator Satisfaction

Schools that offered contract Test Prep courses were surveyed to better understand administrator satisfaction and program value. There were nine program administrators for the 2015-16 academic year, of those, four responded to a survey asking about their experience. All survey respondents found Test Prep valuable, and 75 percent would recommend the program to others. Administrators believed that the program provided students with exposure to the types of questions found on the test and equipped them with the skills to solve various problems. All administrators perceived that participating students desired to learn the material and gained confidence in test-taking strategies. Seventy-five percent believed that students put forth effort and developed effective study methods. Fifty percent of respondents thought students were excited to take the course and experienced improvement in test scores.

In addition to student outcomes, administrators were asked to rate a series of statements regarding the ease of program implementation (Figure 28). Respondents were asked to rate the level of ease on a scale from 1 to 5, with 1 being extremely difficult and 5 being extremely easy. Ratings were translated into percentages. Responses of 'somewhat easy' and 'extremely easy' are denoted below. Additionally, administrators positively rated their perception of UC San Diego, a mean score of 4.3 out of 5.0.

Figure 28: Ease of Implementation Rating (N=4)



<sup>21</sup> N=729

<sup>22</sup> Responses were translated into percentages for the report.

<sup>23</sup> Only students who directly signed up for Test Prep via Extension were sent this evaluation, as the research team did not have access to the e-mail addresses of other participants.

# LAUNCH

## Program Description

The LAUNCH program provides UC San Diego undergraduate students the opportunity to pursue and complete any UC San Diego Extension certificate through concurrent enrollment in their junior and/or senior year. By participating, full-time undergraduate students learn marketable skills necessary for success in today's competitive job market. The program complements a student's undergraduate study and transition into the workforce upon graduation.

In addition to acquiring practical and technical skill sets, students also develop essential soft skills by working with a coach who acts as a mentor throughout the program. These meetings occur quarterly to help participants plan and prepare themselves with the skills, knowledge and abilities that will make the difference in landing that all-important first job upon graduation. Some of these abilities include:

- Communication on a personal and group level—electronically, in print and face-to-face
- Research and analysis to find and interpret information about companies and jobs
- Networking with employers, working professionals and alumni
- Attitudes and expectations regarding work that makes students a desirable new hire

This program enables students to obtain tangible and practical industry knowledge, communicate and network with working professionals during class sessions and increase confidence through mentorship. All of these programmatic facets will help participating students become more competitive job candidates.

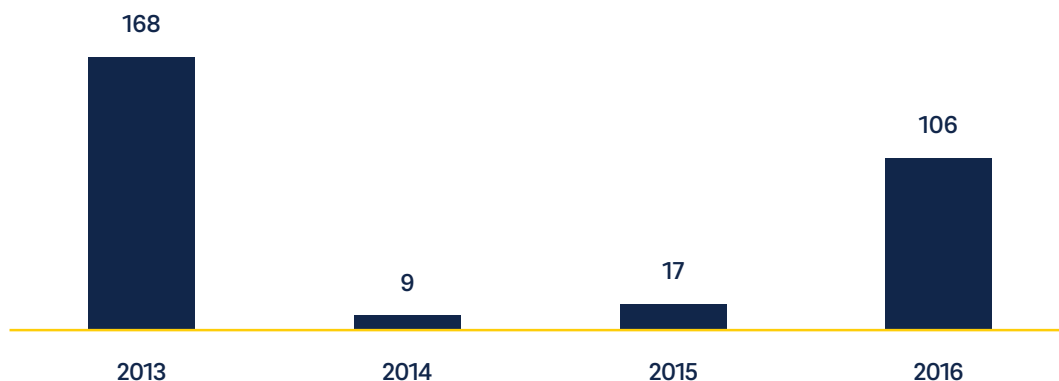
Students enrolled in LAUNCH are required to complete the Extension certificate even if it is after their graduation from UC San Diego. Students are also encouraged to participate in data gathering via surveys.

## NUMBER AND DEMOGRAPHICS OF STUDENT PARTICIPANTS

### Number of Participants

At any one time, 200 students can be enrolled in the LAUNCH program. There are currently 137 students enrolled in 38 different Extension certificate programs. Figure 29 lists the number of students accepted into the program by year.

Figure 29: Number of Student Acceptances by Year



Certificates with the greatest active enrollments include: 1) Teaching English as a Foreign Language (TEFL), 2) User Experience (UX) Design, 3) Paralegal, 4) Business Intelligence Analysis and 5) Marketing.



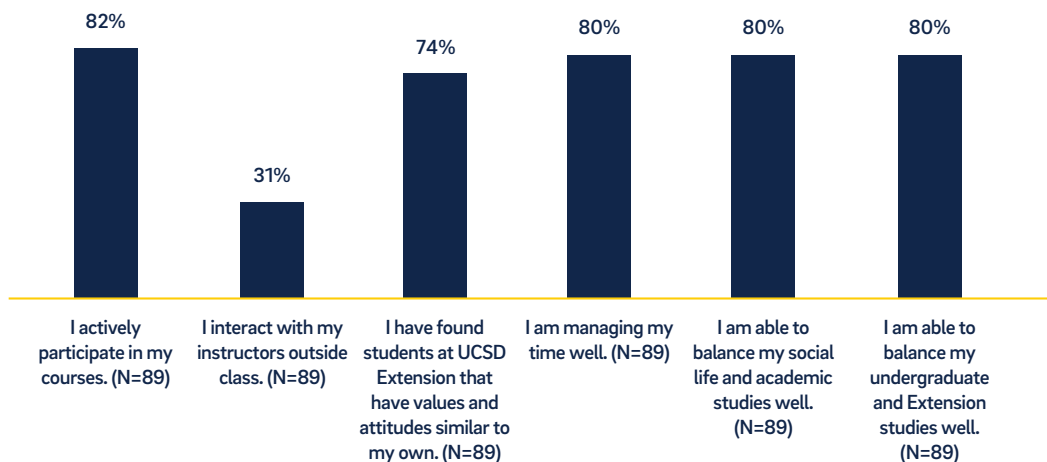
## Employment Readiness

Students participating in the LAUNCH program are encouraged to complete a mid-assessment and a post-two year survey to better understand the value and impact of the program on their career trajectories.

Ninety-six percent of survey respondents believed that the courses at Extension were preparing them for the workplace. Additionally, 39 percent reported that their thoughts about the industry and specific position they wish to pursue in their career changed since enrolling in the program. Students were able to obtain additional information about their field of interest, gain insight on areas in which they were previously uninformed and/or misinformed, and learn about new careers. Students also mentioned gaining a more realistic understanding of career paths and needed skill sets to succeed in the workforce.

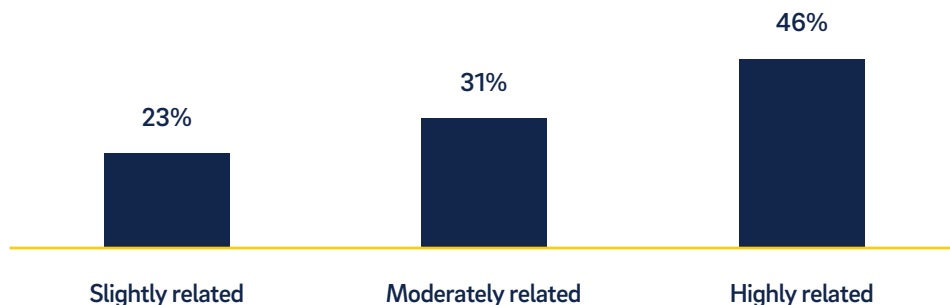
Students were asked a series of questions to gauge their level of involvement and participation in the LAUNCH program (Figure 30). Eighty-two percent of respondents actively participated in courses. Additionally, 80 percent were able to successfully manage their time, balance their social life and academic studies, and balance their undergraduate and Extension studies. Responses indicate that students were largely able to actively participate in the program while managing academic studies and extracurricular activities.

