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April 5, 2016

The Honorable Mark Leno
Chair, Joint Legislative Budget Committee
1020 N Street, Room 553
Sacramento, California 95814

Dear Senator Leno:

Pursuant to Item 6440-001-0001 of the 2010-11 Budget Act, Provision 7, enclosed is the University of California's report to the Legislature on the *California State Summer School for Mathematics and Science (COSMOS), 2011-2015*.

If you have any questions regarding this report, Associate Vice President Debora Obley would be pleased to speak with you. She can be reached by telephone at (510) 987-9112, or by email at Debora.Obley@ucop.edu.

Yours very truly,


Janet Napolitano
President

Enclosure

cc: Senate Budget and Fiscal Review
The Honorable Marty Block, Chair
Senate Budget and Fiscal Review Subcommittee #1
(Attn: Ms. Anita Lee)
(Attn: Ms. Cheryl Black)
The Honorable Kevin McCarty, Chair
Assembly Budget Subcommittee #2
(Attn: Mr. Mark Martin)
(Attn: Ms. Amy Rutschow)
Ms. Peggy Collins, Joint Legislative Budget Committee
Ms. Amy Leach, Office of the Chief Clerk of the Assembly
Mr. Jim Lasky, Legislative Counsel Bureau
Mr. E. Dotson Wilson, Chief Clerk of the Assembly
Mr. Daniel Alvarez, Secretary of the Senate
Mr. Michael Cohen, Department of Finance

Mr. Jeff Bell, Department of Finance
Mr. Christian Osmena, Department of Finance
Ms. Maritza Urquiza, Department of Finance
Ms. Tina McGee, Legislative Analyst's Office
Mr. Mac Taylor, Legislative Analyst's Office
Mr. Jason Constantouros, Legislative Analyst's Office
Provost and Executive Vice President Aimée Dorr
Executive Vice President and Chief Financial Officer Nathan Brostrom
Senior Vice President Nelson Peacock
Vice Provost and Chief Outreach Officer Yvette Gullatt
Associate Vice President Debora Obley
Associate Vice President and Director Steve Juarez
Executive Director Jenny Kao
Executive Director Kieran Flaherty
Executive Director Nina Moore
Director David Alcocer
Manager Bruce Kennedy
Executive Advisor Marsha Sato

University of California Office of the President



UNIVERSITY OF CALIFORNIA, CALIFORNIA STATE SUMMER SCHOOL FOR MATHEMATICS AND SCIENCE (COSMOS), 2011-2015

OFFICE OF THE VICE PROVOST
DIVERSITY AND ENGAGEMENT

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University of California
Report on the California State Summer School for
Mathematics and Science, 2011-2015
April 2016

Legislative Request

Item 6440-001-0001 of the 2010-11 Budget Act requires the University of California (UC) to provide a report to the Legislature on *COSMOS Program Outcomes and Effectiveness*. The Budget Act reads:

“7. Of the funds appropriated in Schedule (1), \$1,897,200 is for the California State Summer School for Mathematics and Science (COSMOS). The University of California shall report on the outcomes and effectiveness of COSMOS every five years, commencing April 1, 2011.”

Section 8669.1 of the Education Code reads:

"It is the intent of the Legislature that the University of California conduct an evaluation on the effectiveness of the California State Summer School for Mathematics and Science every two years from the effective date of the act that amends this section."

University of California Response

The California Legislature established the California State Summer School for Mathematics and Science (COSMOS) in 1998 (Assembly Bill 2536), with the goal of engaging highly talented and motivated students in an intensive program of study, experimentation, and activities to further their interests and skills in science, technology, engineering, and mathematics. The Request for Proposal to host COSMOS was awarded to the University of California and the program launched at Irvine and Santa Cruz in 2000. Due to high demand, UC added two additional campuses: Davis in 2001 and San Diego in 2004.

The long-term goals of the COSMOS program require a multi-year examination of how COSMOS participants fare. This COSMOS report to the Legislature covers summer 2011 through summer 2015 and provides information on the program and participants, program funding and costs, and college destinations of COSMOS alumni.

