AWARDS FOR INNOVATION IN HIGHER EDUCATION APPLICATION
UNIVERSITY OF CALIFORNIA, IRVINE

January 9, 2015

Contact Information

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This application is submitted solely by the University of California, Irvine. Please refer to Appendix A for Chancellor Howard Gillman's letter of support.

Abstract

The University of California, Irvine has several recent and planned initiatives focused on targeted learning objectives and individualized student support services. Studies have shown a number of factors affect students' ability to earn bachelor's degrees, graduate within four years, and/or transfer, and that these factors disproportionately affect student groups underrepresented in higher education. Barriers to obtaining a degree include lack of academic preparation prior to entering college, poor academic performance in college-level courses, insufficient financial support, a student's confidence level, level of social integration on campus, lack of affiliation with academic learning communities, and lack of awareness of and connection with campus support services. Innovative partnerships across the UC Irvine campus and with external organizations are serving to significantly enhance programming to address academic deficiencies as well as psychosocial barriers to academic advancement. Despite already excellent retention and completion rates, UC Irvine is committed to improving student outcomes respectively for at-risk groups. This application highlights several interdisciplinary academic program-level initiatives, including technologically-enhanced curricular offerings and programs designed to ease transfer and promote improved outcomes for students in science, technology, engineering, and math. Additionally, we describe campuswide programs, such as the Student Success Collaborative, which support all students through a proactive approach to offering student services aligned with individual student needs. Our initiatives are scalable and replicable. In sum, there is a new theme in UC Irvine programming – identify, seek out, and provide students with tailored support services and opportunities so they can meet their personal, educational, and professional goals.

Assurance

I assure that I have read and support this application for an award. I understand that if this application is chosen for an award, my institution will be required to submit, for approval by the Committee on Awards for Innovation in Higher Education, a report indicating proposed uses of the award funds and, as the fiscal agent, will be responsible for distributing funds to any other participating entities. I also understand that, if this application is selected for an award, my institution will be required to submit reports to the Director of Finance by January 1, 2018, and by January 1, 2020, evaluating the effectiveness of the changes described in this application.

Howard Gillman, Chancellor

Item 1: Faculty and senior administrators at the University of California, Irvine have created new energy around student success. Partnerships across campus and with external organizations serve to significantly enhance academic and support services programming. Despite already excellent retention and completion rates, UC Irvine is committed to improving student outcomes.

The synergy of numerous interdisciplinary work groups represents our academic community's commitment to excellence, as outlined in UC Irvine's dynamic strategic plan. The plan, which is reviewed and updated regularly, serves to guide decision making and resource allocation. We used a comprehensive assessment of progress on the University's strategic initiatives in 2012 to refine efforts to meet the changing needs of our diverse student population. Specifically, we updated campus goals to focus on achieving greater effectiveness in our educational programs and instructional methods, especially as we continue to increase the proportion of low income, first generation, and under-represented minority students in our student body.

Several UC Irvine institutional objectives for 2013-2015, developed through an inclusive and broad-based process, fit well with the priorities of the Awards for Innovation in Higher Education. We review institutional goals systematically and regularly, and update them as appropriate to contemporary circumstances. A few examples of initiatives follow. First, we aspired to serve more students by maintaining and increasing UC Irvine's leadership in learning innovation. Today, UC Irvine is the clear leader in the UC system in learning innovation, particularly through online courses and open education. We have generated over 500,000 enrollments in 13 MOOCS and about 500,000 (over 4 million minutes watched) visits on YouTube to our Open Chem initiative. UC Irvine has also contributed significantly to system-wide online initiatives sponsored by UCOP, including extensive course offerings and faculty representatives on the oversight committee for the Innovative Learning and Technology Initiative. Second, we sought to decrease time to degree by making more effective use of instructional resources year-round by expanding our academic calendar and integrating summer instruction into our more general academic planning. Over the last four years, UC Irvine's Summer Session has had more courses and more enrollments than the other UC campuses combined, serving more than 5,000 students. Nearly 80% of UC Irvine students who graduate in four years take at least one Summer Session course. Third, we have focused on research findings related to educational effectiveness. We have established task forces focused on assessing student success generally and by cohort (first-generation, under-represented minorities, international students, etc.). As described in Item 3 of this application, this work served as the foundation for academic and student services programming to increase the number of bachelor's degrees awarded, allow students to complete bachelor's degrees within four years, and/or ease transfer, particularly for student groups that are under-represented in higher education.

As we achieve the objectives we set for ourselves in years past, we have refocused and redoubled our attention and effort on new initiatives moving forward. Many campus-wide initiatives to support student success more efficiently and effectively began in 2013 and 2014, and are planned for the coming year. A palpable sense of rejuvenation and vitality becomes more apparent as faculty and students realize success. This application addresses several innovative initiatives focused on the alignment of targeted learning objectives and individualized student support services, with an overarching goal of reducing the time it takes to earn a bachelor's degree, especially for students whose background or transfer status may have historically been a challenging factor in academic success.

Item 2: Virtually all students face challenges as they adapt to the rigor of university-level work and the relative freedom of university life. This is especially true for low-income, first-generation, and minority groups that often lack the academic preparation and personal support networks that contribute to success in higher education. Undoubtedly, there are demographic and socioeconomic factors that negatively affect the ability of college students to earn bachelor's degrees, impede academic progress, graduate within four years, and/or transfer, including the particular factors that disproportionately affect student groups that are under-represented in higher education. Low levels of academic performance can, however, be counteracted by extra academic support (Arendale 1997, Wischusen 2010) and social integration programs (Kuh et al. 2011). [See Appendix C for bibliography.] UC Irvine seeks to incorporate the best of these ideas in a way that is sustainable and scalable.

Our undergraduate student enrollment, disaggregated by gender and race/ethnicity, for the last three years is reflected in Table 2.1. Campus enrollment has increased by 10%. The number of students identifying as Hispanic or Latino has risen by 34%, while those identifying as White/Non-Hispanic has decreased by 13% and Asian/Asian American has decreased by 5%. Numbers of historically under-represented students who self-identify as Native Hawaiian/Other Pacific Islander and Two or More Races have increased by16% and 28% respectively. Table 2.2 presents enrollment of student populations that historically have had challenges with college completion, including under-represented minorities, and students who are first generation, foster youth, or have low income, disability, military, or veteran status. UC Irvine enrollments in all of these categories have risen. Most notably, the number of under-represented minority students has increased by 29%, first generation students by 28%, and low income students by 22%. It is worth pointing out that many students fit into more than one of these three categories and, therefore, have significant challenges to overcome in order to graduate within four years.

Table 2.1: Total Undergraduate Enrollment

	Fall 2012			Fall 2013			Fall 2014			Two Year Change
	Female	Male	Total	Female	Male	Total	Female	Male	Total	
American Indian/Alaskan Native	22	13	35	18	13	31	4	4	8	↓ 77%
Asian/Asian American	5,730	4,803	10,533	5,670	4,674	10,344	5,438	4,544	9,982	↓ 5%
Black/African American, Non-Hispanic	260	166	426	250	150	400	253	136	389	↓ 9%
Hispanic or Latino	2,514	1,877	4,391	2,976	2,135	5,111	3,380	2,483	5,863	↑ 34%
Native Hawaiian/Other Pacific Islander	12	7	19	15	13	28	11	11	22	↑ 16%
White, Non-Hispanic	2,115	1,925	4,040	2,030	1,980	4,010	1,740	1,789	3,529	↓ 13%
Two or More Races	450	355	805	512	407	919	581	450	1,031	↑ 28%
Race Unknown	314	344	658	273	311	584	361	429	790	↑ 20%
Non-Resident Alien	638	671	1,309	1,034	1,069	2,103	1,435	1,440	2,875	↑ 120%
Grand Total Enrollment	*12,055*	*10,161*	*22,216*	*12,778*	*10,752*	*23,530*	*13,203*	*11,286*	*24,489*	*↑ 10%*

Table 2.2: Enrollment of Students with Specific Characteristics

	Fall 2012			Fall 2013			Fall 2014			Two Year Change
	Female	Male	Total	Female	Male	Total	Female	Male	Total	
Under-Represented Minority	3,258	2,418	5,676	3,771	2,718	6,489	4,229	3,084	7,313	↑ 29%
First Generation	5,511	4,224	9,735	6,571	4,949	11,520	7,115	5,336	12,451	↑ 28%
Low Income	4,135	3,044	7,179	4,728	3,389	8,117	5,101	3,679	8,780	↑ 22%
Foster Youth	85	55	140	99	52	151	95	55	150	↑ 7%
Students with Disabilities	251	232	482	345	319	664	421	373	794	↑ 65%
Active Military, Reserves, ROTC	20	63	83	17	66	83	18	69	87	↑ 5%
Veteran	11	86	97	11	96	107	12	84	96	↓ 1%

Table 2.3: Success Measures, Students with Specific Characteristics

	NEW FRESHMEN			NEW TRANSFER		
	3rd Yr UCI GPA* (3rd Yr College GPA)	2nd Yr** Retention	Graduated in 4 Yrs***	1st Yr UCI GPA* (3rd Yr College GPA)	2nd Yr** Retention	Graduated after 2 Yrs at UCI****
Female	3.09	93.2	73.4	3.03	91.5	61.7
Male	3.05	92.4	62.9	2.99	92.4	44.6
Not Under-Represented Minority	3.11	94.2	71.1	3.02	92.2	54.4
Under-Represented Minority	2.92	88.5	57.3	2.96	91.1	47.1
Not 1st Generation	3.12	94.2	70.9	3.04	91.5	54.3
1st Generation	2.99	91.2	64.4	2.97	92.4	52.1
Not Low Income	3.11	93.9	70.5	3.04	91.7	55.6
Low Income	2.98	90.7	62.5	2.94	92.4	47.5
Not Foster Youth	3.07	92.9	68.8	3.00	92.0	52.8
Foster Youth	2.92	80.0	61.1	2.87	88.5	56.2
No Disability Stated	3.07	92.8	68.8	3.00	91.9	52.9
Disability	2.59	100	33.3	3.88	100	100
No Military Status Stated	3.07	92.8	68.8	3.01	92.0	53.0
Active Military or Reserves	2.98	86.2	50.0	2.99	91.3	54.7
Military Veteran	2.83	100	81.8	3.08	89.4	45.1

*All Data points indicate assessment of the most recent success measures, as follows: *2007-11 cohort averages for 3rd year = 2010-14 GPAs; **2009-13 cohort averages for 2nd year = 2010-14 retention; ***2006-10 cohort averages for end of 4th year = 2010-14 degree attainment; ****2008-12 cohort averages for end of 2nd year = 2010-14 degree attainment*

Empirical data related to success measures for UC Irvine students in higher-risk categories compared to those in lower-risk categories is presented in Table 2.3. Findings are aligned with contemporary research and anecdotal evidence for college students nationally. Overall, students who begin as freshmen at UC Irvine have higher grade point averages in their junior year, better retention, and are more likely to graduate within four years. Students in higher-risk categories are less successful according to these measures than students in lower-risk categories. Studies have shown there are a number of factors that affect the ability of students to earn bachelor's degrees, graduate within four years, and/or transfer, and that these factors disproportionately affect student groups that are under-represented in higher education. Some barriers to success include lack of academic preparation prior to entering college, poor academic performance in college-level courses, a student's confidence level, social integration on campus, affiliation with academic learning communities, and awareness of and connection with campus support services. As UC Irvine increases the proportion of students from higher-risk categories, in the absence of deliberate interventions, we would expect time to degree to increase and our retention rates to fall. Conversely, the multitude of programs the institution has recently initiated aim to maintain or improve our relatively rapid time to degree and high retention rates.