Figure 30: Level of Involvement and Participation in LAUNCH Program



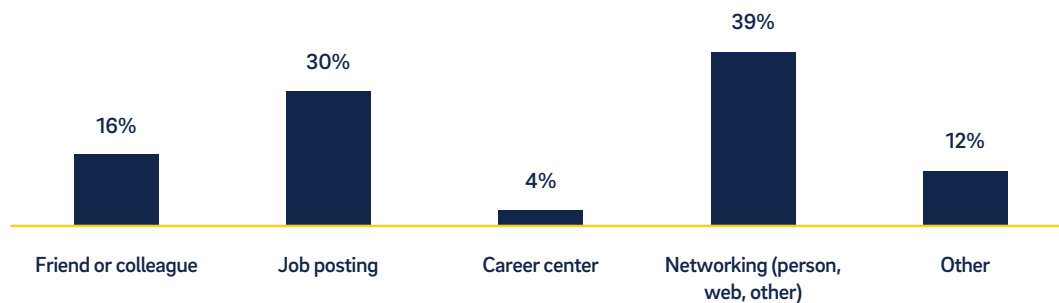
The survey also asked a series of questions regarding employment upon completing the program and graduating from UC San Diego. Forty-six percent of respondents indicated that their occupation at the time of the survey was highly related to the occupation they had planned to pursue after graduating university.

Figure 31: (N=48)



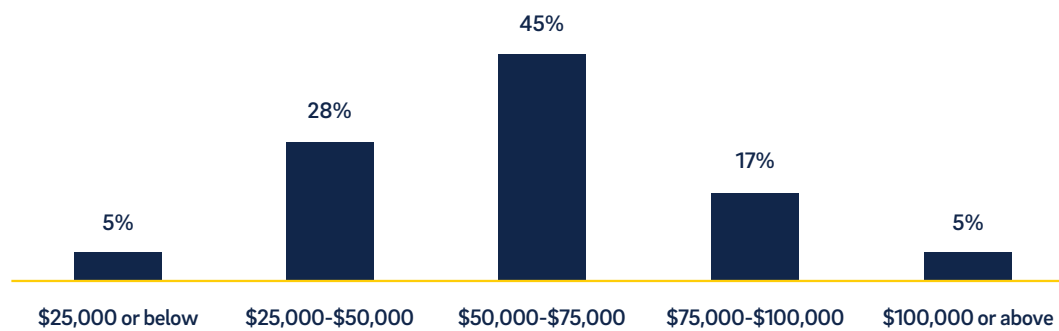
Nearly 40 percent of respondents obtained their employment at the time through networking (Figure 32). Some students mentioned discovering opportunities by networking in Extension courses.

Figure 32: Method of Obtaining Employment (N=57)



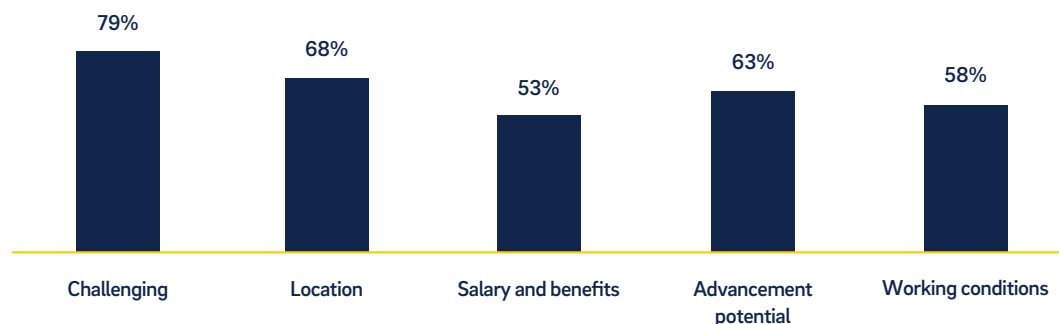
Approximately 58 percent of survey respondents had one full-time job since completing the program, followed by a quarter percent with two full-time jobs and 18 percent with three full-time jobs. Students also reported their income level at the time of completing the survey. Figure 33 shows a breakdown of income levels. Thirty-three percent of students believed that the program enabled them to reach their desired income level upon graduation.<sup>24</sup>

Figure 33: Personal Income Levels (N=58)



Respondents were asked to rate the level of satisfaction with their job at the time of the survey. Figure 34 shows a breakdown of responses by element. Respondents were most satisfied with the degree of challenge at work, with 79 percent selecting satisfied and very satisfied. Alternatively, individuals were least satisfied with the salary and benefits of their position.

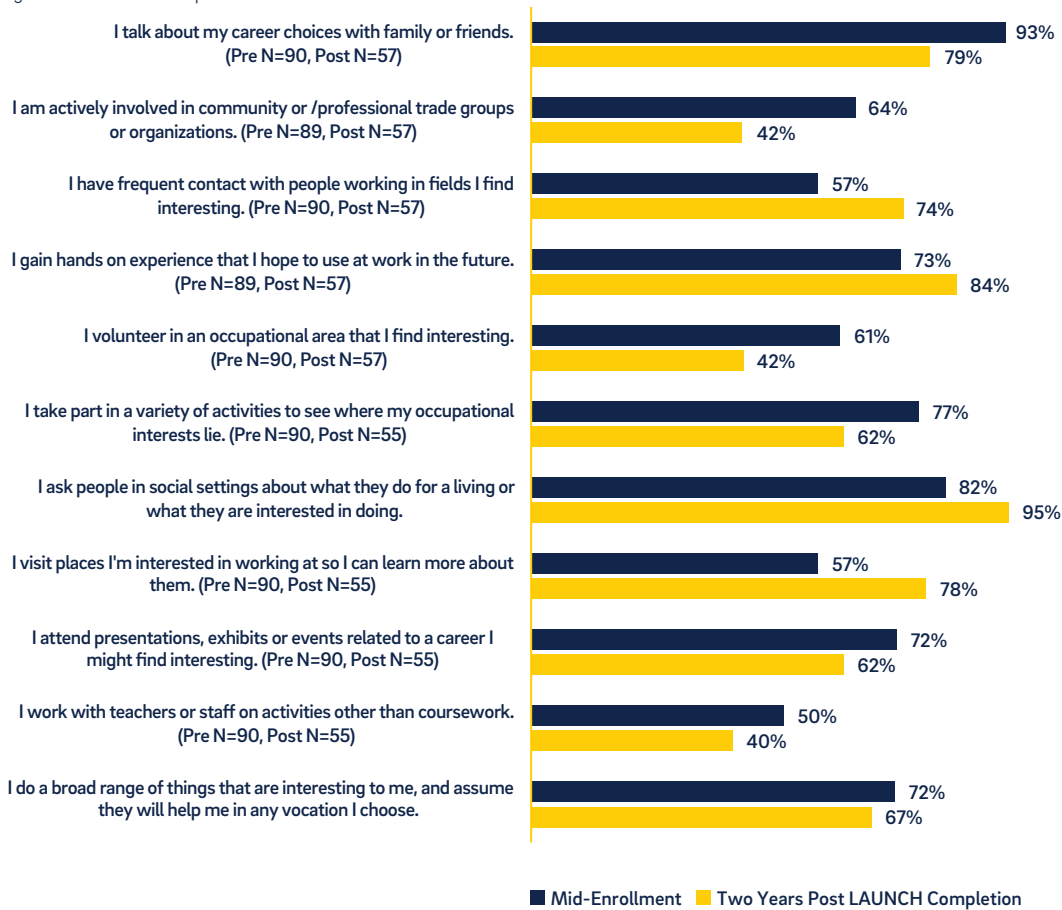
Figure 34: Level of Satisfaction with Job Elements (N=57)



<sup>24</sup> N=58

UC San Diego Extension measured students' level of occupational pursuit during their enrollment in the LAUNCH program and from a vantage of two years out. Figure 35 shows responses by statement. Findings indicate that respondents were less likely to participate in activities relating to occupational pursuit two years after completing the program compared to during enrollment. However, a greater proportion of respondents indicated frequent contact with individuals working in their field of interest, obtaining hands-on experience that they hope to use at work in the future, and asking people in a social setting about their work was helpful. Findings illustrate that many participants continued to work towards developing their skills and knowledge, as well as build networks in their industry of interest.