Executive Summary

- From summer 2011 through summer 2015, 3,482 students participated in COSMOS. Over time, enrollment has risen steadily, from 680 participants in summer 2011 to 733 in summer 2015, which is an increase of 8%.
- The demand for admission to COSMOS is strong and has been since its inception. For example, of 3,924 completed applications for summer 2015, 1,534 (39%) were accepted, and 86 (2%) were wait-listed.
- Using higher education enrollment data from the National Student Clearinghouse, UC has been able to track 2,669 of 3,139 (85%) participants from summer 2006 to summer 2010 as having enrolled at a college or university within one year of completing high school. Similarly, even though not all participants from summer 2011 to summer 2015 have completed high school as of this writing, 2,304 of 3,481 (66%) have already enrolled in a college or university. This means that at least three out of four (4,973 or more of 6,620) COSMOS participants from the past decade have already enrolled in a college or university.
- Of the 4,973 COSMOS alumni enrolled at colleges and universities, 4,088(82%) were at four-year institutions, with 2,709 (54%) at UC campuses, 1,082 (22%) at private or out-of-state universities, and 297 (6%) at California State University campuses. Another 878 (18%) enrolled at California Community Colleges (two-year programs), and the remaining 7 (0.1%) enrolled at private or out-of-state two-year institutions.
- Among the 2,709 COSMOS alumni who enrolled at UC campuses, 34% were at UC Berkeley, 20% at UC Los Angeles, 18% at UC San Diego, 12% at UC Davis, 6% at UC Irvine, 4% at UC Santa Barbara, 4% at UC Santa Cruz, and 1% each at UC Riverside and Merced.
- Also, of the 2,709 COSMOS alumni enrolled at UC campuses, 1,802 (67%) entered with declared majors. Of these 1,802 students, 1,530 (85%) have declared STEM (science, technology, engineering, and mathematics) majors.
- After UC, the top ten four-year universities at which COSMOS alumni most often enrolled are California Polytechnic State University, Stanford University, Massachusetts Institute of Technology, University of Southern California, Brown University, Cornell University, Harvard University, San Diego State University, California Institute of Technology, and Princeton University.

Mission and Goals

The mission of the COSMOS program is to provide outstanding high school students in STEM disciplines with opportunities to delve deeply into their subjects and to prepare for careers in the STEM fields.

In 2002, the University of California convened an expert advisory board to design the COSMOS program. The board set out the following goals for the COSMOS program:

- To engage talented students in high-level teaching and learning;
- To establish a community of scholars that fosters analytical thinking and experimentation;
- To connect students to institutions of higher learning and research facilities;
- To develop models for excellence in science and mathematics education; and
- To ensure that the COSMOS student body reflects California's geographic, economic, and cultural diversity.

Program Description

The COSMOS summer sessions last four weeks and straddle state fiscal years. For funding purposes, each summer session is aligned with the earlier fiscal year; for example, the summer 2015 session is funded from FY 14-15 dollars.

In the course of a four-week summer session, COSMOS courses or “clusters” address advanced topics in the STEM fields that go well beyond the typical high school curriculum. COSMOS clusters typically consist of two science and/or mathematics courses, and a science communication course. (Science communication courses teach students how to present science projects to diverse audiences.) The clusters vary by campus and by session but have included such subjects as astronomy, aerospace and mechanical engineering, biomedical sciences, computer science, ecology, marine science, robotics, game theory, and more. (Please see Appendix A for a list of COSMOS courses that were offered in the summer of 2015 by campus.)

The cluster courses are intensive, emphasizing current research underway at the University of California. Distinguished faculty and researchers teach the COSMOS courses and supervise the students. Typically 18 to 25 students participate in a given COSMOS cluster, and the ratio of students to faculty is usually five to one. COSMOS aims to keep the faculty student ratio low for each cluster so that students benefit from one-on-one faculty mentorship. On weekdays, students typically work from 9:00 a.m. to 4:00 p.m. in University classrooms (attending lectures and discussions) and laboratories, augmented with field trips and/or fieldwork.

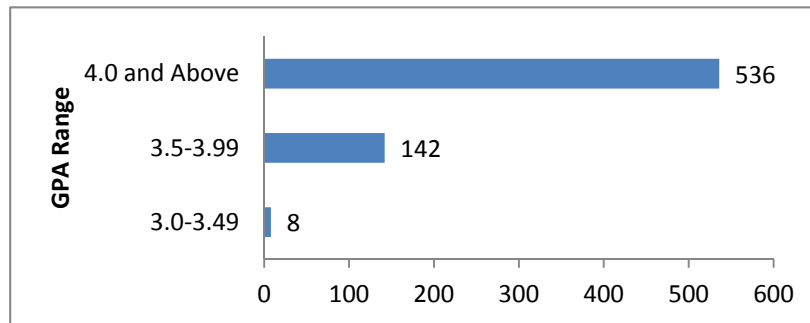
Students are required to live on campus for the duration of the program, which gives them many opportunities to interact with a community of student scholars who support and learn from one another and who share the same interests in mathematics and science. Evening and weekend activities, including recreational activities and additional field trips, are planned and supervised.

A statewide advisory board composed of scientific and technological leaders in higher education and industry guides the COSMOS program. Representatives include faculty of the University of California and public and private universities, as well as leaders from the business and non-profit community. (Please see Appendix B for a list of current advisory board members.)

Caliber and Number of Student Participants

Caliber of Participants – Each campus can only accommodate approximately 150 participants per summer session and thus selection is competitive. For example, of 3,924 completed applications for summer 2015, only 1,534 (39%) were accepted, and 86 (2%) were wait-listed. Applicants must demonstrate academic excellence. For example, in summer 2013, nearly all COSMOS attendees had a GPA of 4.0 or higher, and more than half had a GPA above 4.1 (Display 1).