UC Irvine has taken steps to integrate these students and to reinforce support services related to their social integration and academic progress. Faculty and administrators are addressing academic deficiencies as well as psychosocial barriers to student success. Historically underserved students typically come from low-performing high schools and are under-prepared for college-level work. Moreover, research has shown these students often have few mentors, lack confidence in their ability to succeed academically, do not understand the myriad campus resources that exist to support them, and therefore are less likely to seek out resources and/or assistance. They are more likely than other students to give up and drop out than to persist. There is a theme in UC Irvine programming over the last couple of years and currently in development—identify, seek out, and provide students with the RIGHT support services and opportunities.

Item 3: UC Irvine, like many higher education institutions nationally, historically has offered student services in a somewhat generic and reactive way. Large academic advising centers for undergraduates are augmented with other offices students can choose to visit for needs related to counseling, disabilities, writing support, tutoring, or special cultural interests. In recent years, however, we have begun to focus on providing services designed specifically for students who have been identified, through empirical data, to be at higher risk for experiencing barriers to academic success. Innovative programming for specific student populations on campus is exemplified through several carefully-developed and continually-assessed initiatives.

One such program is the STEM University Preparation Program (STEM-UPP), which seeks to increase the academic preparedness for science, technology, engineering, and mathematics (STEM) majors of incoming freshmen and transfer students through intensive, individualized training of students just prior to entering the university. STEM-UPP, first piloted in 2013, is focused on identifying gaps in a student's prerequisite preparation for introductory STEM courses and then providing instruction and extensive practice on those topics to under-prepared students. STEM-UPP contains low-cost, scalable, online adaptive learning modules designed to be completely customizable to each student's learning needs. Most STEM majors require an intense first year of courses in a combination of mathematics, physics, biology and/or chemistry. Students unable to meet the prerequisites for the usual gateway Calculus I, Physics I and Chemistry I courses usually fall behind in their degree programs and often fall further behind due to the interrelated prerequisites for other course sequences. One of the key motivators for undertaking this project is to help under-represented groups, including academically qualified but economically disadvantaged high school students, become better prepared for rigorous university level work. The program is intended to increase the number of bachelor's degrees awarded by decreasing drop-out rates through better preparation of students for their chosen majors. STEM-UPP also should substantively reduce the average time to degree for STEM majors by reducing non-passing grades and decreasing the number of students repeating introductory STEM gateway courses. Achieving a two year STEM major time to degree for transfer students can be challenging due to the unavailability of lower division required courses in many community colleges. STEM-UPP addresses this by partnering with local community colleges to offer online or hybrid courses at low cost to ensure students have access to a wider range of required STEM lower division courses prior to enrolling at UC Irvine. Finally, the STEM-UPP program particularly seeks to improve the graduation rate and time to degree for under-represented and minority students by targeting these populations for these supplementary summer educational programs and providing scholarships for participation by those who need additional support. The pilot was developed with the intention of assessing our ability to efficiently provide student remedial instruction, effectively prepare students for first year STEM courses, engage UC Irvine faculty members to teach the modules, and employ innovative pedagogical approaches including adaptive learning, online office hours and peer-reviewed assessments. Despite the limited time devoted to marketing, we attracted 87 students for writing, chemistry, and mathematics courses, and nearly 37,933 students for a pre-biology MOOC course. From the 87 students taking the STEM-UPP courses, not all were enrolled in UC Irvine STEM gateway courses in the subsequent quarter; of those that were, they completed the courses at a slightly higher rate and with a slightly higher GPA than a matched cohort of students with similar SAT scores, who did not participate in STEM-UPP. We specifically studied the success in using a summer pre-biology course to prepare students for success in the first year biology sequence. "Students with math SAT below 550 were offered the explicit incentive of an early change into the biology major

upon successful completion of the MOOC and two additional onsite courses. Our results demonstrate that, among course registrants, a higher percentage of UC Irvine students (>60%) completed the course than non-UC Irvine registrants from the general population (<9%). Female UC Irvine students had a greater likelihood of enrolling in the MOOC, but were not different from male students in terms of performance. Students entering the university with low preparation out-performed students who were entering already equipped with the credentials to become biology majors. These findings suggest that MOOCs can reach students, even those entering college with less preparation, before they enter the university and have the potential to prepare them for challenging science, technology, engineering, and mathematics (STEM) courses" (Jiang et al, 2014). [See Appendix C for bibliography.]

UC Irvine's Cal Teach program is another of our innovative academic programs. Enrolled undergraduate students receive a bachelor's degree in mathematics or science and a teaching credential in only FOUR years. This contrasts with California's traditional model for teacher preparation in which prospective teachers must complete post-baccalaureate teacher credential program after completing their undergraduate education. The UC Irvine four year undergraduate model removes the financial burden of a year of post-baccalaureate tuition and fees, lowers the time to achieve the professional degree, and speeds entry into the teaching workforce. The Cal Teach program represents a highly successful partnership between the three academic units that developed and jointly sponsor it: the School of Biological Sciences, the School of Physical Sciences (housing departments of Mathematics, Chemistry, Earth System Science, and Physics and Astronomy), and the School of Education. Each science school is responsible for the degree programs that blend disciplinary coursework and teacher preparation coursework, and they award the bachelor's degree; the School of Education is responsible for ensuring that coursework satisfies state teacher preparation requirements and for recommending candidates for the preliminary single subject credential. Student success is a major planning factor for any STEM major, and is especially so for Cal Teach students who have the additional requirements for teacher certification at an accelerated pace. Specifically, the School of Physical Sciences and School of Biological Sciences lose up to 50% of their undergraduate majors by the end of students' sophomore year. The success of the Cal Teach four year program depends on attracting STEM majors early in their undergraduate program and on retaining them in their major. Counseling is one important variable in student retention. Two dedicated Cal Teach Student Affairs Counselors work closely with the Student Affairs staff for both the School of Physical Sciences and School of Biological Sciences to identify students who are having academic difficulties. The Cal Teach counselors are proactive about meeting with those students to understand the underlying problems and to recommend campus resources for academic assistance. Candidate progress is reviewed annually; Master Teachers and the Cal Teach Counselor meet with students to discuss areas of concern and develop action plans for improvement. Another important variable in student retention is student engagement and success in early core science courses. Between 2007 and 2009, Physics Department data showed that 50% of STEM majors who took freshmen physics were failing one or more introductory courses during the freshman year. The department revised its introductory physics sequence, introducing a new, required course to address retention for the 750 STEM majors who take the physics core courses. Those freshmen now receive specific instruction and guided practice on different aspects of good study habits, and the most at-risk students are identified early in the year so that they can be integrated into a support network and advised more closely. Similarly, UC Irvine has begun the HHMI Professor Program, which is designed to support instructors to introduce active

learning into large introductory biological sciences classes. The team has identified a number of instructional strategies that improve learning outcomes and student attitudes in the introductory courses, and they have implemented early interventions to address the issue of underprepared students and retention in the school's undergraduate majors (e.g., workshops on successful note taking and maximizing midterm studying).

Our Academic English Program (AEP) is a third example of our relatively recent trend to proactively address potential academic risk factors. Undergraduate students frequently comment that the reading and writing demands of UC Irvine courses are very challenging compared to their high school or community college classes. UC Irvine's AEP has been developed and continuously refined to offer English language courses in academic writing, reading and vocabulary development, pronunciation, conversation, and grammar. Courses are designed to strengthen students' English skills so that they can complete the academic requirements of UC Irvine successfully, from the time they first enroll, in order to finish their undergraduate coursework within four years. Students who have been admitted to UC Irvine and whose scores on the AE Placement Test indicate the need for additional work in English are required to take a series of courses designed to support them as they complete readings, assignments, and communicate generally across the broad spectrum of courses they will take during their academic careers. Students required to enroll in AEP courses must begin satisfying requirements within their first or second quarter at UC Irvine, and they must take their AEP courses in consecutive quarters. The program also offers students individualized assessments, guidance, and web-based resources. Finally, the UC Irvine faculty who lead the AEP also work with community college instructors on projects designed to improve the instruction of academic English and, therefore, ease student transfers between the two segments.

In addition to these specific program changes, in late 2013 UC Irvine began serious consideration of a significant campuswide change to promote student success through customized student programming. The Student Success Collaborative (SSC) is a data platform for predictive analytics. SSC helps advisors identify students who fall off track and/or who are likely to be unsuccessful in their chosen majors. The sooner students having difficulties can be directed to more appropriate majors, the less likely they will need extra quarters of enrollment to complete their degree programs. Predictive analytics can also identify student cohorts that might benefit from different levels of advising, such as high-performing, but below the "radar," students from first-generation, under-represented minority, and/or low-income backgrounds who could achieve a richer academic experience with encouragement and mentoring. Advisors use various academic progress measures for each major and discuss different options with students when they are not performing well. Advisors place students on academic probation, and arrange contracts to change majors if the student is not performing well in their current major. Student achievement gaps exist between under-represented students and traditional student populations in the order of magnitude of about six percentage points for 2nd year retention rates when considered over the last five years. The SSC is a tool to allow advisors to focus on specific populations of students, especially those not doing well, and create a pathway for them to be academically successful at the university. SSC is further detailed in Item 4, as UC Irvine piloted the initiative in 2014.

Item 4: This application addresses UC Irvine's innovative initiatives focused on the alignment of targeted learning objectives and individualized student support services, with an overarching goal of reducing the time it takes to earn a bachelor's degree, especially for students whose background or transfer status may have historically been a challenging factor in their academic success. Partnerships across campus and with external organizations are serving to significantly enhance academic and support services programming. Despite already excellent retention and completion rates, UC Irvine is committed to improving student outcomes.

Since January 2014, we further developed and institutionalized the STEM University Preparation Program (STEM-UPP) program, which seeks to increase the academic preparedness for science, technology, engineering, and mathematics (STEM) majors overall, and to address some of the factors shown to affect the disproportionate drop-out rate for under-represented minority (URM) and women students in STEM majors. Several studies report competent students chose to leave STEM because of the "weed-out" mentality, poor presentation skills and minimal teaching preparation of their introductory course instructors (Seymour and Hewitt 1997). [See Appendix C for bibliography.] It is particularly troubling that women and URM students are more likely to leave STEM than males, White, or Asian students. A recent analysis of students who arrived at UC Irvine as freshmen with an interest STEM fields indicate that, while 72% of males remain in STEM at the end of their second year, only 64% of women and only 55% of URM students remain. This loss is common across the US. While 14% of White and 23% of Asian students graduate with STEM degrees, the percentage among Blacks and Hispanics is lower at 10-12% (USEd 2009). Plus, despite a nationwide increase in the number of URM students entering the university, the number graduating in STEM is not rising (PCAST 2012).