Figure 35: Level of Occupational Pursuit



## PROGRAM FUNDING, COSTS, AND PARTNERS

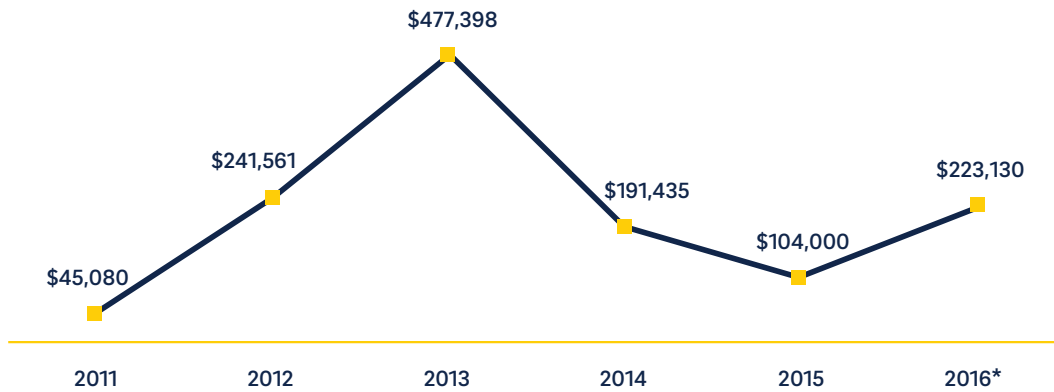
### Program Costs

The LAUNCH program covers tuition for all UC San Diego Extension certificates, coaching services and skill workshops. Upon acceptance into the program, undergraduate students receive a subsidy award from Extension's Student Grant program. Students are responsible for purchasing textbooks, required course material and the \$60 certificate fee at the beginning of the program.

### Scholarships

Figure 36 shows scholarships awarded to undergraduate students by year. These funds were used to offer Extension certificates at no cost to participating students.

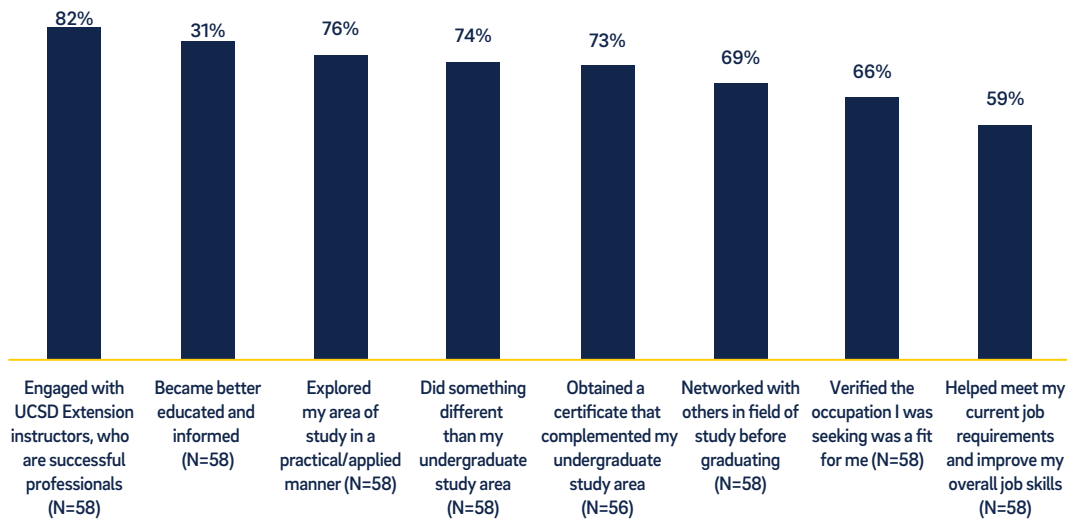
Figure 36: Grants by Year



### Student Satisfaction

The majority of survey respondents believed that the LAUNCH program was a valuable experience that equipped them with the knowledge and skill sets to transition into the workforce. Students were asked to rate a series of statements, from a vantage of two year out, to better understand the impact of the program. Figure 37 shows the percentage of “agree” and “strongly agree” responses for each statement. Eighty-three percent of respondents believed that the LAUNCH program enabled engagement with Extension instructors. Over 75 percent became better educated and informed, explored their area of study in a practical and applied manner and did something different than their undergraduate study area. Students said gaining insight and direction from course instructors helped secure a job upon graduation. One student was able to network during the program and obtain a job opportunity. Fifty-two percent of students believed the LAUNCH program was key in obtaining a job after graduation.<sup>25</sup>

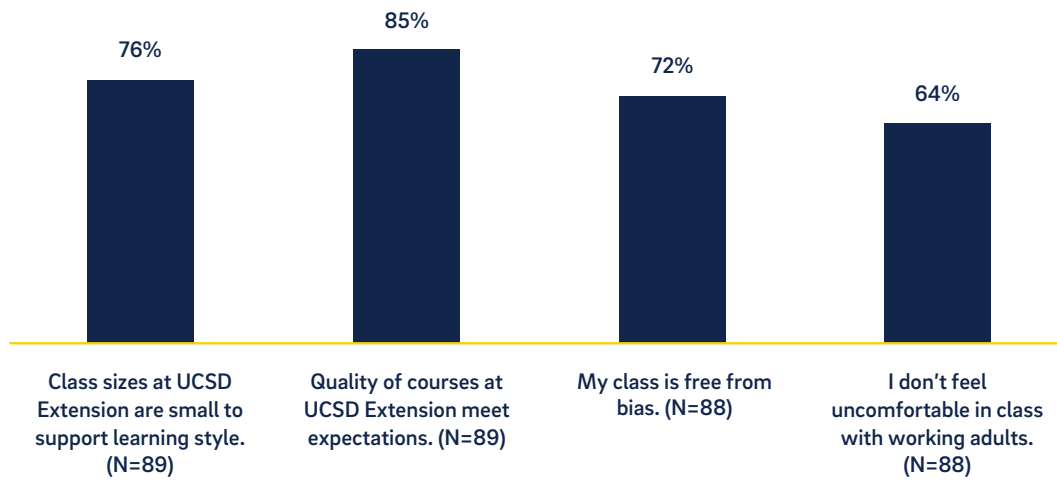
Figure 37: Value and Impact of LAUNCH Program



<sup>25</sup> N=58

Additionally, participants rated Extension’s learning environment (Figure 38). Eighty-five percent of respondents believed that the quality of courses met their expectations. Seventy-six percent voiced that the smaller class sizes supported their learning style; respondents appreciated the interactive format of Extension classes and mentioned learning from the personal experiences of classmates.

Figure 38: Learning Environment



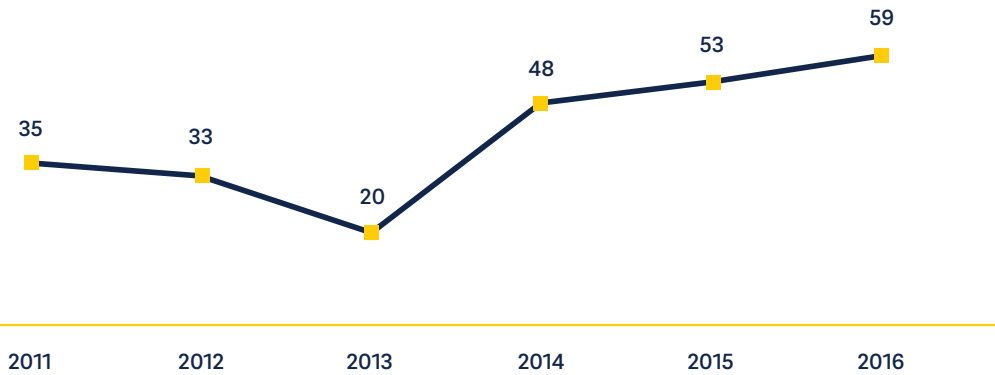


# STE[+A]M™

## PROGRAM DESCRIPTION

The STE[+a]M™ program is an innovative approach to student learning with the goal to foster and promote creativity in solving problems while also equipping students with key skills, knowledge and abilities needed in the workforce. The foundation of the program is based on the use of both sides of the brain where convergent and divergent thinking occur. Extension offers courses in a variety of disciplines, such as biology, computer science, humanities, mathematics and political science to achieve said goal. Participants can also attend workshops and events focusing on public speaking to job preparation. Elementary, middle and high school students are eligible to enroll in STEAM courses. There has been a 69 percent growth in the number of courses available through the program from 2011 to 2016 (Figure 39). The program anticipates a greater number of course offerings moving forward due to the San Diego Public Library partnership

Figure 39: Number of Courses



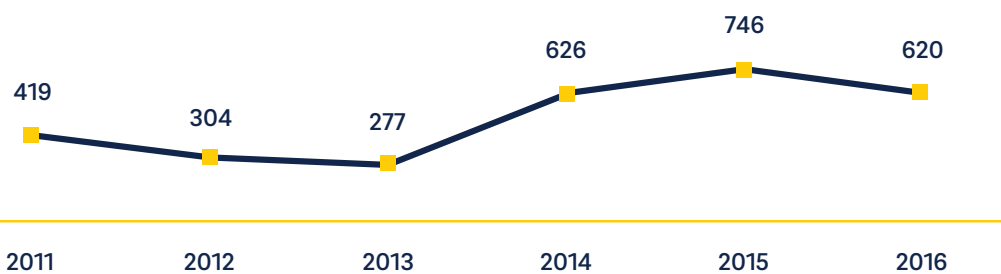
Students completed evaluations for courses taken during the STEAM program. Respondents were asked whether they were satisfied with their experiences. Ninety-three percent of respondents were satisfied with the course and 93 percent with the instructor for the academic year.<sup>26</sup>

## NUMBER AND DEMOGRAPHICS OF STUDENT PARTICIPANTS

### Number of Participants

The program has experienced a 48 percent growth in the number of participants, from 419 students in 2011 to 620 in 2016.