Display 1: COSMOS Participant Grade Point Averages, 2013



Source: COSMOS enrollment database.
Note: 3 records did not capture GPA information.

Number of Participants – Display 2 indicates a steady rise in the number of students participating in COSMOS from 680 participants in summer 2011 to 733 in summer 2015, an increase of 8%.

Display 2: COSMOS Participants by Campus and Year, 2011-2015

Campus	Summer 2011	Summer 2012	Summer 2013	Summer 2014	Summer 2015	TOTAL 2011-2015
UCD	196	197	197	189	204	983
UCI	159	152	164	164	162	801
UCSC	165	165	165	168	172	835
UCSD	160	163	163	181	195	862
Total	680	677	689	702	733	3,481

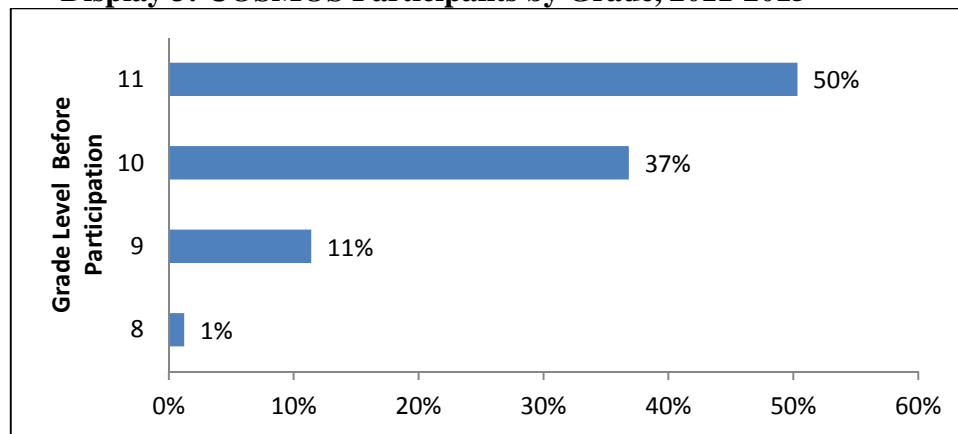
Source: COSMOS enrollment database.

Demographics of Student Participants

Grade Level of Participants – As mandated by the authorizing legislation, COSMOS participants may apply as early as the eighth grade to attend a summer session before entering high school, and participants may also apply immediately after graduating from high school, but both are rare; the vast majority of applicants are in the process of completing ninth, tenth, or eleventh grade.

Display 3 shows the percentages of summer 2011 to summer 2015 COSMOS participants by the grade level they most recently finished before the summer of their participation. One percent applied as eighth graders to participate in a COSMOS session before beginning their freshman year of high school, and most students participated in the summer before their junior (37%) or senior year (50%).

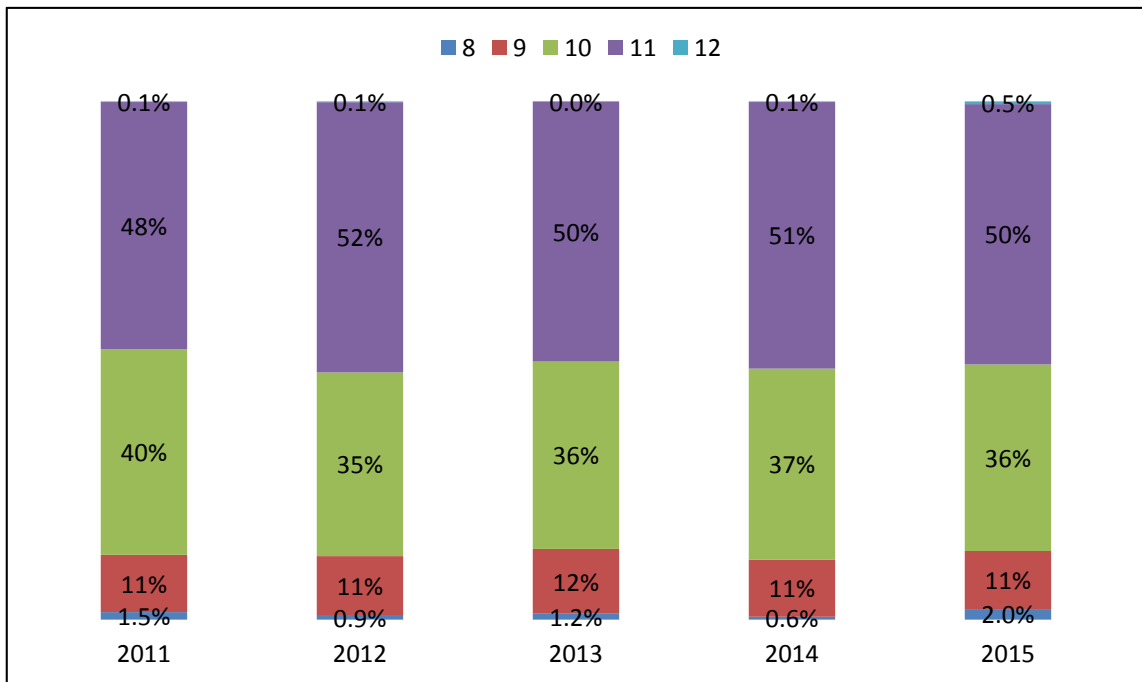
Display 3: COSMOS Participants by Grade, 2011-2015



Source: COSMOS enrollment database.
Note: Percentages do not add to 100, due to rounding.