In the past year, STEM-UPP was offered to more students and the educational modules available were expanded to include pre-physics and quantitative skills, in addition to the original pre-calculus, pre-chemistry and pre-biology courses. The program was also expanded to include lower division courses targeted for transfer students in engineering. Online and hybrid courses were offered to community college and incoming transfer students to help them get access to required lower division courses not otherwise available to them. Also, UC Irvine now provides all incoming students with a free diagnostic exam to measure their readiness for coursework required in their chosen major, and directs them to specific STEM-UPP on-line modules likely to be beneficial based on their individual exam results. Students whose diagnostic scores fall below a certain threshold will be enrolled in the basic quantitative skills module. They will be able to participate in one of the face-to-face or online discussion sections, where they can interact with other students, course instructors, and teaching assistants. Students who achieve high scores on the diagnostic exam proceed directly to the pre-science modules. The pedagogical approach centers on adaptive learning in which interactive computer software presents educational material tailored to individual students' specific needs. This is especially effective for remedial education since it ensures students spend the most time focused on course content in which they had low performance on the exam. Faculty within the School of Engineering also are developing evidence-based teaching methods, tools, and processes focused on increasing student learning outcomes, efficiency of course delivery, matriculation rates, and transfer students' time to graduation. We now offer courses in face-to-face, online, and flipped classroom formats, enabling wider access. UC Irvine also is partnering with Irvine Valley College to offer key lower division courses at the community college level and via UC Irvine Summer Session, to ensure transfer students do not fall behind their peers. The research informing the program is focused on

current students who are "digital natives" and are used to consuming information via a much different process (more modularized, accessible, active and laced with virtual interactions) than their counterparts even five years ago. This scalable work has potential to lower the cost of delivering classes by providing high quality online materials to community colleges and increasing capacity of UC Irvine course offerings. Further, this program provides accessible and much-needed uniformity in course delivery and content, so students are well prepared for subsequent STEM courses, and are more likely to complete their degrees within four years.

UC Irvine's Diverse Educational Community and Doctoral Experience: Partnering in Leadership for Undergraduate Students (DECADE PLUS) Program is a new mentoring initiative that supplements these programs. URM and disadvantaged students in STEM majors have lower representation and retention rates at UC Irvine and elsewhere, which may result from both lack of academic preparation and a constellation of psychosocial challenges to college success. DECADE PLUS provides academic support while also addressing psychological barriers via trained graduate and peer undergraduate student mentors who provide a range of support services, using techniques that have been proven to enhance academic success. Assessment results from experimental programs demonstrate that brief interventions can overcome the psychological barriers that impede URM and disadvantaged students' academic performance. Enriched mentoring environments have been found to increase retention rates for all undergraduate students, but the positive effects are far greater for URM students.

Other important contributors to the achievement gap are the unique psychological barriers that URM and disadvantaged students face in college. There is evidence that these students are more likely to feel socially stigmatized and doubtful of their ability to succeed. Self-doubt is even evident among URM students with records of strong high school academic achievement. Since initial negative academic experiences may set the tone for students' academic trajectory in their undergraduate careers, it is important to provide early psychosocial support for URM and disadvantaged students. Active learning techniques, psychosocial interventions, and a focus on leadership differentiate the support provided by DECADE-PLUS program from traditional remedial programs that may further stigmatize the targeted population of students. Specifically, we expect this innovative initiative to address four specific goals: 1) improve the academic performance and increase the number of URMs earning STEM degrees through comprehensive psychosocial and academic support; 2) improve leadership, research skills and professional role confidence; 3) evaluate and institutionalize successful program components, and 4) create a locally and nationally recognized model program.

The nascent DECADE PLUS program also aims to increase retention of incoming Chancellor's Excellence Scholars. These students are high-achieving, incoming undergraduate students from California who are first-generation, low-income, and/or from low-performing high schools. Institutional data for the Chancellor's Excellence Scholars from 2011-2013 reflects the average retention of the scholarship after the freshmen year is approximately 63%. Students that met the renewal requirement on average had a GPA 1 point higher than students that did not meet the renewal requirement. For students that did not meet the renewal requirement, their average GPA fell below the minimum GPA of 2.0 to maintain good academic standing. While the students are chosen to receive the scholarship based on their great academic and intellectual promise, the data suggest a large proportion of the Scholars experience difficulties transitioning from high school to college; which may result in decreased retention rate. If the DECADE PLUS intervention is successful, it is expected that participants' GPA after the first year should be 0.2-0.3 points higher than non-DECADE PLUS participants (Walton and Cohen, 2011; Stephens et

al., 2014). The positive effects on GPA should persist for at least 3 years post-intervention (Walton and Cohen, 2011). We will begin evaluating DECADE PLUS at the end of the 2014-15 pilot year.

Most of UC Irvine's contemporary program innovations are focused on improving undergraduate retention and, therefore, completion rates. As described above, STEM-UPP prepares students prior to entering university by providing additional academic support, and DECADE PLUS provides focused attention to students who are first generation, low income, and from low-performing high schools—characteristics found to be academic risk factors. Providing psychosocial interventions in addition to academic interventions to underserved students promotes confidence, better outcomes, and improved completion rates. As such, non-curricular initiatives and curricular initiatives that help students live healthy lives also are crucial.

One example of innovative curricular programming follows. UC Irvine was the first of 32 four-year universities in California to implement (in 2014) a required lifestyle course to promote physical and mental health, and thereby academic success and personal wellness. "Life 101" encourages, challenges, and motivates students to make positive changes in their lifestyles, as well as the way they interact with others and their environment, ultimately achieving personal growth in many aspects of life. The course has been taken by 527 as of the summer quarter. Constructive effects, as measured by student evaluations and multiple surveys, included the following: 99% of students reported making positive changes in their lifestyle as a result of what they learned in the course; 25% of students started to exercise to relieve their stress, instead of eating (10% decrease), using social media (9.1% decrease), or using alcohol (10% decrease); 86.1% indicated that they know how to manage their personal finances by the end of the course, compared to 47.3% who reported they were able to do so at the beginning of the course. These outcomes overlap with the initial goals identified in Item 1. The addition of a free online version of the course in 2014 and a mobile application currently in development are expected to have further advantages, including broader accessibility.

We continued to develop and implement academic-major-specific student success programs in 2014. Economics majors comprise the second largest group of degree-seeking students on campus, with just under 8% of the undergraduate population, or 1,890 students. Multiple measures of assessment over time have found that economics majors find their coursework quite challenging, and attrition from the major is problematic. The Economics Learning Center was piloted in the Fall 2014 quarter to support student progress, retention in the major, and to reduce time to degree. From 1:00-9:00 p.m. Monday through Friday, the Center is staffed with a rotating crew of 21 teaching assistants and 10 peer tutors who specialize in teaching introductory and intermediate economics concepts. During the first quarter of operation, over 1,000 student visits were logged. The pilot was initially assessed through student surveys, although quantitative measures such as student's course grades, overall grade point averages, and retention rates will be evaluated in future quarters as they progress through the program. Faculty did, however, recognize clear advantages to the program and have decided to establish the Economics Learning Center as a permanent resource for their students, expanding services as warranted.

In 2014, UC Irvine built on campuswide technologically-enhanced educational innovations described in Item 1 of this application. We significantly ramped up attention to online education for students on our campus as well as for students across the UC system, in order to increase access to high demand courses for matriculated undergraduates without increasing fees for those courses. The Irvine campus has been a leader in online education for the

UC system, offering the first online undergraduate courses in 2008 and currently holding a portfolio of approximately 60 online undergraduate courses. In the Summer 2014, UC Irvine offered more online courses than all the other UC's combined. We also have consistently offered more courses than the other campuses for cross-campus enrollment. That said, we aspire to excel further. In Fall 2014, the Provost invited proposals from faculty to increase the number of courses available, especially those courses that are required for multiple majors. The institution's priority is to develop courses that can serve greater numbers of students while providing equal or better learning experiences. Specifically, our faculty are consistently encouraged to transform face-to-face or hybrid courses to a fully online offerings, and/or to develop new online courses. In response to the call, the Provost received proposals for 17 additional courses. Those proposals are currently being vetted and funding will be provided to support as much development as possible in the coming year.

UC Irvine's Office of Student Affairs increased their programming for historically under-represented students. We expanded efforts to improve student success and retention in 2014 based on an exploration of the level of convergence and divergence between what students need and what our campus offers toward academic and co-curricular support. We augmented services to include customized workshops, career panels, and orientation and outreach events. We also undertook more innovative initiatives; for example, we launched the Campus Connections for First Generation College Students program to assist first generation students successfully transition to college life by providing information about campus resources, services, and opportunities as well as a supportive community of peers. We encourage Campus Connections students to take their initial writing composition course together, to facilitate the development of a learning community conducive to academic success. Students in the program also work closely with well-trained peer tutors in academic areas including writing, chemistry, math, physics, and biology. Another program developed to support student retention and success is offered through UC Irvine's Cross-Cultural Center. The Cultural Wellness and Personal Development program provides opportunities for students, particularly URM students, to explore their personal, social, cultural, academic, and career identities in terms of their own personal development. The program's Celebrating Our Community Series is a great way for students to get to know one another and celebrate the different cultural communities present at UC Irvine. A strong sense of cultural community and a supportive peer network has been found to promote student progress. We also have, in the last year, refined our programming portfolio for transfer students and other special populations. The Summer Bridge program orients incoming students prior to their first quarter on campus, and advisors follow up with students regularly through their first year. We extend to transfer students, foster youth, first generation students, and students with low income family status priority registration privileges and individual advising sessions as needed. We provide these students with opportunities for Learning and Academic Resource Center scholarships, book scholarships, and computer resources. Transfer Center staff coordinate monthly workshops and other events to connect with students in groups, bring students together with their peers, and to discuss common experiences, challenges, and successes. UC Irvine tracks transfer student progress and reaches out to those who do not do well. We focus on success in the first quarter, as we know through empirical evidence that the first quarter is most pivotal to retention; however, we also extend proactive services to students affiliated with the Center throughout their time on campus.

The success of these and our other initiatives will be measured via the Student Success Collaborative (SSC) student record platform that includes predictive analytics and scoring in

addition to basic academic record information. UC Irvine has deployed a predictive analytics program to improve undergraduate student outcomes. In the spring of 2014, the university subscribed to the Student Success Collaborative (SSC) data platform developed by the Educational Advisory Board. The SSC predicts individual students' likelihood to graduate in our wide range of majors. The predictions are generated by comparing key academic factors for each student against historical patterns of success and failure. Student information is scored nightly and made available for advisors in our schools to help them in discussions with the students regarding their programs of study and future career options. Using three test units, we have begun to deploy the SSC platform in this standard manner, to help students to succeed in their majors and to keep them on path in their academic programs and future careers.

We have been using SSC, as described above. We are now in the planning stages of implementing a second more innovative approach where we will use the SSC platform to create predictive models to help identify high-performing students on campus who, for reasons of socioeconomic background and/or first-generation status, might not be experiencing the fullest academic experience that the campus has to offer them. We will identify both native freshmen as well as transfer students who are just below the "radar," and help advisors direct them towards opportunities such as participation in honors or undergraduate research programs. Participation in such programs will allow these students to develop more depth and breadth in their academic experiences as well as more one-on-one contact with faculty members. Such experiences will alert these students about their possibilities with regard to graduate education and will simultaneously make their applications to such programs more attractive.