Figure 40: Number of Students

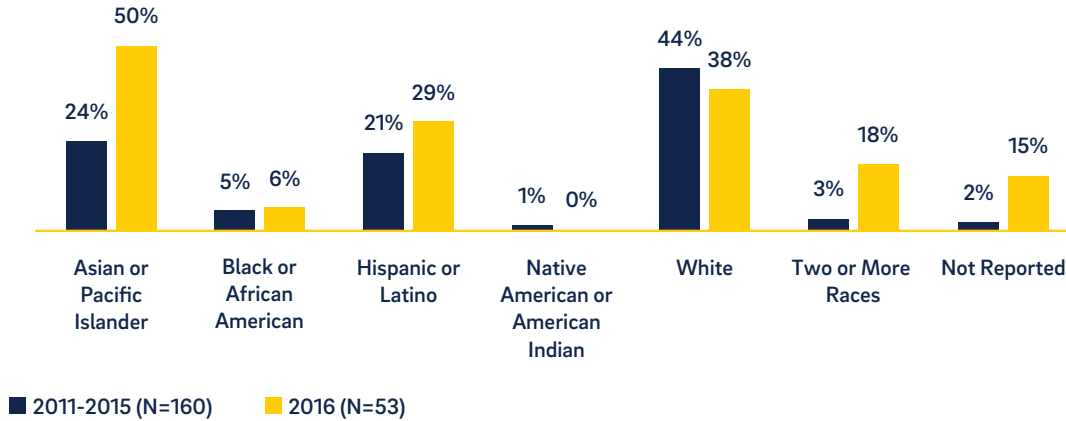


<sup>26</sup> Responses were translated into percentages for the report.

## Demographics of Participants

Students who enrolled in STEAM were given a follow-up survey to obtain additional demographic information. Figure 41 is a breakdown of participants by ethnicity.

Figure 41: Participants by Ethnicity<sup>27</sup>



## COLLEGE READINESS FACTORS

Annual household income and parental educational attainment significantly impact the quality of academic achievement and college readiness in children.<sup>28</sup> According to a study conducted by the U.S. Department of Education, children with parents who have a higher level of educational attainment score better on the National Assessment of Educational Progress compared to their counterparts. Other long-term implications on children include a greater likelihood of pursuing higher education and prestigious occupational prospects.<sup>29</sup> By distributing a follow-up survey, the research team obtained information about students' annual household income and parental educational attainment levels to assess college readiness.

<sup>27</sup> Percentages may not equal 100 due to rounding.

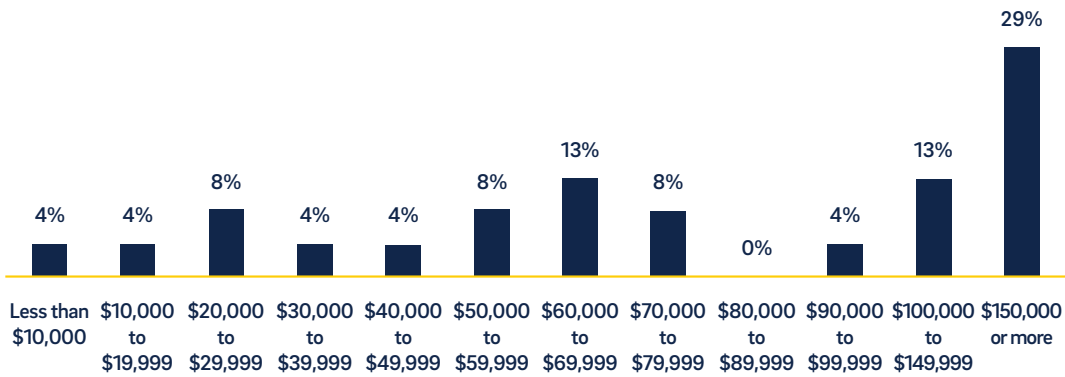
<sup>28</sup> Aud, S., Fox, M., and KewalRamani, A. (2010). *Status and Trends in the Education of Racial and Ethnic Groups 2010* (NCES 2010-015). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

<sup>29</sup> Dubow, Eric F., Paul Boxer, and L. Rowell Huesmann. "Long-Term Effects of Parents' Education on Children's Educational and Occupational Success: Mediation by Family Interactions, Child Aggression, and Teenage Aspirations." *Merrill-Palmer quarterly* (Wayne State University Press) 55.3 (2009): 224–249.PMC. Web. 6 Oct. 2016.

## Household Income

Students were asked to report their parents' annual household income to better understand the socioeconomic landscape of program participants and to assess college readiness (Figure 42). According to the Self-Sufficiency Standard, the required annual income for a family of two adults and one teenager to adequately meet basic necessities is \$43,354 in California and \$47,232 in San Diego County.<sup>30</sup> Nearly 25 percent of participants had a household income lower than San Diego County's Self-Sufficiency Standard; 42 percent had an income of \$100,000 or greater. Fourteen responses were excluded from analysis.<sup>31</sup>

Figure 42: Participants by Household Income (N=24)



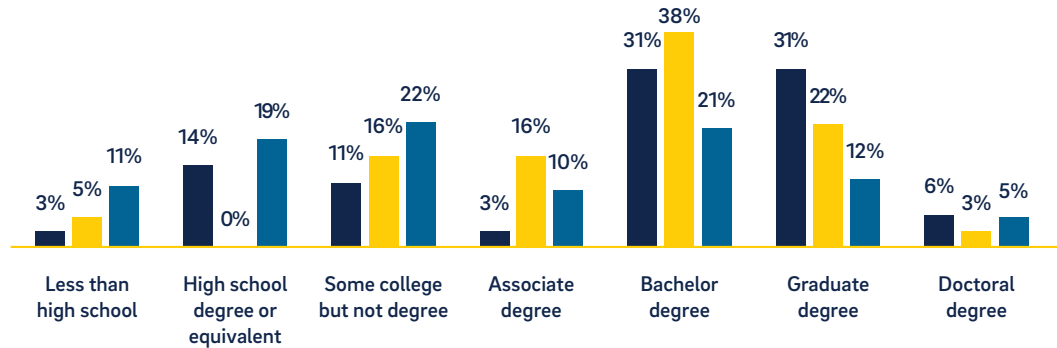
<sup>30</sup> [California Family Economic Self-Sufficiency Standard](#). (2014). Insight Center for Community Economic Development and Dr. Diana Pearce, Center for Women's Welfare, School of Social Work, University of Washington.

<sup>31</sup> Respondents answered "Prefer not to answer/I don't know" and were thus excluded from analysis.

## Educational Attainment of Parents

Nearly 70 percent of fathers and 62 percent of mothers obtained a bachelor’s degree or higher compared to 38 percent nationwide. Eight percent of responses were excluded from analysis.

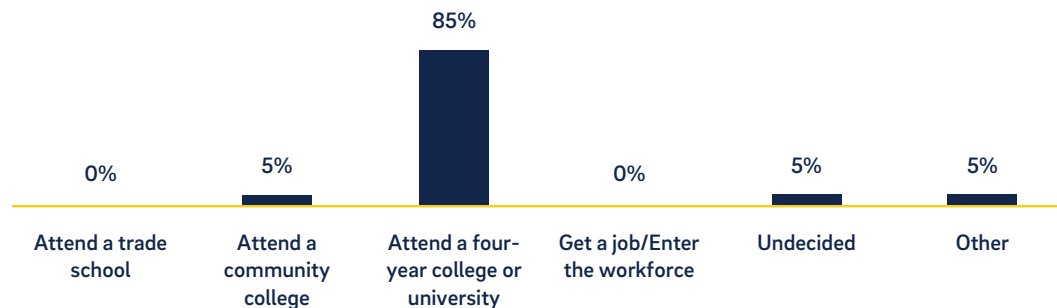
Figure 43: Highest Level of Educational Attainment of Parents (Father N=35, Mother N=37)<sup>33</sup>



## Post-High School Plans

High school students participating in the program were asked about their educational goals upon graduation. As seen in Figure 44, 85 percent demonstrated plans to attend a four-year college or university and 5 percent to attend a community college. Further, 80 percent of high school respondents indicated feeling prepared for college.<sup>34</sup>

Figure 44: Post-High School Plans (N=20)



Reported annual household income and parental educational attainment levels of program participants, coupled with the educational goals of students after high school, increase the likelihood of enrollment in post-secondary education than the average high school student.