Over time, participation by grade level has shifted: the number of students participating in COSMOS after 9th grade has essentially remained constant at 11%, while the number participating after 10th grade has declined from 40% in 2011 to 36% in 2015. Meanwhile, there is minor growth in the number of students participating after 8th, 11th, and 12th grades (Display 4).

Display 4: COSMOS Participants by Grade and Year



Source: COSMOS enrollment database.
 Note: Percentages do not add to 100 due to rounding.

Gender and Ethnicity of Participants – COSMOS students have historically remained evenly split between male and female participants. For example, from summer 2011 to summer 2015, male participants comprise 49.3% and female participants comprise 50.7%.

Participant ethnicity, though, has fluctuated. For example, from summer 2011 to summer 2015, the share of Asian participants rose from 50.2% to 56.6%, while the share of participants from other ethnic backgrounds decreased (Whites and Chicanos/Latinos) or remained relatively unchanged (African American, American Indian, and Other). The only notable increase was to the self-identification of "Decline to State" ethnic category, which could reflect changing attitudes of students regarding identifying racial/ethnic backgrounds. For comparison, the combined statewide enrollment in grades 8-12 at California public schools changed little from AY2010-2011 to AY2014-15, with AY2014-15 enrollment comprising 12.3% Asian, 25.5% White, 52.3% Chicano/Latino, 6.4% African American, 0.6% American Indian, 2.3% Other, and 0.5% Decline to State. (California Department of Education Data Quest; <http://data1.cde.ca.gov/dataquest/>.)

Display 5: COSMOS Participant Ethnicity Distribution by Year

	2011 N (%)	2012 N (%)	2013 N (%)	2014 N (%)	2015 N (%)	2011–2015 N (%)
Asian	341 (50.2%)	327 (48.3%)	343 (49.8%)	399 (56.8%)	415 (56.6%)	3,350 (50.6%)
White	162 (23.8%)	133 (19.7%)	133 (19.3%)	121 (17.2%)	124 (16.9%)	1,423 (21.5%)
Chicano/Latino	113 (16.6%)	129 (19.1%)	123 (17.9%)	97 (13.8%)	99 (13.5%)	1,113 (16.8%)
African American	14 (2.1%)	10 (1.5%)	7 (1.0%)	10 (1.4%)	14 (1.9%)	131 (2.0%)
American Indian	3 (0.4%)	1 (0.2%)	2 (0.3%)	2 (0.3%)	2 (0.3%)	19 (0.3%)
Other	29 (4.3%)	46 (6.8%)	45 (6.5%)	41 (5.8%)	32 (4.4%)	329 (5.0%)
Decline to State/Unknown	18 (2.7%)	31 (4.6%)	36 (5.2%)	32 (4.6%)	47 (6.4%)	255 (3.9%)

Source: COSMOS enrollment database.
Note: Percentages may not add to 100 due to rounding.

Geographic Diversity of Participants – Display 6 shows the number of participants from California by county, where each county has been placed into one of the 11 regions defined by the California County Superintendents Educational Services Association (CCSESA; <http://ccsesa.org/>). (CCSESA regions comprise multiple counties and provide an organizational mechanism for county superintendents to work together in order to implement statewide educational programs and policies.)

COSMOS participants have come from every CCSESA region. For summer 2011 to summer 2015, 3,209 COSMOS participants resided in 45 of California's 58 counties, with the largest share (906; 28%) coming from Region 5 (Monterey, San Benito, Santa Clara, and Santa Cruz Counties).

Display 6: COSMOS Participants by County, 2011-2015

California County Superintendents Educational Services Association (CCSESA) regions comprise multiple counties. Below, the number of COSMOS participants from each county is listed in the middle column, and the total for each CCSESA region is listed in the right-most column.