The existing platform works well for native freshmen, but not so effectively for transfer students. Given that transfer student success is also a key focus of UC Irvine's efforts to improve student outcomes, we will work to improve this aspect of the SSC predictive model by coordinating with key feeder transfer institutions and Cal-PASSPlus data to standardize our students' past community college coursework to their UC Irvine equivalents. In this effort, we aim to have not only UC Irvine's advisors, but also feeder community college advisors help direct students to enhanced opportunities at UC Irvine in a more expedient manner. In addition, we plan to expand our predictive models to community colleges that less frequently transfer their students to our campus in the hopes of making the California Master Plan more fully realize its objective.

Item 5: UC Irvine is committed to the systematic and regular assessment of institutional policies, practices, and systems related to our strategic priorities related to student achievement. Initiatives described in Item 3 and Item 4 of this application will continue, but with modifications and/or additional resources as warranted to further improve programmatic outcomes as evidenced by quantitative and qualitative evaluation results.

We are planning to continue the expansion of the STEM-UPP program after January 2015. Specifically, we plan to increase the collaboration with community colleges on offering online courses to help transfer students get access to required lower division courses and enter UC Irvine better prepared for upper division STEM coursework. We also plan to expand the pedagogical and delivery models to other disciplines on campus, thereby perpetuating momentum increasing courses to incoming transfer and community college students. We will also expand the STEM-UPP program for UC Irvine incoming freshmen by working closely with the STEM departments to identify and encourage appropriate students to enroll. We hope to be able to offer more scholarships to enable students for whom the course fee is a financial burden. We would like to expand the study groups and social interaction from the STEM-UPP program into the academic year by having orientation week mixers for the online students to meet face-to-face their student colleagues from the STEM-UPP courses. We will track course cohorts into the Fall in order to ensure students are enrolled in Fall course sections with their STEM-UPP group study teammates. We plan to continue to carefully track the subsequent course performance of the students participating in STEM-UPP and seek modifications of the program to continue to improve their preparation for STEM coursework and ultimate retention in the degree. Finally, we have already shared details of the STEM-UPP program with administrators across the UC system and are hoping to work with STEM faculty at other UC and CSU campuses to inform them about our program and to encourage them to direct students to our program or to take our course assets and repurpose them to help meet the preparation needs of students on their campus. We plan to email, call and visit other campuses to share data about our program and provide consultation to those interested in utilizing or adapting STEM-UPP.

We will also expand the Cal Teach Program in 2015. As currently designed, it is difficult for a community college transfer student to complete the program in just two years at UC Irvine. We recognize that community colleges offer a desirable talent pool for STEM majors who may not consider transfer to a UC campus if they are considering a teaching career. The Cal Teach program seeks a creative solution to this challenge. For several years we have worked with local community colleges to encourage enrollments in Cal Teach through cross campus enrollment agreements; but that approach drew only a handful of community college participants. Deans at UC Irvine also hosted a meeting of 16 regional community college leaders, to gauge interest in developing collaborations and better defined pathways to make the program an attractive option for qualified transfer students. There was enthusiastic support for this goal and the group expressed interest in developing "bridge" programs to a) clearly define the classes prospective transfer students should take at their community college to transfer to a UC Irvine STEM major and to maximize readiness for the Cal Teach program, b) make two or more Cal Teach or equivalent courses available to community college students, at the community college campus or at UC Irvine in summer, c) offer some financial incentives, and d) include an offer of guaranteed transfer admission to UC Irvine if defined requirements had been met. We are pleased to report that UCI Cal Teach and Mt. San Antonio College just began a partnership designed to prepare STEM community college students to transfer into the UC Irvine Cal Teach Program. We are currently meeting to reach articulation agreements to accommodate the first cohort in fall of

2015. Our plans include identifying a cohort in the spring of 2015 and providing access to two introductory Cal Teach courses, and accompanying K-12 field placements.

Likewise, the campus is committed to expanding the DECADE PLUS program. At the end of the academic year, we plan to evaluate the undergraduate participants' GPAs, fellowship retention, and retention at UC Irvine. Based on the participant data and graduate student mentors evaluations, we will adjust the program for the 2015-2016 academic year and continue with the program. With additional funding and evidence of program success, the program will be scaled up to include more undergraduate participants and mentors.

We will pilot discipline-specific academic program innovations to support student retention in their majors and to decrease time to degree. Beginning in the Winter 2015 quarter, the Physics Department is offering the first of these programs, designed for at-risk students. One of four sections of Physics 7C will be delivered with unique factors such as a much smaller class size, one hour of extra instruction per week, two hours per week of discussion, and the addition of peer advisors. Students in the pilot class were selected randomly from a large pool of volunteers. The course content, assignments, and exams will be exactly the same for the pilot section as they are for the other three non-pilot sections. The Office of Academic Planning is providing the additional financial resources necessary for the increased cost of delivering the course, as well as peer counselors, extra instructional and assessment support. Based on research at the University of Texas, Austin, as highlighted in the New York Times in 2014, we expect this pilot to be very successful, and to serve as a model for future programming in a broad range of gateway courses in STEM disciplines.

The university expects to fully implement the Student Success Collaborative platform for all undergraduate schools by the end of the 2014-15 academic year. At this time, there are three pilot schools involved while we test the system and its predictive analytics. In particular, faculty and administrators involved with the pilot are focused on data integrity, efficacy of processes, and value-added for students and their advisors. We have been, and will continue, testing the platform to ensure it is a good predictor for affecting improvements in curricular and co-curricular metrics of student success. In addition, we are conducting special project analyses related to specific outcomes such as improving our ability to identify special at-risk populations and provide advising earlier in their academic careers than has been done in the past. The system will be further customized for UC Irvine as necessary. Aside from the basic implementation of the SSC, we plan to use the platform in a truly innovative way—to identify high-performing under-represented students to encourage them to engage in a fuller and more enriching academic experience, rather than focusing only on under-performing students. Our Office of Institutional Research is working to articulate the profile of a high-achieving student, so we can identify and seek out sophomores and juniors who fit the profile, and who are also low income, first generation, or URM. We will guide these students into our programs for high achieving students such as the Honors Program, the Undergraduate Research Opportunities Program, and honor societies, with a goal of achieving graduation in four years and potentially guiding them into graduate school. We will also use SSC to improve curricular offerings, such as those related to our Academic English Program (see Item 3) to help inform students and advisors about the course sequences that are likely to enhance their performance across the curriculum.

Item 6: ***See Appendix E.*** Due to our work in eliminating bottlenecks and integrating our summer session in a way that aids students in fulfilling required courses, UC Irvine's retention rates are high and average time to degree low: 92% of freshmen and transfer students returned for the fall of their 2nd year; approximately 84% of freshmen returned for the fall of their 4th year; we graduate 72% of native freshmen within 4 years and 84.5% within 5 years; 52% of transfer students graduate within 2 years and 85% within 3 years. We are not satisfied with the status quo (especially for transfer students, where we have more room for growth) and continue to improve efficiencies as well as educational programs. Each of the programs highlighted in this proposal aims to help students identify and access the most relevant courses in the most appropriate sequence. Innovations are designed deliberately to increase retention, which is a crucial component of making the state's, UC's and students' investments in education efficacious. Every student who matriculates at UC Irvine develops educationally, personally, and socially, utilizing resources from all 3 sources of funding. Yet some drop out and never get a degree. Estimating cost savings of our highlighted programs to the State, the UC, and matriculating students' families is a difficult task for several reasons. Most prominent among those is the need to make assumptions regarding the demographic characteristics of the students served (because the costs to the state and other contributors is different for different populations) and the magnitude of our various (especially new) programs' impact on specific (measurable) factors. We begin by utilizing the UC system's estimates of the annual cost of UC undergraduate tuition at $18,060 (tuition represents only one component of total costs which also include campus fees, housing, books, and students' lost earnings). Considering only tuition, $7,090 is paid by the California State General Fund, $2,610 by UC General Funds, and $8,360 by students and their families. Considering the additional complication of financial aid, we note contributions to students' responsibility are shared by the federal government (through Pell Grants), the State of California (through Cal Grants) and the UC (through USAP and other campus and UC funds), though in different proportions for students with different levels of financial need. Our estimates are of cost savings for each party by the characteristics of the targeted students (low and median income students). While it is obvious that various forms of savings accrue to all parties when students obtain their degrees in 4 years, estimating the real cost of enrolling students who fail to obtain their degrees is more difficult. While one might consider investment in students who eventually drop out to be unproductive dollars, which are multiplied by the number of years students matriculate before dropping out, we note that some portion of those who leave UC Irvine transfer to other campuses, and that each year of UC education adds value in terms of learning and skills development. Nevertheless, we aim to graduate the maximum number of students within 4 years and to increase retention. Because our programs are designed to be completed in 4 years (except for special disciplinary specific requirements), we consider enrollment beyond the 4th year (2nd year for transfer students) as potentially avoidable. Many of our innovative programs described here aim to help students enroll in and successfully pass the courses required for their majors, which eventually enables their degree completion. Our estimates are focused on reducing time to degree only. Most of our programs also aim to increase retention, and cost savings related to those efforts are likely also substantial. Yet because we are not comfortable estimating how many students who participated in one of our programs persist, when they otherwise would not have done so, we do not attempt to put a dollar amount on that (likely substantial) cost saving. Appendix E presents a breakdown of what we are comfortable estimating: conservatively, current annual savings of $1,156,470, and at least $1,763,561 annually by 2018.

Item 7: All innovation comes with potential risks. In order to seek more efficient and effective solutions to on-going campus issues, we must leave tried and true measures behind. Below we discuss some of the potential risks associated with the innovations we are currently implementing, and our approach to addressing them.

STEM-UPP. On-line preparatory programs are attractive options, especially during summer session. Their convenience and the greater flexibility often make them a first choice for students who are unable to relocate to UCI during the summer, and their ability to accommodate more students per session make them attractive to administrators and other stake holders. Yet while the long-term effectiveness of more traditional on-campus bridge programs have been fully assessed, we have not yet been able to assess the long-term impacts of the newer on-line versions. One risk of replacing proven but more expensive programs with less expensive alternatives is that they may be less effective in the long run and end up costing the campus more by reducing retention rates and/or slowing down time to degree. As we replace existing on-campus bridge programs with on-line options, we are careful to monitor their effectiveness, especially with certain populations. For example, some research demonstrates that URM students don't do as well in on-line educational environments. The STEM-UPP program addresses this issue by incorporating synchronous community problem solving sessions and other social components designed to counteract this effect. Still, we continue to research and monitor the impact of STEM-UPP offerings to ensure that URM students are successful in subsequent coursework after participating in STEM-UPP and that they are no less successful than similarly skilled students of other races and socioeconomic backgrounds. And as the program matures, we will be able to measure more long-term effects.

Cal Teach. Given that students in this program complete five years of coursework and internships in four years, the Cal Teach program is extremely demanding. Students who are not prepared to devote the additional time required are not likely to succeed. Therefore, the dropout rate for this program is higher than that of the general campus. As mentioned throughout this proposal, high dropout rates are an issue that the campus strives to reduce, and therefore, this is a feature of the program to which we pay particular attention. Efforts to avoid dropout include advising that emphasizes the need for students' commitment to the rigorous demands of the program and close monitoring of student progress in their majors. Eventually we plan to also use SSC to monitor student progress and enhance their success in the program.