<sup>32</sup> Respondents answered "Prefer not to answer/I don't know" and were thus excluded from analysis.

<sup>33</sup> National data obtained from U.S. Department of Commerce, Census Bureau, American Community Survey (ACS), 2014. Digest of Education Statistics 2015, table 104.70.

<sup>34</sup> N=20

## STEAM CHANNEL ANALYTICS

The STEAM Channel is part of UCTV and has provided 47 programs in research, policy, education, and industry. Appendix B lists the shows available. In the coming months, the channel plans to offer programming on music and the brain. Content is available in various formats, such as video podcast, audio podcast, YouTube and Flash. STEAM Channel shows have an average of 121,688 views, with 97 percent accessed as video podcasts. Figure 45 shows the top 5 shows based on combined view count.

Figure 45: Top 5 Videos by View Count

Title	Views
Blue Oceans, Sustainable Seafood, Humans and the Sea	534,562
From the Skies to the Streets: STEAM Leaders Aboard the USS Midway	528,016
Beth Simon -- The Constellation: Sally Ride Science Conversations	346,261
The Art of Science Learning with Harvey Seifter	272,067
Margaret Leinen of the Scripps Institution of Oceanography	261,959





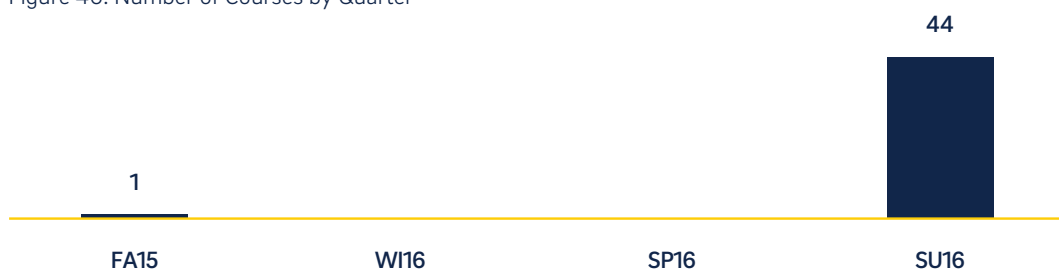
# SALLY RIDE SCIENCE JUNIOR ACADEMY

## PROGRAM DESCRIPTION

Sally Ride Science Junior Academy at UC San Diego Extension launched in 2016, offering hands-on technology, engineering, arts and math workshops, encouraging middle and high school students to delve into a variety of STEAM subjects. During these workshops, students assume the roles of space explorer, ocean engineer, computer scientist and more as they immerse themselves in hands-on projects. The workshops incorporate real-life stories of vibrant women conducting research in each field.

Sally Ride Science offered 45 courses at UC San Diego Extension during the 2015-2016 academic year (Figure 46). A pilot course was offered via the Elementary Institute of Science in Fall 2015. Forty-four courses were subsequently offered in Summer 2016 after the success of the pilot session. In the coming 2017 year, UC San Diego Extension plans to offer Sally Ride Science courses and additional pre-college programming at all 36 San Diego Public Library branches. The initial first three years will focus on 10 branches, successively scaling out to other locations.

Figure 46: Number of Courses by Quarter



Students completed evaluations for Sally Ride Science Junior Academy courses. Survey respondents were asked to rate whether they were satisfied with their experience in the program. Ninety-two percent were pleased with the course and 95 percent with the instructor for the academic year.<sup>35</sup>

## NUMBER AND DEMOGRAPHICS OF STUDENT PARTICIPANTS

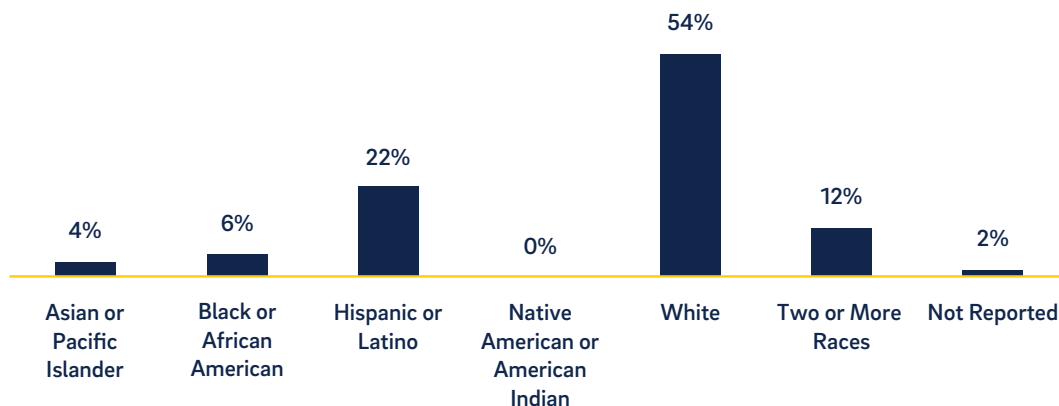
### Number of Participants

There were 463 participants for the 2015-2016 academic year.

### Demographics of Participants

Students that participated in the Sally Ride Science Junior Academy were given a follow-up survey to obtain additional demographic information. Figure 47 is a breakdown of students by ethnicity.

Figure 47: Participants by Ethnicity (N=50)<sup>36</sup>



<sup>35</sup> Responses were translated into percentages for the report. ; <sup>36</sup> Percentages may not equal 100 due to rounding.

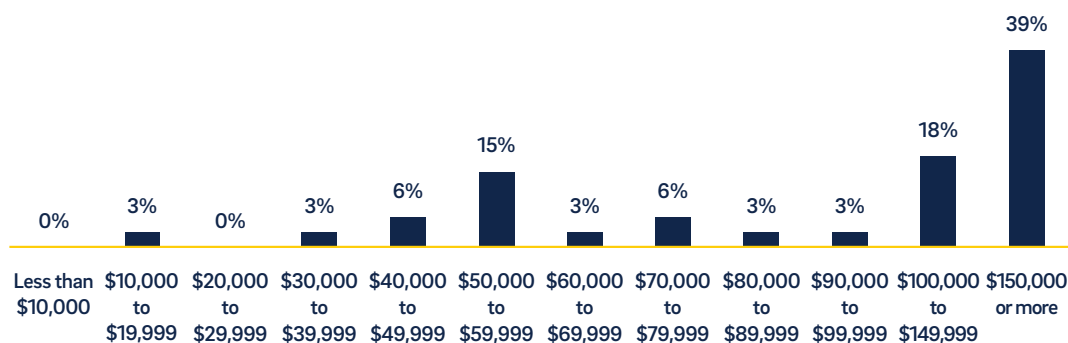
## COLLEGE READINESS FACTORS

Annual household income and parental educational attainment significantly impact the quality of academic achievement and college readiness in children.<sup>37</sup> According to a study conducted by the U.S. Department of Education, children with parents who have a higher level of educational attainment score better on the National Assessment of Educational Progress compared to their counterparts. Other long-term implications on children include a greater likelihood of pursuing higher education and prestigious occupational prospects.<sup>38</sup> By distributing a follow-up survey, the research team obtained information about students' annual household income and parental educational attainment levels to assess college readiness.

### Household Income

Students were asked to report their parents' annual household income to better understand the socioeconomic landscape of program participants and to assess college readiness (Figure 48). According to the Self-Sufficiency Standard, the required annual income for a family of two adults and one teenager to adequately meet basic necessities is \$43,354 in California and \$47,232 in San Diego County.<sup>39</sup> Twelve percent of participants had a household income lower than San Diego County's Self-Sufficiency Standard; 57 percent had an income of \$100,000 or greater. Fifteen responses were excluded from analysis.<sup>40</sup>

Figure 48: Participants by Household Income (N=33)



<sup>37</sup> National data obtained from U.S. Department of Commerce, Census Bureau, American Community Survey (ACS), 2014. Digest of Education Statistics 2015, table 104.70.