Region	Counties Included	Total COSMOS Participants
Region 1	Humboldt, 3 (0.09%) Lake, 14 (0.44%) Mendocino, 14 (0.44%) Sonoma, 23 (0.72%)	54 (1.7%)
Region 2	Butte, 8 (0.25%) Shasta, 13 (0.41%) Siskiyou, 1 (0.03%) Tehama, 3 (0.09%) Trinity, 4 (0.12%)	29 (0.9%)
Region 3	Colusa, 1 (0.03%) El Dorado, 8 (0.25%) Nevada, 1 (0.03%) Placer, 22 (0.69%) Sacramento, 55 (1.71%) Sutter, 2 (0.06%) Yolo, 51 (1.59%)	140 (4.4%)
Region 4	Alameda, 334 (10.41%) Contra Costa, 110 (3.43%) Marin, 27 (0.84%) Napa, 3 (0.09%) San Francisco, 44 (1.37%) San Mateo, 120 (3.74%) Solano, 8 (0.25%)	646 (20.1%)
Region 5	Monterey, 28 (0.87%) Santa Clara, 812 (25.30%) Santa Cruz, 66 (2.06%)	906 (28.2%)
Region 6	Amador, 1 (0.03%) San Joaquin, 13 (0.41%) Stanislaus, 18 (0.56%) Tuolumne, 1 (0.03%)	33 (1.0%)
Region 7	Fresno, 30 (0.93%) Kings, 7 (0.22%) Madera, 1 (0.03%) Mariposa, 1 (0.03%) Merced, 24 (0.75%)	63 (2.0%)
Region 8	Kern, 109 (3.40%) San Luis Obispo, 5 (0.16%) Santa Barbara, 14 (0.44%) Ventura, 49 (1.53%)	177 (5.5%)
Region 9	Imperial, 32 (1.00%) Orange, 234 (7.29%) San Diego, 308 (9.60%)	574 (17.9%)
Region 10	Riverside, 86 (2.68%) San Bernardino, 45 (1.40%)	131 (4.1%)
Region 11	Los Angeles, 456 (14.21%)	456 (14.2%)
All Regions	All Counties	3,209

Program Funding, Costs, and Financial Aid

COSMOS Funding Sources – In FY 2014-15, UC received \$1.643 million in state funds to fund the summer 2015 COSMOS program, the same amount UC received each year since FY 2011-12 for the summer program, but 13.4% less than the FY 2010-11 state appropriation level of \$1.897 million for the summer 2011 program. The 2011-12 Budget Act permitted a reduction of up to 21.3% in State General Funds for COSMOS. The California Education Code specifies that the state fund at least 50%, but not more than 75%, of the program’s actual costs. For summer 2010 through 2014, state funding met these criteria.

Additional funds are also provided by participants with the ability to pay and from private sources. Over the years UC raised the following amounts of extramural, private funds to support COSMOS: \$759,500 in FY 2010-11; \$609,220 in FY 2011-12; \$1,020,727 in FY 2012-13; \$786,387 in FY 2013-14; and \$195,000 in FY 2014-15.

Costs Per Student – The average cost per student to the University to host a student for a four-week COSMOS summer session, including the costs of providing room and board and the costs of instruction, is \$6,500.

Program Affordability – Eligible in-state residents paid a maximum tuition of \$3,250 for the four-week session in summer 2015. (The California Education Code states that tuition for COSMOS may increase by only 5% each year for California residents, which has happened every year.) This sum covered all student costs with the exception of their travel to and from the campus they were attending. Full and partial financial assistance was available for families making up to, and including, \$85,000. For example, a family of four with a yearly income of \$43,000 would likely have qualified for a full scholarship (\$3,250), and a family of four with a yearly income of \$80,000 would likely have qualified for a 25% scholarship (\$813).

Scholarships are provided as funds are available, and this accounts for the fluctuation in the number of awards provided to students from 2011 through 2015. In summer 2015, 105 (14.5%) were provided 100% financial aid, for a total of \$341,250, and 161 (22%) received full or partial awards totaling \$459,858. Display 7 shows the Summer 2015 COSMOS participants, and the number and percent awarded full or partial financial aid.

Please see Appendix C for a copy of the summer 2015 COSMOS application packet, which includes the program application and an additional form for families seeking financial aid. The application packet is followed by the summer 2015 criteria (i.e., household size and income) for allocating financial aid. Eligibility for financial assistance and the criteria for allocating full and partial scholarships will likely remain the same in summer 2016 as in summer 2015. (For summers 2011 through 2015, within broad program guidelines, the four campuses hosting COSMOS varied in how they allocated financial aid.)

Out-of-state students, who may be exchange students, for example, pay non-resident tuition of \$6,000 and are not eligible for financial assistance. From summer 2011 to summer 2015, only 68 (2%) COSMOS participants were confirmed non-residents, with 39 from out of state and 29 who did not provide residency information.

Display 7: COSMOS Total Participants and Participants Awarded Aid

	Summer 2011	Summer 2012	Summer 2013	Summer 2014	Summer 2015
Total Participants	679	677	690	700	724
Number Awarded Aid	195	227	212	211	161
Percent Receiving Aid	28.8	35.5	30.7	30.1	22.2

Source: COSMOS enrollment database.