DECADE PLUS. This program brings highly-equipped and diverse graduate students together with URM and low income undergraduate students in order to provide them with one-on-one assistance that complements existing intensive academic support programs. Risks associated with close one-on-one pairings include mismatches based on disciplinary interests and/or personalities. To monitor these risks and to ensure the smooth functioning of the program, mentors keep journals of participants' progress (while keeping their identities anonymous). The project director has access to these journals and is thereby able to assess the challenges and successes of the program as well as make adjustments for improvements in current and subsequent years.

Student Success Collaborative. The SSC platform provides advisors with the ability to monitor students' progress in their majors and gives them additional information to utilize while advising their students. In addition, it facilitates tracking students' appointments with advisors, the extent to which those appointments improve student success rates, and differences in their effectiveness across various student populations. The platform provides reports and analyses on improvements in various retention rate metrics and other student risk-level factors. Any negative

changes in student success will be evaluated using various metrics and reports to help identify causes. SSC "campaigns" allow advisors to search for students who meet certain criteria, including low performers as well as high performers. Once lists of students are generated, advisors contact those students to make counseling appointments. A potential risk with this initiative is that low-performing students fear that they are being called out for punitive measures due to their poor performance. This may cause negative feelings and avoidance of counseling sessions. The fact that we will also run campaigns on high-performing students and that we will deliver a clear message of helpfulness during advising sessions, will allow us to counteract this notion and develop a norm that encourages students to visit advisors.

Economics Lab. This pilot program aims to provide all economics students with a sense of community and the opportunity to engage in collective problem solving. Teaching Assistants and peer tutors are available Monday through Friday and in the evenings in the Economics Lab, so student access to help with their coursework is extensive. One risk of this program is that the alternate use of Teaching Assistants compromises more private one-on-one exchanges that usually occur during Teaching Assistants' office hours. A solution to this issue is to emphasize instructor office hours as a place for these types of interactions. A second risk is that students like the program so much that they spend too much time there and begin to ignore the assignments of other courses. A solution to this risk is to reduce open hours and/or the size of the classroom in order to scale down participation. A third risk is that peer tutors abuse their positions by seeking compensation or other favors from students in exchange for extra help. This risk has been avoided by announcing to students that they are not to pay peer tutors or Teaching Assistants for their services and to have Teaching Assistants monitor peer tutors.

Item 8: UC Irvine has very strong leadership and infrastructure to support programmatic innovations and student success. Our key assets and strengths are campus leadership, faculty and departmental partnerships. We rely on a carefully-developed, robust, and well-coordinated institutional paradigm of faculty and student collaboration to continuously enhance our culture of promoting academic excellence and improving completion rates for students from all backgrounds. Faculty representatives meet regularly to develop policy and practices relative to undergraduate education, plus administrative units are dedicated to academic and non-academic components of student success.

There is an extensive, inclusive, and representative network of groups campus-wide with a focus on academic innovation at UC Irvine. The Academic Senate has three formal standing councils interested in and charged with improving student outcomes: Council on Educational Policy, Council on Student Experience, and Council on Undergraduate Admissions and Relations with Schools. The Senate also calls on two boards for guidance to support students: the Campuswide Honors Program Board and the Faculty Board for Undecided/Undeclared Students. Refer to Appendix 8.1 for descriptions of each of these faculty groups, including responsibilities and membership composition. Institution-level leadership groups comprised of faculty and administrators committed to improving academic outcomes include the Academic Planning Group, Enrollment Council, Task Force on International Student Recruitment and Retention, and the Advisory Committee for Technological Enhancement of Education. There are also many administrative units on campus wholly dedicated to student services: Division of Undergraduate Education, Student Affairs, Disability Services Center, the Division of Graduate Education, Student Counseling, International Student Center, LGBT Resource Center, Transfer Student Center, Cross-Cultural Center, Veteran Services Center, Career Center, and Student Outreach and Retention Center. Additionally, several centers and programs are in place specifically to support students academically; among them are the Peer Academic Advisors, Learning Academic Resource Center, Campuswide Honors Program, Tutoring Resources, UC Irvine Libraries, Writing and Library Research Peer Tutors, and Center for Excellence in Writing. Psychosocial integration and learning communities are further supported through the Center for Student Life and Leadership, the Undergraduate Research Opportunities Program, Study Abroad, the Center for Educational Partnerships, and student government, clubs, and organizations. Overall wellness is also promoted through campus recreation, health education, the student health center, and athletics.

Additionally, the innovative programs exemplified in this application are rooted in their own cultures of innovation and collaboration. Faculty and department academic counselors are the ones to direct students to participate in STEM-UPP, as needed. UC Irvine has a strong tradition of innovation and adaptability in online education. The UC Irvine Distance Learning Center has developed over 60 online courses and offers more online courses than all the other UC campuses combined. The team of 16 staff at the DLC support educational innovation with technology across the campus and have the person power to adapt to changes and continuously ensure that we use best educational practices.

The UC Irvine campus has shown institutional commitment to STEM preparation on the campus as indicated by the offering of the STEM-UPP program for two years completely subsidized by the campus Extension program, and ultimately the campus as a whole. There is strong desire to see this program expand, with the Deans of Engineering, Physical Sciences and Biological Sciences particularly excited to direct students to the programs and encourage faculty to engage in creating content and facilitating the various STEM-UPP educational components.

Finally, the campus Student Success collaborative initiative will be beneficial in tracking and analyzing STEM-UPP student performance. We already have plans for engaging UC Irvine faculty, academic counselors and students in the program.

Cal Teach also represents a strong interdisciplinary partnership between the three academic units that jointly sponsor it: the School of Biological Sciences, the School of Physical Sciences (housing departments of Mathematics, Chemistry, Earth System Science, and Physics and Astronomy), and the School of Education. Each science school is responsible for the degree programs that blend disciplinary coursework and teacher preparation coursework, and they award the bachelor's degree; the School of Education is responsible for ensuring that coursework satisfies state teacher preparation requirements and for recommending candidates for the preliminary single subject credential. The Cal Teach leadership advisory council is comprised of the three Deans, an Associate Dean, three program Co-Directors (one from each School), and three individuals responsible for external relations and development. The Co-Director from the School of Education manages day-to-day operations of UC Irvine Cal Teach in collaboration with two part-time Cal Teach Coordinators. One full-time and one part-time Cal Teach counselor work closely with the Student Affairs Offices for Biological Sciences, Physical Sciences, and Education. The School of Education provides staff support for budget accounting, and the management of a credentialing database, course scheduling, technology, and resource center facilities.

As a research university, UC Irvine's campus culture is one driven by evidence based information. The SSC platform provides a system where new understandings of student success outcomes that are connected with key socio-economic factors, academic preparedness factors, and curriculum choices will be examined in the context of historic student achievements. It provides additional information to the advisors, and allows them to engage a student on a one-to-one basis; with the advisors understanding that individual student situations might be different from a predictive equation score.

Item 9: As UC Irvine changes its student demographic profile to include more at-risk student populations, new challenges have arisen. Many of the new initiatives described in this application are aimed at addressing these challenges in ways that are effective for targeted populations. We have used various outreach approaches to ensure that students are aware of and take advantage of these opportunities that enhance their success. Faculty, both individually and in their Academic Senate committees, have been involved in creating and implementing many of these initiatives, and have a vested interest in their success. Below we address the specific issues involved in engaging stakeholders in our featured initiatives.

STEM-UPP has developed relationships with is local community college faculty and administrators, especially at Irvine Valley College and Saddleback Community College. In order to grow the STEM-UPP program, we seek to engage with STEM department faculty and administrators at three other local community colleges and develop partnerships for offering STEM-UPP courses on their campuses locally, utilizing UC Irvine materials or directing appropriate students into UC Irvine online summer course offerings.

Cal Teach depends on its strong partnerships with university and high school stakeholders. School district partners participate quarterly in a school district advisory council meeting hosted by the UC Irvine School of Education. This council has proven to be a useful forum for district representatives to discuss their math and science teacher workforce needs and for our institutional representatives to discuss student teaching placement and mentor teacher needs. Although the participating school districts have made dramatic budget cuts over the past several years, the larger, high-need districts continue to project openings for secondary math and science teachers, and have hired Cal Teach math and science teacher graduates. Within the last year, the UC Irvine Cal Teach Leadership Council has also explored community college partnerships. Members seek to develop "bridge" programs with interested community colleges to clearly define the classes prospective transfer students should take at their community college to transfer to a UC Irvine STEM major and to maximize readiness for the Cal Teach Program. They also seek to make two or more Cal Teach or equivalent courses available to community college students, at the community college campus or at UC Irvine in summer, and to offer some financial incentives. The Council also envisions including an offer of guaranteed transfer admission to UC Irvine if defined requirements have been met. In fact, in 2013-14, Cal Teach and Mt. San Antonio College entered into a partnership designed to prepare STEM community college students to transfer into the Cal Teach Program, with articulation agreements beginning for the Fall 2015 cohort.

The campus has a SSC Leadership Council that actively engages the advisors in the schools that are piloting the program. This will expand as additional schools are added to the platform. The advisors communicate with the leadership about the usefulness of the platform and discuss their planned uses of the system. The LC is also actively engaged in ongoing assessment of the implementation of the SSC, and communicates regularly (3-4 times per month) with the vendor regarding usability concerns and issues with the product, so that the features appropriate for our campus are included and/or enhanced. Members of the LC participate in national forums for improving advising resources as well.

Item 10: The initiatives described in this application are directly aligned with UC Irvine's strategic plan. As such, most of them are supported by permanent funds allocated to the units responsible for their achievement. UC Irvine's campus budget model also rewards units that matriculate and retain students in their majors, incentivizing units to ensure students are successful. In addition, extramural funds have also been secured to support innovative programs geared toward improving student success.

The campus has supported development of technologically-enhanced courses, such as online, hybrid, and flipped classrooms, through financial incentives for faculty. Our commitment to innovations to enable broader student access to courses is evidenced in the fact that UC Irvine has developed and implemented more online courses than any other UC campus, and has submitted more Innovative Learning Technology Initiative applications and received more funding than the other campuses in the system.

STEM-UPP is self-supporting, funded through University Extension. The program is designed to be low cost to students and financially break-even if we attract sufficiently high student enrollments. Administrators are seeking grant funds and additional resources to continue to develop new components to the program and offer scholarships and academic year integration with the program. Online STEM-UPP courses for transfer students will all be developed as part of the normal Summer Session online development budget and the extra effort to enroll appropriate community college transfer students will be undertaken by the department and school academic counseling units.

DECADE, which spawned DECADE PLUS, was initially funded through a FIPSE grant, since expired. Assessment of the program indicated such strong success that the Graduate Division has reallocated their unit's permanent budget dollars in order to continue—and grow—the program. DECADE PLUS funds support administrative staff and student travel awards. The plan is evaluate the pilot and to continue the program for next year at the same level as the pilot year. The Graduate Dean is seeking additional extramural funding to maintain the DECADE PLUS program in future years.

The campus has demonstrated important support and visibility for UC Irvine Cal Teach and its mission. Under the Chancellor's direction, the university's Advancement Office worked with Cal Teach program faculty to raise nearly $3 million for the program. Maintaining extramural funding for Cal Teach is a continuous focus of program administrators.