<sup>38</sup> Dubow, Eric F., Paul Boxer, and L. Rowell Huesmann. "Long-Term Effects of Parents' Education on Children's Educational and Occupational Success: Mediation by Family Interactions, Child Aggression, and Teenage Aspirations." *Merrill-Palmer quarterly (Wayne State University. Press)* 55.3 (2009): 224–249.PMC. Web. 6 Oct. 2016.

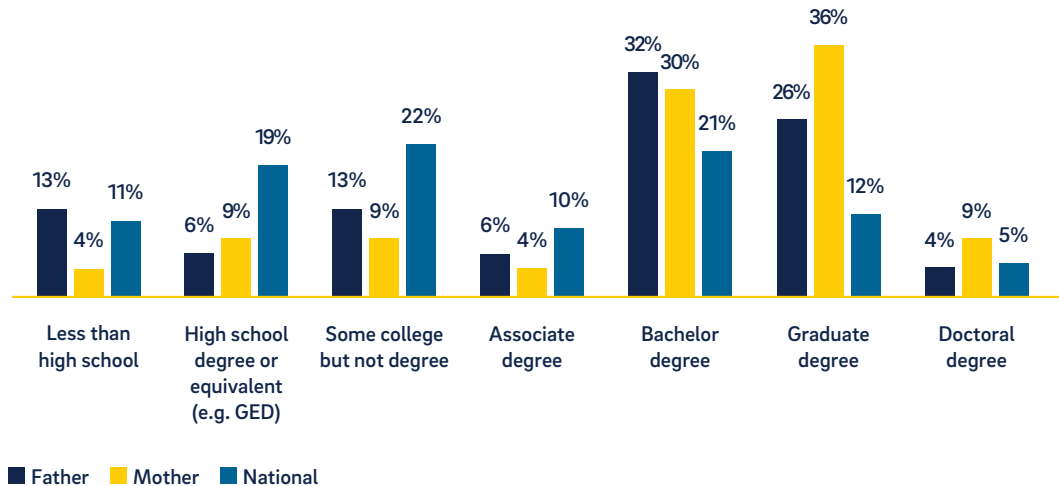
<sup>39</sup> California Family Economic Self-Sufficiency Standard. (2014). Insight Center for Community Economic Development and Dr. Diana Pearce, Center for Women's Welfare, School of Social Work, University of Washington.

<sup>40</sup> Respondents answered 'Prefer not to answer/I don't know' and were thus excluded from analysis.

## Educational Attainment of Parents

Approximately 60 percent of fathers and 74 percent of mothers obtained a bachelor’s degree or higher compared to 38 percent nationwide. Two percent of responses were excluded from analysis.<sup>41</sup>

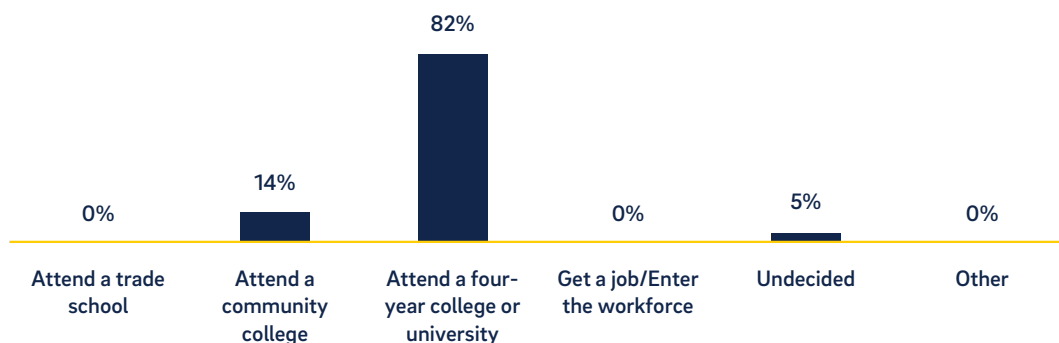
Figure 49: Highest Level of Educational Attainment of Parents (Father N=47, Mother N=47)<sup>42</sup>



## Post-High School Plans

Students were asked about their educational goals upon completing high school. Eighty-two percent of respondents planned to attend a four-year college or university and 14 percent a community college. Additionally, 80 percent of respondents indicated feeling prepared for college.<sup>43</sup>

Figure 50: Post-High School Plans (N=20)



<sup>41</sup> Respondents answered 'Prefer not to answer/I don't know' and were thus excluded from analysis.

<sup>42</sup> National data obtained from U.S. Department of Commerce, Census Bureau, American Community Survey (ACS), 2014. Digest of Education Statistics 2015, table 104.70.

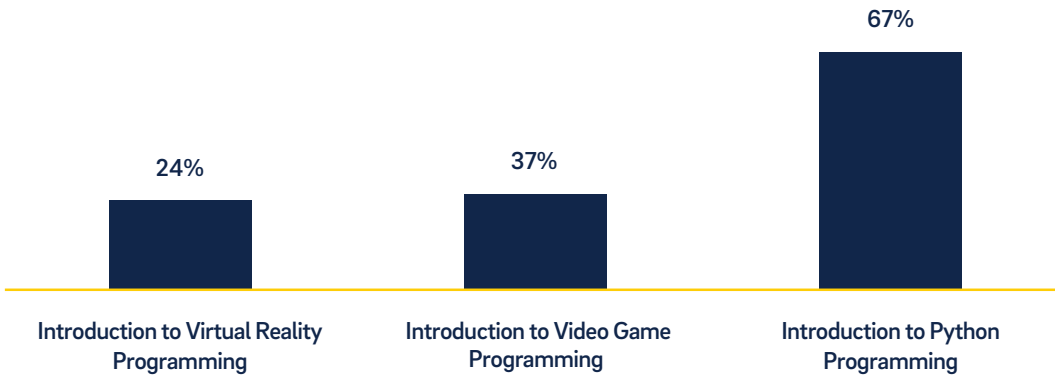
<sup>43</sup> N=20

## SALLY RIDE SCIENCE LIBRARY

UC San Diego Extension established a partnership with the City of San Diego Public Library System in 2017.

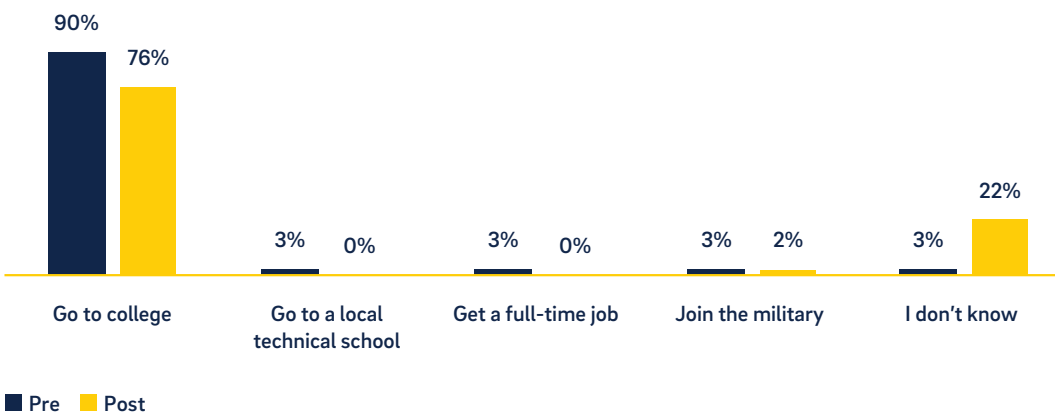
This partnership enables UC San Diego Extension to connect to diverse communities throughout the city and help develop a talent pipeline that will ensure ongoing regional prosperity. Extension offers a range of workshops and courses to assist students and families to prepare for college, and to become equipped with the most in-demand skills. Since Winter 2017, 52 students have participated in classes and 67 in workshops. Figure 51 shows the distribution of students per course topic.

Figure 51: Courses by Student Participation (N=45)



A series of questions were asked to better understand the student population served for the courses. Students were also asked the same questions prior to and upon completion of the course to elucidate any changes in responses. Findings demonstrated that fewer respondents were planning to go to college upon completion of the course compared to pre-survey results.