COSMOS Alumni’s Academic Development –UC successfully tracked college or university enrollment for roughly three-quarters of all COSMOS participants from summer 2006 to 2015 by utilizing the National Student Clearinghouse database, which provides college/university enrollment information for most higher-education institutions within the United States, including UC campuses (Display 8). UC also utilizes UC’s systemwide Corporate Student System to track the majors of COSMOS students who enroll at UC’s undergraduate campuses.

- Using higher education enrollment data from the National Student Clearinghouse, UC has been able to track 2,669 of 3,139 (85%) alumni from summer 2006 to summer 2010 as having enrolled at a college or university within one year of completing high school. Similarly, even though not all participants from summer 2011 to summer 2015 have completed high school as of this writing, 2,304 of 3,481 (66%) have already enrolled in a college or university. This means that at least three out of four (4,973 or more of 6,620) COSMOS participants from the past decade have already enrolled in a college or university.
- Of the 4,973 COSMOS alumni enrolled at colleges and universities, 4,088(82%) attended four-year institutions, with 2,709 (54%) at UC campuses, 1,082 (22%) at private or out-of-state universities, and 297 (6%) at California State University campuses. Another 878 (18%) enrolled at California Community Colleges (two-year programs), and the remaining 7 (0.1%) enrolled at private or out-of-state two-year institutions.
- Among the 2,709 COSMOS alumni who enrolled at UC campuses, 34% were at UC Berkeley, 20% at UC Los Angeles, 18% at UC San Diego, 12% at UC Davis, 6% at UC Irvine, 4% at UC Santa Barbara, 4% at UC Santa Cruz, and 1% each at UC Riverside and UC Merced.

- Also, of the 2,709 COSMOS alumni enrolled at UC campuses, 1,802 (67%) entered with declared majors. Of these 1,802 students, 1,530 (85%) have declared STEM (science, technology, engineering, and mathematics) majors.
- After UC, the top ten four-year universities at which COSMOS alumni most often enrolled are California Polytechnic State University (86 alumni), Stanford University (85 alumni), Massachusetts Institute of Technology (76 alumni), University of Southern California (68 alumni), Brown University (42 alumni), Cornell University (41 alumni), Harvard University (38 alumni), San Diego State University (38 alumni), California Institute of Technology (34 alumni), and Princeton University (also 34 alumni). When combined with an additional 19 alumni enrolled at Yale University and 16 at University of Pennsylvania, nearly 200 COSMOS Alumni have enrolled in Ivy League universities during the past decade.

Display 8: COSMOS Alumni Post-Secondary Destinations by Ethnicity

	UC	Private/ Out-of-state 4-year	CSU	CCC	Other	Total
Asian	1,430	527	68	488	3	2,516
White	528	321	80	148	2	1,079
Chicano/Latino	472	116	118	146	2	854
African American	40	24	11	21	-	96
American Indian	4	3	2	4	-	13
Decline to state	94	39	8	32	-	173
Other	141	52	10	39	-	242
Total	2,709	1,082	297	878	7	4,973

Sources: National Student Clearinghouse, UC Corporate Student System.

Conclusion

The California State Summer School for Mathematics and Science (COSMOS) continues to provide many of the state's academically brightest students an opportunity for a rigorous math and science summer learning experience. Each summer this highly competitive program, with a 39% acceptance rate, provides challenging hands-on educational experiences to approximately 800 students. Program participants reside in 45 of California's 58 counties.

Upon completion of high school a vast majority, more than 85%, of COSMOS alumni enroll in post-secondary education. A significant percentage (54%) attends a UC campus and more than 22% enroll at a private or out-of-state university. During the past decade nearly 200 COSMOS alumni have enrolled in an Ivy League university.

COSMOS continues to provide high school students in STEM disciplines with opportunities to delve deeply into their subjects and to prepare for careers in the STEM fields. COSMOS continues to meet its goals to provide talented students with enriching experiences that foster scholarship and college aspirations leading to eventual professions in science and mathematics fields. While program participants reflect California's geographic and economic diversity, the program continues to seek more ethnic diversity to reflect California high school graduates.

References

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Appendix A: 2015 Summer COSMOS Course Offerings

UC DAVIS

- Biotechnology
- Physics in Electro-optics & Nuclear Technology
- Introduction to Engineering Mechanics
- Introduction to Astrophysics
- Computers in Biophysics & Robotics
- Mathematics
- Biomedical Sciences
- The Chemistry of Life
- Mathematical Modeling of Biological Systems
- Quantum Mechanics and Applications to Nanotechnology

UC IRVINE

- Mobility Engineering for Land, Air, and Space
- Reasoning About Luck: Probability Statistics, and their Uses in Space
- Tissue And Tumor Biology And Mathematical/Computer Modeling
- Chemical Biology: Extracting and Analyzing Molecules from Nature
- Sound for Mobile Devices: Physical Modeling and Programming
- Biomedical Sciences—Clinical Translational Science: The Next Generation of Biomedical Research
- Big Bang and the Subatomic World
- Genes, Genomes, and Biocontrol