The campus has already committed to the Student Success Collaborative through a three year contractual agreement with the Educational Advisory Board. At the end of that contract, effectiveness will be assessed and the partnership extended if stakeholders agree the program has been successful in meeting our overarching goal of improving student success. UC Irvine will also be exploring institutional options for developing local student information systems.

Item 11: UC Irvine is committed to improving student success, addressing academic deficiencies as well as psychosocial barriers to academic achievement, with an ultimate goal of increasing the number of bachelor's degrees awarded, improving four-year graduation rates for new freshmen and transfer students, particularly for student groups that are under-represented in higher education.

A strong network of senate faculty and administrators engage in periodic assessment of general programs as well as special programs and campus-wide initiatives for broad-scale improvement. Just two examples of program-specific evaluation follow. The STEM-UPP Program evaluation includes tracking students to determine 1) differences in academic performance between students who participated in the program and those who did not; 2) net changes in retention and four year persistence for STEM-UPP participants compared to non-STEM-UPP students; 3) differences in first quarter lower division enrollment trends for STEM transfer students compared to STEM-UPP transfer students; and 4) distinctions in time to degree for both transfer and native freshmen STEM students and those same groups participating in the STEM-UPP program. See Appendix 3.1 for comprehensive assessment measures. Likewise, the Cal Teach program has fully-developed long-term student success goals and an extensive evaluation program, as outlined in Appendix 3.2. Program assessments drill down in areas such as 1) numbers and characteristics of freshmen applicants and admits to the Cal Teach majors compared to other students enrolled in the same majors; 2) retention rates and the efficacy of student support services provided for for Cal Teach students compared to non-Cal Teach STEM majors; 3) the degree to which a new community college bridge program meets the needs of our community college partner institutions and attracts transfer students; and 4) numbers and types of credentials awarded to program completers.

More broadly and campuswide, we use empirical data to continuously monitor progress toward our overarching goals. We collect and analyze traditional data such as time to degree, retention, persistence, and grade point averages through our Office of Institutional Research, which augments program-specific assessment of student learning outcomes and academic progress. The Student Success Collaborative (SSC), which has been discussed extensively in this application, will enable data to be used as predictors for student success, facilitating proactive interventions with students identified to be at risk. Quantitative measures we will monitor as early predictors (near-term, fewer than four years) of student success include retention and persistence rates, grade point averages, and the quarters at which students change their majors. We will measure progress over the long-term (four years or more) using these same factors in addition to completion rates. We monitor these metrics for native UC Irvine freshmen and for transfer students, with special attention to students who have been historically under-represented in higher education and/or who have been identified as being at risk. Based on the results of data collection and analysis, we will modify and/or develop programs to more positively impact subsequent results.

Item 12: UC Irvine has very clear goals regarding student success. The innovations described in this application are tailored to achieving those goals through carefully-planned and inclusive initiatives. We will continue to rely on a strong program of assessment, including program evaluation, institutional research, academic planning, collaborative decision making, and resource reallocation as we work toward our objectives. Our institution has a demonstrated record of noteworthy retention and graduation rates; still, we strive to improve, especially with students we know to have disadvantages.

The tables below and in Appendix H present data for years 2014-15 (which we consider to be baseline data for the purposes of this application) through 2018-19. Tables reflect target retention rates, completion rates, time to degree, number of academic units taken by students in each of their years at UC Irvine, and average GPAs, respectively. We believe all of these quantitative measures are valuable in the long-term, and most of them are valuable in assessing (and therefore affecting outcomes related to) short- and mid-degree student progress. Data are disaggregated by student category, using the most recent cohort appropriate to each metric. We modeled future years based on historical trends, strategic initiatives, knowledge of our resources, and benchmarks identified through careful analysis of our aspirational peer institutions within California and across the nation. Where UC Irvine has already exceeded our would-be targets, such as completion rates for students who are not under-represented minorities, we modeled future years as constant to indicate our expectation of sustaining excellence.

Table 12.1: Target Year 2 Retention Rates, Freshman and Transfer

	Freshman Percentages					Transfer Student Percentages				
	14-15	15-16	16-17	17-18	18-19	14-15	15-16	16-17	17-18	18-19
Female	92.5	93.2	94.0	94.7	95.5	92.1	92.8	93.5	94.2	94.9
Male	91.8	92.7	93.6	94.6	95.5	91.8	92.5	93.2	93.9	94.6
Not Under-Represented Minority	93.4	94.1	94.7	95.4	96.0	91.7	92.4	93.1	93.8	94.5
Under-Represented Minority	89.1	90.0	90.9	91.8	92.7	92.7	93.4	94.1	94.8	95.0
Not 1st Generation	93.8	94.5	95.1	95.8	96.0	90.9	91.8	92.7	93.7	94.6
1st Generation	91.2	92.1	93.0	94.0	94.9	92.6	93.3	94.0	94.7	95.0
Not Low Income	92.7	93.6	94.6	95.5	96.0	91.4	92.3	93.2	94.2	95.0
Low Income	91.4	92.3	93.2	94.2	95.1	92.7	93.4	94.1	94.8	95.0
Not in other special populations*	92.2	93.1	94.1	95.0	95.9	91.9	92.6	93.4	94.1	94.9
In other special populations*	93.3	94.2	95.2	96.0	96.0	87.5	89.3	91.0	92.9	94.7

**The "other special populations" characteristic includes students with disabilities, foster youth, active military status, and veterans.*

Table 12.2: Target Year 3 and 4 Retention Rates, Freshman

	3rd year					4th Year				
	14-15	15-16	16-17	17-18	18-19	14-15	15-16	16-17	17-18	18-19
Female	87.6	87.9	88.1	88.4	88.7	83.6	84.4	85.3	86.1	87.0
Male	84.2	85.0	85.9	86.8	87.6	81.2	82.4	83.7	84.9	86.2
Not Under-Represented Minority	88.5	88.8	89.0	89.0	89.0	84.0	84.8	85.7	86.5	87.0
Under-Represented Minority	79.9	81.5	83.1	84.8	86.5	78.8	80.4	82.0	83.6	85.3
Not 1st Generation	87.5	87.8	88.0	88.3	88.6	82.6	83.4	84.3	85.1	86.0
1st Generation	85.0	85.9	86.7	87.6	88.5	82.8	83.6	84.5	85.3	86.2
Not Low Income	87.4	87.7	87.9	88.2	88.5	82.7	83.5	84.4	85.2	86.1
Low Income	84.4	85.1	85.8	86.4	87.1	82.4	83.2	84.1	84.9	85.7
Not in other special populations*	86.2	86.7	87.2	87.8	88.3	82.6	83.4	84.3	85.1	86.0
In other special populations*	57.1	62.8	69.1	76.0	83.6	72.0	74.2	76.4	78.7	81.0

**The "other special populations" characteristic includes students with disabilities, foster youth, active military status, and veterans.*

These data in aggregate reinforce that our initiatives are strongly aligned with where we ultimately want to be related to key performance indicators for student success. Recall from previous sections we are focused on improving retention and time to degree for transfer students

and students who are under-represented in higher education. We aim to improve retention for most students by about 4% by Fall 2018, but by 8% for URMs, concentrating on transfer students across the board. Ambitious completions targets will require us to stay on track with programming for URM and low-income freshmen (increasing completions by 12.6%) and transfer students (21.6% to 36%). Of students who graduate, most native freshmen and transfer students are taking approximately 42 units per year, or about one class too few each year in order to graduate in 4 years. Utilizing proactive approaches outlined in this application will enable us to better ensure students are on track to take 45 units per year. Our focus on transfer students' average number of credit hours will be essential as we seek to improve by almost 13%. Likewise, first generation, URM, and low income students will require better course planning as relates to their senior year.

Table 12.3: Target Completion Rates

	Freshman Percentages (4 year completions)					Transfer Percentages(2 year completions)				
	14-15	15-16	16-17	17-18	18-19	14-15	15-16	16-17	17-18	18-19
Female	76.9	76.9	76.9	76.9	76.9	64.6	66.2	67.9	69.6	71.3
Male	64.1	65.4	66.7	68.0	69.4	47.0	50.8	54.8	59.2	63.9
Not Under-Represented Minority	74.2	74.2	74.2	74.2	74.2	56.8	59.6	62.6	65.8	69.0
Under-Represented Minority	60.0	61.8	63.7	65.6	67.5	51.4	55.5	60.0	64.7	69.9
Not 1st Generation	73.3	73.3	73.3	73.3	73.3	56.0	58.8	61.7	64.8	68.1
1st Generation	67.9	68.9	70.0	71.0	72.0	55.7	58.5	61.4	64.5	67.7
Not Low Income	74.5	74.5	74.5	74.5	74.5	58.2	61.1	64.2	67.4	70.7
Low Income	63.1	65.0	66.9	69.0	71.0	49.7	52.2	54.8	57.5	60.4
Not in other special populations*	71.3	72.0	72.0	72.0	72.0	55.9	58.7	61.6	64.7	67.9
In other special populations*	100	100	100	100	100	55.6	58.4	61.3	64.4	67.6

**The "other special populations" characteristic includes students with disabilities, foster youth, active military status, and veterans.*

Table 12.4: Target Time to Degree

	Freshman Percentages					Transfer Percentages				
	14-15	15-16	16-17	17-18	18-19	14-15	15-16	16-17	17-18	18-19
Female	12.3	12.2	12.1	12.0	12.0	7.1	6.8	6.5	6.3	6.0
Male	13.0	12.9	12.7	12.6	12.5	7.8	7.5	7.2	6.9	6.6
Not Under-Represented Minority	12.6	12.5	12.3	12.2	12.1	7.4	7.1	6.8	6.5	6.3
Under-Represented Minority	12.8	12.7	12.5	12.4	12.3	7.6	7.3	7.0	6.7	6.5
Not 1st Generation	12.5	12.4	12.3	12.1	12.0	7.3	7.0	6.7	6.5	6.2
1st Generation	12.6	12.5	12.3	12.2	12.1	7.4	7.1	6.8	6.5	6.3
Not Low Income	12.4	12.3	12.2	12.0	12.0	7.1	6.8	6.5	6.3	6.0
Low Income	12.7	12.6	12.4	12.3	12.2	7.3	7.0	6.7	6.5	6.2
Not in other special populations*	13.0	12.9	12.7	12.6	12.5	7.5	7.2	6.9	6.6	6.4
In other special populations*	12.1	12.0	12.0	12.0	12.0	6.7	6.4	6.2	6.0	6.0

**The "other special populations" characteristic includes students with disabilities, foster youth, active military status, and veterans.*

The University subscribed to the Educational Advisory Board's Student Success Collaborative, which is a student record platform for advisors to use that includes predictive analytics and scoring, as well as students' basic academic record information. The additional information, along with directed advising campaigns to increase the outreach of advisors to students at risk, will hopefully improve student success at the university. SSC helps us track course histories and number of units to identify and intervene with students proactively.

Of course, the ideal would be for UC Irvine, and other higher education institutions in the state, to achieve equivalency for all student groups in academic success measures such as graduation rates, time to degree, and grade point average—and to do it at a lower cost to the state, the university, and students and their families. UC Irvine will continue believing in and working toward the achievement of this ideal.