Figure 52: Post High School Plans  
(Pre N=39, Post N=45)



According to survey responses, fewer participants found technology appealing after completing the program. Following a similar trend, more students also found a career in science or technology less appealing.

Figure 53: Appeal of Technology  
(Pre N=39, Post N=45)

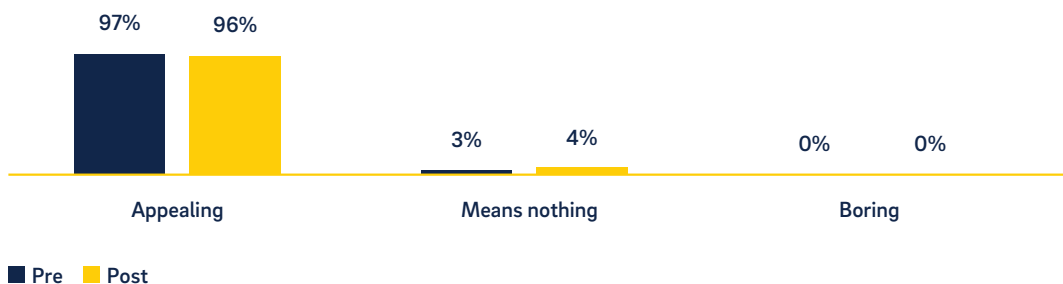
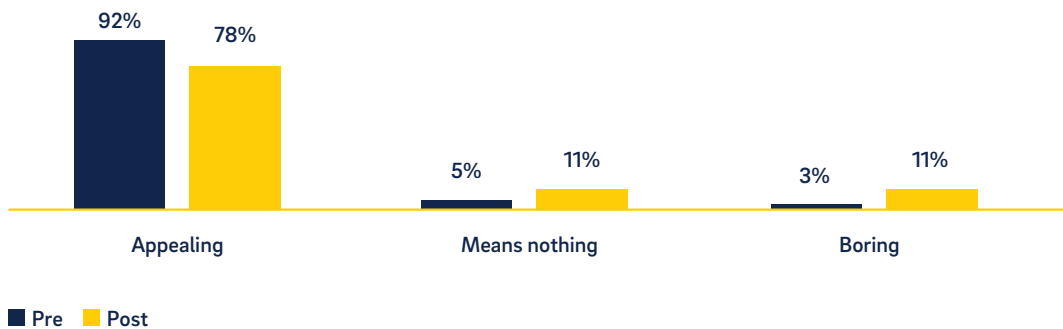


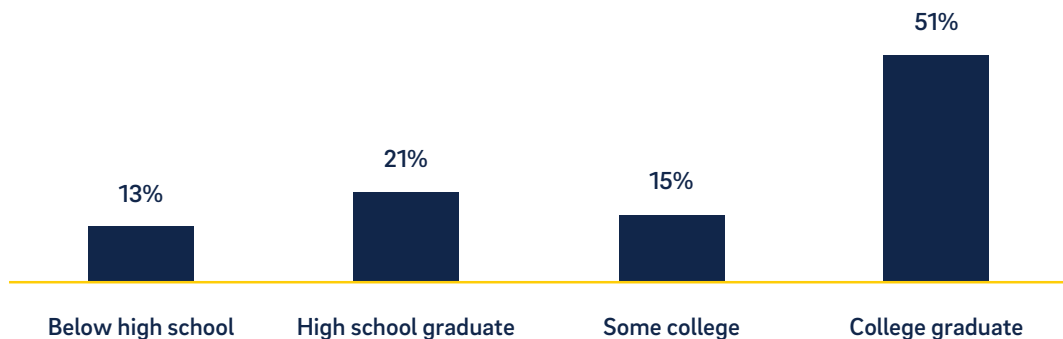
Figure 54: Appeal of Career in Science or Technology  
(Pre N=39, Post N=45)



### Demographics

Figure 55 shows the highest level of educational attainment completed by an adult in students' households. Over 50 percent of respondents had an adult in their household that was a college graduate.

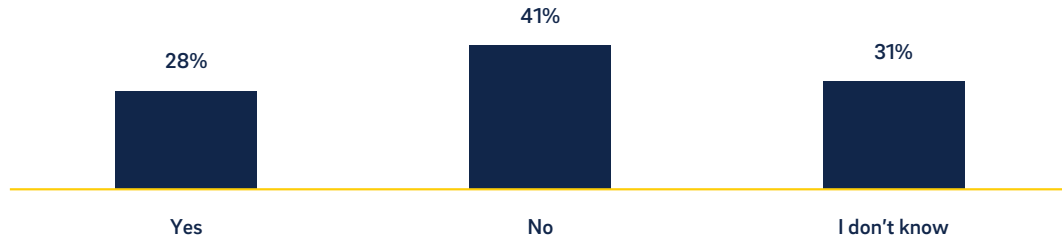
Figure 55: Highest Level of Educational Attainment in Household (N=39)





Nearly 30 percent of students reported that their family qualified for free or reduced lunch (Figure 56). Thirty-one percent of respondents were uncertain.

Figure 56: Free or Reduced Lunch (N=39)



### Program Feedback

Eighty-four percent of survey respondents would recommend the program to friends. Participants were also asked to rate the level of improvement in their understanding of certain course elements. Figures 57, 58 and 59 illustrate students' improvement in understanding ratings by course. Respondents expressed the least improvement in the Introduction to Video Game Programming course.

Figure 57: Introduction to Virtual Reality Programming (N=11)

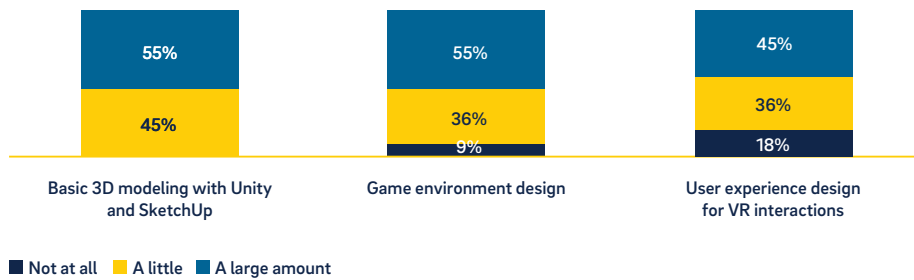


Figure 58: Introduction to Video Game Programming (N=12)

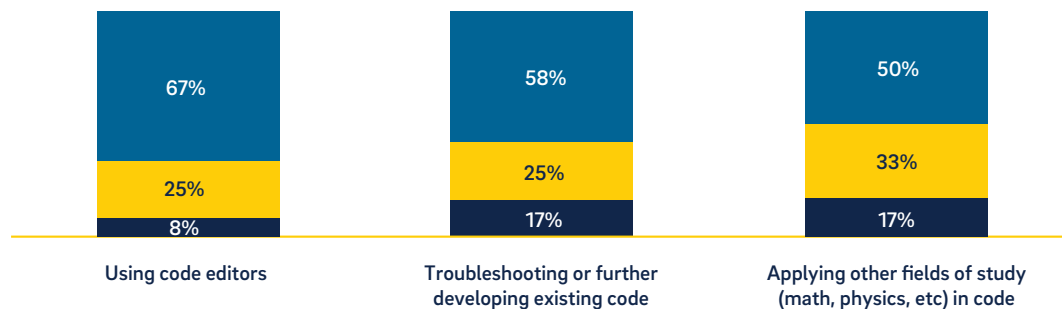
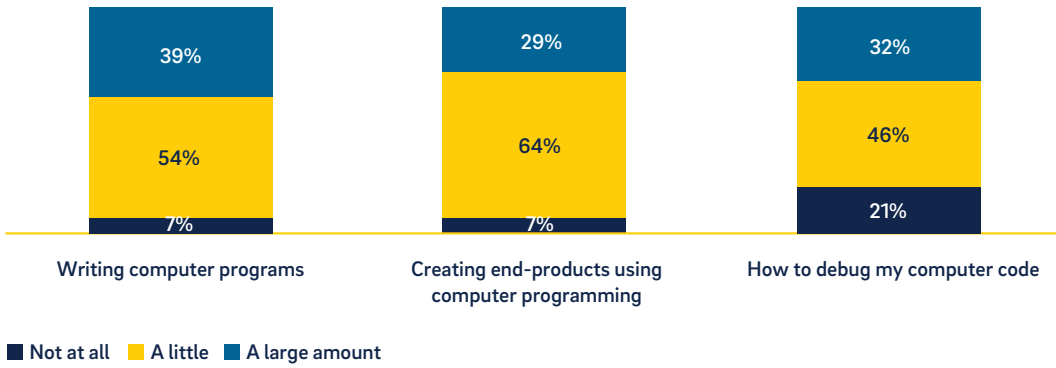


Figure 59: Introduction to Python Programming (N=28)



In addition to the aforementioned courses, UC San Diego Extension also offered one-day workshops at multiple library branches. Students were asked to rate their overall experience at these workshops. Sixty-six percent of respondents believed the workshop was excellent (Figure 60). Seventy-five percent of students also rated the quality of the instructor as very good and 22 percent as fairly good. Overall, 72 percent of participants would recommend these workshops to friends.