UC SAN DIEGO

- Computers in Everyday Life
- Engineering Design & Control of Kinetic Sculptures
- Living Oceans and Global Climate Change
- When Disaster Strikes: Earthquakes Engineering
- From Lasers to LCDs: Light at Work
- Biodiesel from Renewable Sources
- Bioengineering/Mechanical Engineering: The Amazing Red Blood Cell
- Tissue Engineering and Regenerative Medicine
- Sound and Music Technology

UC SANTA CRUZ

- Number Theory and Discrete Math
- Nanochemistry and Nanotechnology
- Under the Sea: Exploring Marine Organisms and Oceanography
- Everyday Chemistry: From Perfumes to Pollution
- Video Games: The Design of Fun from Concept to Code
- Computer Networking and Robotics
- Astrophysics, Polar Science and Climate Change
- Marine Mammals and Oceanography

Appendix B: COSMOS Advisory Board Members

Chair: Kenneth L. Hess	Founder and President, Science Buddies
Vice Chair: Susan Hackwood, Ph.D.	Chair, California Council for Science and Technology Professor of Electrical Engineering, UC Riverside
Chair Emeritus: Gayle Wilson	Board of Directors, Science for Society and the Public (SSP) Board of Trustees, California Institute of Technology Former California First Lady 1991-1999
Francisco J. Ayala, Ph.D.	Templeton Prize Recipient, 2010 National Medal of Science Recipient, 2002 Professor of Ecology and Evolutionary Biology, UC Irvine
Michael B. Gonzales, Ph.D.	Vice President, Station X Inc.
John Hemminger, Ph.D.	Vice Chancellor for Research, UC Irvine
Ray Mellado	Founder, Chair and CEO of Great Minds in STEM
Shirley Miranda	Teacher, Morse HS, San Diego Director, Greater San Diego Science & Engineering Fair
C. Bradley Moore, Ph.D.	Professor Emeritus of Chemistry, UC Berkeley
Richard S. Normington	Dean, E-Learning Dept Chair and Professor, Sierra Nevada College Continuing & Online Education
Margo Leonetti O'Connell	Board of Trustees, California Science Center Foundation The Leonetti/O'Connell Family Foundation
Arthur Ramirez, Ph.D.	Dean, Baskin School of Engineering, UC Santa Cruz
J. Anthony Tyson, Ph.D.	Professor, Physics, UC Davis

BOARD EMERITUS

F. Sherwood Rowland	Nobel Laureate, Chemistry, 1995 Professor of Chemistry, UC Irvine
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Appendix C: COSMOS Application and Financial Aid Information

COSMOS 2015

Application Worksheet

This worksheet was created as a helpful guide to the online application. **The application must be completed and all supporting documents must be postmarked by 5pm on February 19th.** Compose all your short-answer responses in MS Word first, then copy and paste them into the appropriate boxes online.

CREATE AN ACCOUNT

1. Enter a valid email and password. (Please do not use your parent's e-mail address here; space is provided for a parent email address in the Parent section.)
2. A confirmation email will be sent to you. If you do not receive the email, please be sure to check your SPAM folders and add the necessary e-mail addresses to your list of safe senders in your e-mail account: cosmos@ucop.edu **and** the campus you are applying to, e.g., cosmos@ucdavis.edu, cosmos@uci.edu, cosmos@ucsd.edu, or cosmos@ucsc.edu.
3. Keep this email address and password handy. You will need them to check the status of your application and also for use during the program.

Email	Password: <small>must be at least 6 characters</small>
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TEACHER RECOMMENDATIONS TAB

You can enter the teacher information as soon as you create your account. Submit the names and e-mail addresses of two STEM teachers. They will receive an email with directions from COSMOS. Ask their permission in advance, and provide them with the Teacher Recommendation Worksheet to help them prepare, giving them plenty of time to meet the deadline.

Name	E-mail	School	Subject

APPLICATION TAB

Here's a list of items you should have on hand to complete the online application:

- Social Security Number, if you do not have a SSN, please enter "1111". _____
- Statewide Student ID (optional). Each K-12 student in California public schools is assigned a unique statewide ID number by CSIS, the California School Information Services. Your Statewide Student ID number may be printed on your transcript or can be obtained through your school counselor or registrar's office. If you attend a private or out of state school, leave this blank. _____
- School's official name. Example: Henry M. Gunn High School will not be found under Gunn High School. The school address and district will appear automatically, unless you are home-schooled or are attending a school outside of California. _____
- Parent or guardian's email address (optional) _____

CAMPUS & CLUSTER SELECTION

1. Select the campus to which you would like to like to apply. You may only choose one.
2. Select a 1st- and 2nd-choice Cluster (selecting two Clusters may increase your odds of being accepted).
3. **Elaborate on why you would like to attend each Cluster.** (100-250 words per Cluster.)