APPENDIX A

Chancellor's Letter of Support

UNIVERSITY OF CALIFORNIA, IRVINE

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January 8, 2015

Committee on Awards for Innovation in Higher Education
California Department of Finance
Education Systems Unit—Innovation Awards
915 L Street, 7th Floor
Sacramento, California 95814

RE: University of California, Irvine
Governor's Awards for Innovation in Higher Education Application

Dear Committee Members:

I am pleased to support our institution's application for a California Governor's Award for Innovation in Higher Education. This application addresses several innovative initiatives focused on targeted learning objectives and individualized student support services, with an overarching goal of reducing the time it takes to earn a bachelor's degree, increasing student retention, and easing the transfer process, especially for at-risk populations.

The University of California, Irvine is one of the world's premier universities, with a truly outstanding faculty, ambitious staff, inspiring students, and dedicated volunteers. The campus is well-equipped to partner in the improvement of higher education in the state and globally. We recognize the tremendous opportunities to accelerate our leadership and participation in many areas of undergraduate education. We are committed to academic excellence as reflected through multiple measures of student success.

Even while we have achieved the objectives we set for ourselves in years past, we have refocused and redoubled our attention on new initiatives moving forward. Many campus-wide programs to support student success more efficiently and effectively began in 2013 and 2014. We will evaluate these programs and refine them as warranted. Several other initiatives are underway for implementation as early as this year. A palpable sense of rejuvenation and vitality has become more apparent as faculty and students realized the rewards of positive campus change.

I hope you share our excitement as you review our innovations.

Sincerely,

Howard Gillman
Chancellor

APPENDIX B

Supplemental Program Information

Expanded STEM University Preparation Program (STEM-UPP)

Several studies report competent students chose to leave STEM because of the "weed-out" mentality, poor presentation skills and minimal teaching preparation of their introductory course instructors (Seymour and Hewitt 1997). It is particularly troubling that women and under-represented minority (URM) students are more likely to leave STEM than males, White or Asian students. A recent analysis of students who arrived at UC Irvine as freshmen with an interest in biology, physical science, engineering or computer science (STEM) indicate that while 72% of males remain in STEM at the end of their second year, only 64% of women and only 55% of URM students remain. This loss is common across the US. While 14% of White and 23% of Asian students graduate with STEM degrees, the percentage among Blacks and Hispanics is lower at 10-12% (USEd 2009). Plus, despite a nationwide increase in the number of URM students entering university, the number graduating in STEM is not rising (PCAST 2012).

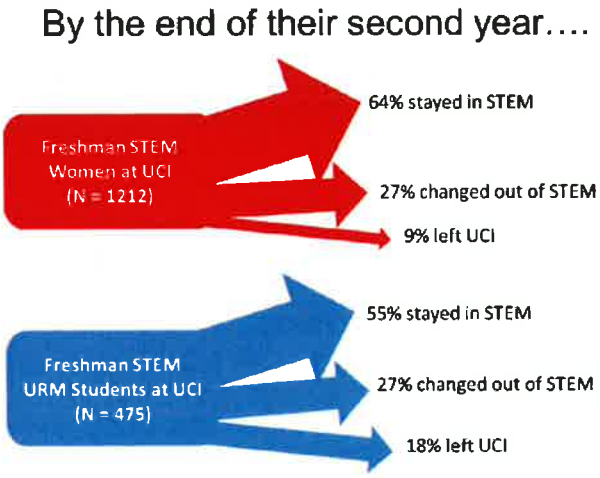


Figure 1: Retention of STEM women and URM at UCI.

How can we reduce this loss from STEM? A report from the US President's Council of Advisors on Science and Technology provides evidence that the US will need to increase its production of experts in the STEM disciplines in order to fill the careers that benefit from a background in science (PCAST 2012). While we may need to attract additional students to STEM majors in the first place, improving retention with particular attention to URM students is a critical component of increasing the number and diversity of our STEM graduates. A strong predictor of student success in college is the level of academic preparation a student has upon arrival (Tinto 2003). Low levels of academic preparation can, however, be counteracted by extra academic support (Arendale 1997, Wischusen 2010) and social integration programs (Kuh et al. 2011). STEM-UPP seeks to incorporate the best of these ideas in a way that is sustainable and scalable. STEM-UPP addresses the level of academic preparation and the creation of a social integration program to address some of the factors shown to affect the disproportionate drop-out rate for URM and women students in STEM majors.

UC Irvine developed a pilot version of this program in 2013 with the intention of assessing our ability to efficiently provide student remedial instruction, effectively prepare students for first year STEM courses, engage UC Irvine faculty members to teach the modules, and employ innovative pedagogical approaches including adaptive learning, online office hours and peer-reviewed assessments. Despite the limited time devoted to marketing, we attracted 87 students for writing, chemistry, and mathematics courses, and nearly 37,933 students for a pre-biology

MOOC course. From the 87 students taking the STEM-UPP courses, not all were enrolled in UC Irvine STEM gateway courses in the subsequent quarter. Of those that were, they completed the courses at a slightly higher rate and with a slightly higher GPA than a matched cohort of students with similar SAT scores, who did not participate in STEM-UPP. In the STEM-UPP pilot, we specifically studied the success in using a summer pre-biology course to prepare students for success in the first year biology sequence. "Students with math SAT below 550 were offered the explicit incentive of an early change to the biology major upon successful completion of the MOOC and two additional onsite courses. Our results demonstrate that, among course registrants, a higher percentage of UC Irvine students (>60%) completed the course than non-UC Irvine registrants from the general population (<9%). Female UC Irvine students had a greater likelihood of enrolling in the MOOC, but were not different from male students in terms of performance. University students entering with low preparation outperformed students entering who already had the credentials to become biology majors. These findings suggest that MOOCs can reach students, even those entering college with less preparation, before they enter university and have the potential to prepare them for challenging science, technology, engineering, and mathematics (STEM) courses."(Jiang et al, 2014)

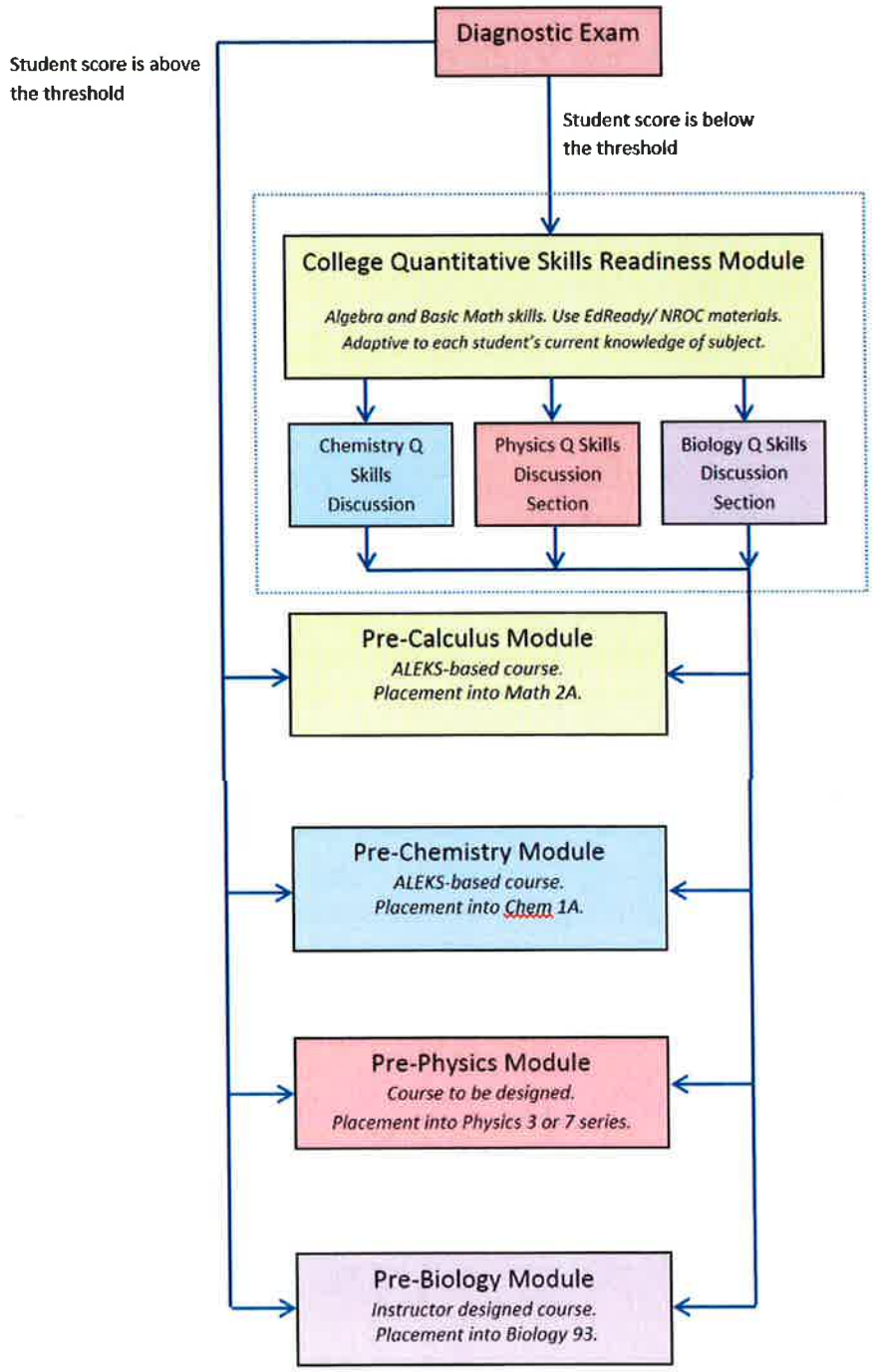
Since January 2014, we have expanded and institutionalized the STEM-UPP program. STEM-UPP was offered in Summer 2014 to more students and the educational modules available were expanded to include pre-physics and quantitative skills, in addition to the original pre-calculus, pre-chemistry and pre-biology courses. Further, the program was also expanded to include full lower division courses targeted at transfer students in Engineering. In Summer 2014, online and hybrid versions of Dynamics and of Statics courses were offered to community college and incoming transfer students to help them get access to required lower division courses not otherwise available at their community colleges.

We provided all incoming UC Irvine students with free diagnostic exam which measured their readiness for coursework required in their chosen major and directed them to specific learning modules from STEM-UPP that might be beneficial to them. Students whose diagnostic scores fall below a certain threshold level will be enrolled in a module covering basic quantitative skills (called the College Quantitative Skills Readiness Module) and will be able to participate in one of the discussion sections (either face-to-face or online) where they can interact with other students and course instructors and teaching assistants. Students who achieve high scores on the diagnostic exam will not need to participate in the basic quantitative skills modules and can proceed directly to the pre-science modules. Each module is three weeks in duration and we expect students to enroll in no more than two modules simultaneously. The pedagogical approach centers on adaptive learning in which interactive computer software presents educational material tailored to individual students' specific needs. This is especially effective for remedial education since it ensures that students spend the most time focused on the material they are most unfamiliar with.

We plan to increase the collaboration with community colleges on offering online courses to help transfer students get access to required lower division courses and enter UC Irvine better prepared for upper division STEM coursework. We piloted a couple such Engineering courses in Summer 2014. We plan to offer 4 more Engineering courses online in Summer 2015 to incoming

transfer students and community college students interested in potentially coming to UC Irvine as an Engineering major in the future.