Figure 60: Overall Experience at Workshop (N=67)

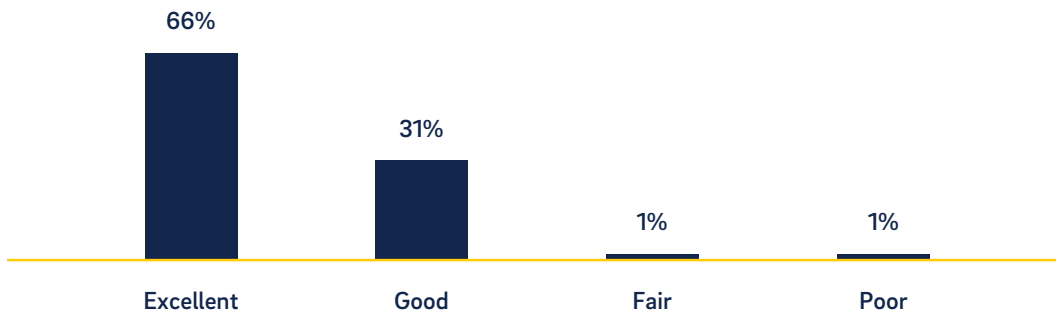
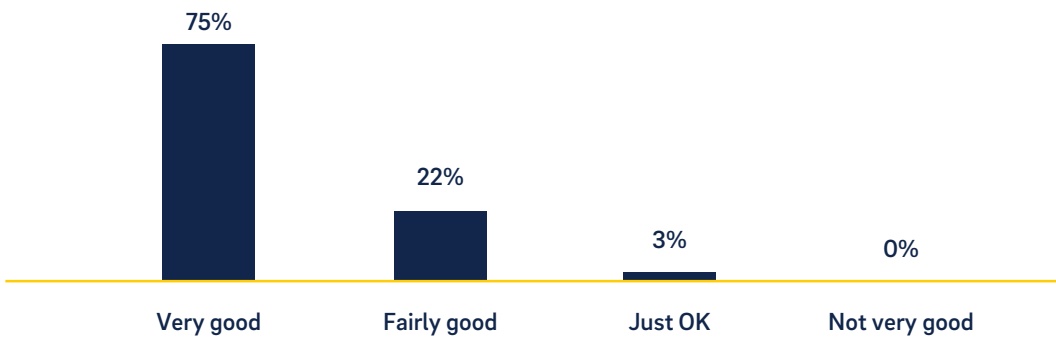


Figure 61: Quality of Instructor at Workshop (N=67)



## **Appendix A: 2016 Academic Connections Course Offering**

Audiovisual: Music's Place in Film, Television and Art  
Disease Detectives: An Introduction to Epidemiology  
Exploring Youth Subculture: A Sociological Perspective  
Foundations of Creative Writing  
Global Environment Leadership Hawaii  
Global Environmental Leadership and Sustainability - Biosphere 2  
Global Environmental Leadership and Sustainability - San Diego and Washington, DC  
Gray Matters: Brain Function and Neural Plasticity  
Innovative Writing Across Media: An Introduction to the College Workshop  
Introduction to Bioinformatics  
Introduction to Cognitive Science  
Introduction to Electrical Engineering: Digital Signal Processing  
Introduction to Fluid Mechanics in Mechanical Engineering: From a Straw to an Airplane  
Introduction to Macroeconomics  
Introduction to Mechanical Engineering and Materials Science  
Introduction to Philosophical Ethics  
Introduction to Psychology  
Language and Identity for Bilingual Writers (English/Spanish)  
Media Matters: Stereotypes and Social Change in Popular Media  
Minds, Machines and Mathematics  
Neuroscience: From Brain to Behaviors  
Robot Ruminations: Building and Programming Fundamentals  
Scripps Institution of Oceanography: Introduction to Marine Biology  
Scripps Institution of Oceanography: Marine Invertebrates  
Scripps Institution of Oceanography: Ocean Acidification: Coping with Excess Carbon Dioxide  
Scripps Institution of Oceanography: The Physics of the Ocean World  
Social Problems, Critical Thinking and College Writing  
The Brain in Health and Disease

## **Appendix B: STEAM Channel Shows**

1. A California Perspective: STEAMConnect Ascend Conference 2015
2. A National Perspective: STEAMConnect Ascend Conference 2015
3. Berkeley Students Mentor Future Engineers
4. Beth Simon -- The Constellation: Sally Ride Science Conversations
5. Blue Oceans, Sustainable Seafood, Humans and the Sea -- Steam Leadership Series
6. Bringing Arts into Science - STEAM Case Studies: STEAMConnect Ascend Conference 2015
7. Catherine Rains: A Personal Story About The Strong Interest Inventory
8. Chris Mackey: A Personal Story About The Strong Interest Inventory
9. Cindy Marten on the USS Midway
10. Darrell Mockus: A Personal Story About The SuperStrong
11. Diego Miralles, MD: The STEAM Leadership Series -- The STEAM Channel
12. Drones on the USS Midway: STEAM Leadership Series -- The STEAM Channel
13. Equity in STEAM Education -- Sally Ride Science STEAM Series

14. Fernando Aguerre -- Riding the Wave of Ingenuity - The STEAM Leadership Series -- The STEAM Channel
15. From the Skies to the Streets: STEAM Leaders Aboard the USS Midway -- The STEAM Leadership Series -- STEAM Channel
16. Going STRONG: Using Personal Assessment Tools To Chart Your Path
17. High Notes: The Case for Music Education -- The STEAM Channel
18. Industry Engagement: STEAMConnect Ascend Conference 2015
19. John Gartman -- Riding the Wave of Ingenuity: Part 2 The STEAM Leadership Series -- The STEAM Channel
20. Karen Gonzalez: A Personal Story About The Strong Interest Inventory
21. KidsEcoClub and Anti-Poaching on the USS Midway
22. Margaret Leinen of the Scripps Institution of Oceanography -- The Constellation: Sally Ride Science Conversations
23. Pay Attention - The Stuart Collection at UC San Diego
24. PGK Dance Performance: STEAMConnect Ascend Conference 2015
25. Qualcomm Thinkabit Lab Presents: How to Make an LED Light Up and Blink Using Arduino
26. Qualcomm Thinkabit Lab Presents: Programming Servos
27. Qualcomm Thinkabit Lab Presents: World of Work
28. SALTO - Berkeley's Leaping Robot
29. STEAM Channel Welcome - Winter 2016
30. STEaM Connect Ascend Conference 2014: Creative Collaborations
31. STEaM Connect Ascend Conference 2014: Navrina Singh
32. STEaM Connect Ascend Conference 2014: Quality STEM / STEaM Criteria
33. STEaM Connect Ascend Conference 2014: Research Updates
34. STEaM Connect Ascend Conference 2014: Spotlight on Teachers
35. STEaM Connect Ascend Conference 2014: Welcome and Introduction, Christopher Roe, Craig Watson
36. STEAM in Pre-K and High School - STEAM Case Studies: STEAMConnect Ascend Conference 2015
37. STEAM in San Diego: From Sup. to Nuts and Bolts: STEAMConnect Ascend Conference 2015
38. STEAM Powered: Fueling Student Interest in Engineering -- The Thinkabit Lab at Qualcomm
39. The Art of Science Learning with Harvey Seifter
40. The Job Landscape Today and Tomorrow: The San Diego View
41. The Neuroplastic Brain, Sung by M.A. Greenstein
42. The New Frontiers of Design
43. Tiger Math
44. Welcome and Qualcomm Executive Commentary: STEAMConnect Ascend Conference 2015
45. Welcome to the STEAM Channel
46. Women in Biotech: STEAM Leadership Series -- The STEAM Channel
47. Women in Biotech: Tina Nova





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