COMPLETE ONLINE AT WWW.UCOP.EDU/COSMOS DO NOT MAIL THIS FORM.

STATEMENT OF INTEREST

Please provide a response to ONE of the following: (200-300 words)

1. What excites you about math and/or science, and why would you want to spend a month in COSMOS?
2. Describe a project or experience that furthered your interest in a specific math/science topic.

*** Is there anything else you would like the admission committee to know about you? (Optional, 50 words max)

EXTRACURRICULAR ACTIVITIES (Optional) - List academic activities first

Activity	Brief description of activity (Note any leadership position; 50 words max.)	Hrs/Wk	Wks/Yr	No. of Yrs

FINANCIAL ASSISTANCE (Optional)

If applying for financial assistance you will need to submit only ONE of the following two:

<p>1) A copy of your verification letter for:</p> <ul style="list-style-type: none"> • Temporary Assistance for Needy Families (TANF) <p><i>Do not complete the Financial Assistance Application.</i></p>	OR	<p>2) Your parents must complete and submit the following:</p> <ul style="list-style-type: none"> • Financial Assistance Application • 2015 Federal Taxes • A brief paragraph describing any extenuating financial circumstance.
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REVIEW & SUBMIT

Your online application is not complete until you have reviewed and clicked the 'Submit the Completed Application' button and you see a Confirmation page. A copy will also be e-mailed to you. Sign and return the signature section by mail.

COSMOS – UC Davis
1204 Mathematical Sciences Bldg.
One Shields Avenue
Davis, CA 95616
Email: cosmos@ucdavis.edu
Phone: (530) 754-7326

COSMOS – UC Irvine
493 Social Science Tower
Irvine, CA 92697-2505
E-mail: cosmos@uci.edu
Phone: (949) 824-2053

COSMOS – UC Santa Cruz
1156 High Street
Santa Cruz, CA 95064
Email: cosmos@ucsc.edu
Phone: (831) 459-1766

COSMOS- UC San Diego
9500 Gilman Drive, MC 0429
La Jolla, CA 92093-0429
E-mail: cosmos@ucsd.edu
Phone: (858) 822-4361

5 KEYS TO A SUCCESSFUL APPLICATION

1. Postmark all your materials by 5 pm on February 19, 2016. This includes the application fee, transcript(s), Financial Assistance Application or verification letter, and signed confirmation page.
2. Invest time and effort in your narrative responses. Most applicants are fantastic students! Tell us what sets *you* apart.
3. Have someone check your narrative responses for spelling and grammatical errors. Do not use SMS abbreviations.
4. Teacher Recommendations are very important. Give your teachers enough time to complete and submit the recommendation; remind them of the deadline, and provide them with the Teacher Recommendation Worksheet so they can prepare ahead of time.
5. Please take a look at our Frequently Asked Questions page for a better understanding of our program.

COMPLETE ONLINE AT WWW.UCOP.EDU/COSMOS DO NOT MAIL THIS FORM.

COSMOS 2015 **Teacher Recommendation Worksheet**

STUDENT- Fill in this top section.

First Name	Last Name	Is applying to COSMOS at (circle one): <input type="checkbox"/> UCD <input type="checkbox"/> UCI <input type="checkbox"/> UCSC <input type="checkbox"/> UCSD
This was your teacher for what subject(s)?		What grade(s) were you in at the time (circle one)? <input type="checkbox"/> 7th <input type="checkbox"/> 8th <input type="checkbox"/> 9th <input type="checkbox"/> 10th <input type="checkbox"/> 11th <input type="checkbox"/> 12th

DEAR TEACHER:

This student has listed you as one of their math/science teacher recommenders. You will receive an email from cosmos@ucop.edu with a personal link to the online form. Occasionally our email is marked as SPAM, so please be sure to check your junk mail folder. Please be aware that the deadline is 5pm on February 19, 2016. If you will not be able to meet this deadline, or do not feel comfortable recommending this student, please notify them so that they may ask someone else for a recommendation.

CLASSROOM PERFORMANCE

- In your opinion, does this candidate have a serious interest in studying math or science? Yes No
- In your opinion, does this candidate have a clear aptitude for studying math or science? Yes No
- Describe the candidate's typical classroom performance, preparation, enthusiasm and interest in math and science.
- You may also address any obstacles this student has overcome in pursuing his or her educational goals.

PERSONAL QUALITIES

If you selected Below Average, please explain:	Outstanding	Good	Average	Below Average	No Basis for Judgment
Motivation & meeting deadlines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Independence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Leadership	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Social Maturity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Acceptance of challenge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Works well with others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Overall I rank this student's academic performance in relation to his/her peers in the:

- Upper 1-2% Top 5% Top 10% Top 25% Top 50% Bottom 50%

Please provide any additional information that the review committee should consider when evaluating this candidate for COSMOS.

DO NOT MAIL THIS
FORM