STEM-UPP for Incoming Students Program Schematic –



We will also be adding online courses for STEM transfer students in other disciplines. We will be offering a new 2 unit Preparation for Organic Chemistry course since there has been an identified need to offer such a course to better prepare incoming transfer students and those with weaker General Chemistry backgrounds for the Organic Chemistry sequence. We will also be adding online Biology courses in Genetics, Biochemistry and Molecular Biology, which are not consistently offered in community colleges and if offered are often not at the level of rigor required for success in upper division biology coursework. Finally, we will be adding several courses for transfer students interested in pursuing teaching credentials to teach STEM subjects, as offered in our Cal Teach program.

With the STEM-UPP program for incoming freshmen, we are seeking to increase the number of students able to participate in this program and continue to work closely with the STEM departments to identify and encourage appropriate students to enroll. We hope to be able to offer more scholarships to enable students for whom the $125 course fee is a financial burden to participate. Research has shown the value of social engagement in university preparation and bridge type programs (Kuh et al., 2011). We would like to expand the study groups and social interaction from the STEM-UPP program into the academic year by having orientation week mixers for the online students to meet face-to-face their student colleagues from the STEM-UPP courses and have course cohort tracking into the Fall in order to students enrolled with Fall course sections with their STEM-UPP group study teammates. We plan to continue to carefully track the subsequent course performance of the students participating in STEM-UPP and seek modifications of the program to continue to improve their preparation for STEM coursework and ultimate retention in the degree. Finally, we are hoping to work with STEM colleagues at other UC and CSU campuses to inform them about our STEM-UPP program and encourage them to direct students to our program or to take our course assets and repurpose them to help meet the preparation needs of students on their campus. We plan to email, call and visit other campuses to share data about our program and provide consultation to those interested in utilizing or adapting STEM-UPP.

The UC Irvine campus has shown institutional commitment to STEM preparation on the campus as indicated by the offering of the STEM-UPP program for two years completely subsidized by the campus Extension program, and ultimately the campus as a whole. There is strong desire to see this program expand, with the Deans of Engineering, Physical Sciences and Biological Sciences particularly excited to direct students to the programs and encourage faculty to engage in creating content and facilitating the various STEM-UPP educational components. Finally, the campus Student Success collaborative initiative will be beneficial in tracking and analyzing STEM-UPP student performance.

We already have plans for engaging UC Irvine faculty, academic counselors and students in the program. The set of stakeholders that we most need to grow our relationship with is local community college faculty and administrators. We already are working with 2 Engineering and 2 Mathematics faculty at Irvine Valley College. In order to grow the STEM-UPP program, we seek to engage with STEM department faculty and administrators at 5 local community colleges and develop partnerships for offering STEM-UPP courses on their campuses locally utilizing UC Irvine materials or directing appropriate students into UC Irvine online summer course offerings.

The STEM-UPP incoming freshmen program is designed to be low cost to students and financially break-even if we attract sufficiently high student enrollments. Without outside funding, we will be less able to develop new components to the program and offer scholarships and academic year integration with the program. The online courses for the transfer students will all be developed as part of the normal Summer Session online development budget and the extra effort to enroll appropriate community college transfer students will be undertaken by the department and school academic counseling units.

We have several plans for tracking STEM-UPP students in order to evaluate the success of the program. 1) Short term we will look at incoming student performance in first year gateway courses after STEM-UPP module completion. Specifically, we will look to see their course grade and completion rate compared to students with similar high school GPAs and SAT mathematics scores. 2) We will look at four year persistence rates in STEM majors for incoming students participating in STEM-UPP, specifically looking at a net improvement in retention rates. 3) We will look at transfer student first quarter course enrollments to see a decrease in lower division STEM course enrollments. 4) We will look at time to degree for both transfer and native freshmen students, hoping to see a decrease in average time to degree for STEM-UPP student participants.

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Supplemental Information for the Cal Teach Program

Jointly developed by the Schools of Biological Sciences, Physical Sciences, and Education, UC Irvine's Cal Teach program is an innovative academic program in which undergraduate students can receive a bachelor's degree in mathematics or science and a teaching credential in FOUR years. This contrasts with California's traditional model for teacher preparation in which prospective teachers must complete post-baccalaureate teacher credential program after completing their undergraduate education. The UC Irvine four-year undergraduate model removes the financial burden of a fifth year of post-baccalaureate tuition and fees.

The goal of the Cal Teach program is to become a leader among UC campuses in STEM teacher preparation, and to build our pipeline to the point where we will consistently graduate 80 new credentialed math and science teachers each year. The success of the Cal Teach-4Year program depends on attracting STEM majors early in their undergraduate program and on retaining them in their major.

Innovations and Activities

In order to recruit and retain STEM majors and help them receive a STEM bachelor's degree and teaching credential within four years, we are engaging in the following ongoing innovations and activities:

Activity 1: *Support and retain Cal Teach-4Year program students in their respective degree programs.*

The School of Physical Sciences and School of Biological Sciences lose up to 50% of their undergraduate majors by the end of students' sophomore year. The success of the Cal Teach-4Year program depends on attracting STEM majors early in their undergraduate program and on retaining them in their major. Counseling is one important variable in student retention. Two dedicated Cal Teach Student Affairs Counselors work closely with the Student Affairs staff for both the School of Physical Sciences and School of Biological Sciences to identify students who are having academic difficulties. The Cal Teach counselors are proactive about meeting with those students to understand the underlying problems and to recommend campus resources for academic assistance. Candidate progress is reviewed annually; Master Teachers and the Cal Teach Counselor meet with students to discuss any areas of concern and develop action plans for improvement.

Another important variable in student retention is student engagement and success in early core science courses. Between 2007 and 2009, Physics Department data showed that 50% of STEM majors who took freshmen physics were failing one or more introductory courses during the freshman year. The department revised its introductory physics sequence, introducing a new, required course to address retention for the 750 STEM students (physical sciences, math, and engineering majors) who take the physics core courses. Those freshmen now receive specific instruction and guided practice on different aspects of good study habits, and the most at-risk students are identified early in the year so that they can be integrated into a support network and advised more closely. Similarly, UC Irvine Biological Sciences Professor Diane O'Dowd has

lead a team of faculty and graduate students in the UC Irvine HHMI Professor Program (http://www.researchandteaching.bio.uci.edu/), which is designed to support instructors to introduce active learning into large introductory biological sciences classes. The team has identified a number of instructional strategies that improve learning outcomes and student attitudes in the introductory courses (Moravec et al., 2010; O'Dowd & Aguilar-Roca, 2009; Williams et al., 2011), and they have implemented early interventions to address the issue of underprepared students and retention in the school's undergraduate majors (e.g., workshops on successful note taking and maximizing midterm studying).

Activity two: *Make the Cal Teach-4Year program attractive for community college transfer students.*

As currently designed, it is difficult for a community college transfer student to complete the Cal Teach-4Year program in just two years at UC Irvine. We recognize that community colleges offer a desirable talent pool for STEM majors who may not consider transfer to a UC campus if they are considering a teaching career. The Cal Teach-4Year program seeks a creative solution to this challenge. For several years we have worked with local community colleges to advertise opportunities to enroll in the UC Irvine Cal Teach 1 and 2 courses at the UC Irvine campus, through UC cross-enrollment agreements. We had hoped this would attract community college STEM students to explore UC Irvine as a transfer option, and to provide a head start on the Cal Teach-4Year program, but that approach drew only a handful of community college participants. In February 2012, the UC Irvine Dean of Biological Sciences and the Dean of Undergraduate Education hosted a meeting of representatives from sixteen regional community colleges to gauge interest in developing collaborations and better defined pathways to make the Cal Teach-4Year program an attractive option for qualified transfer students. There was enthusiastic support for this goal. The group discussed the idea of developing "bridge" programs with interested community colleges, similar to a successful UC Irvine Honors-to-Honors program. Ideally, a bridge program would: a) clearly define the classes prospective transfer students should take at their community college to transfer to a UC Irvine STEM major and to maximize readiness for the Cal Teach-4Year program, b) make two or more Cal Teach or equivalent courses available to community college students, at the community college campus or at UC Irvine in summer, c) offer some financial incentives, and d) include an offer of guaranteed transfer admission to UC Irvine if defined requirements had been met.

In 2013-14, Cal Teach and Mt. San Antonio College entered into a partnership designed to prepare STEM community college students to transfer into the UC Irvine Cal Teach Program. Meetings are currently being held to reach articulation agreements to accommodate the first cohort in fall of 2015. Proposed plans include identifying a cohort in the spring of 2015 and providing access to two introductory Cal Teach courses, and accompanying K-12 field placements.

Sustainability and Leadership

The UC Irvine Cal Teach program represents a highly successful partnership between the three academic units that jointly sponsor it: the School of Biological Sciences, the School of Physical Sciences (housing departments of Mathematics, Chemistry, Earth System Science, and Physics

and Astronomy), and the School of Education. Each science school is responsible for the degree programs that blend disciplinary coursework and teacher preparation coursework, and they award the bachelor's degree; the School of Education is responsible for ensuring that coursework satisfies state teacher preparation requirements and for recommending candidates for the preliminary single subject credential. Professor Deborah Vandell, Dean of the School of Education, is the Executive Lead for UC Irvine Cal Teach; she oversees a Cal Teach leadership advisory council comprised of the three Deans, an Associate Dean, three program Co-Directors (one from each School), and three individuals responsible for external relations and development. The Co-Director from the School of Education manages day-to-day operations of UC Irvine Cal Teach in collaboration with two part-time Cal Teach Coordinators. One full-time and one part-time Cal Teach counselor work closely with the Student Affairs Offices for Biological Sciences, Physical Sciences, and Education. The School of Education provides staff support for budget accounting, and the management of a credentialing database, course scheduling, technology, and resource center facilities.

The campus has demonstrated important support and visibility for UC Irvine Cal Teach and its mission. In 2012-13, Chancellor Michael Drake featured the Cal Teach-4Year program at the fall meeting of the Chancellor's Club, an organization of community members and business leaders involved in activities to support higher education at UC Irvine. Under the Chancellor's direction, the university's Advancement Office worked with Cal Teach program faculty to raise a total of $2,679,000 for UC Irvine Cal Teach (Samueli Foundation-$95,000, NMSI Foundation-$1.4 million, Pacific Life Foundation-$100,000, Nicholas Endowment-$175,000, NSF Noyce STEM Teaching Internships and Scholarship-$900,000, NSF physics research grant with $9000 in broader impacts for Cal Teach student support).

School district partners for both the Cal Teach-4Year program and the post-baccalaureate teacher preparation programs participate quarterly in a school district advisory council meeting hosted by the UC Irvine School of Education. This council has proven to be a useful forum for district representatives to discuss their math and science teacher workforce needs and for UC Irvine representatives to discuss student teaching placement and mentor teacher needs. Although the participating school districts have made dramatic budget cuts over the past several years, the larger, high-need districts continue to project openings for secondary math and science teachers, and have hired UC Irvine math and science teacher graduates.

Methods to Evaluate and Assess Program Effectiveness

The following describes the evaluation strategies to measure their successful attainment.

***Goal**: By 2018, the UC Irvine Cal Teach-4Year undergraduate program will graduate 80 credentialed math and science teachers per year.*

Activity: Develop additional Cal Teach Majors: Math/Education and 1 other in Physical Sciences

(1) Evaluate: Comparison of numbers and characteristics of: a) freshmen applicants and admits to Cal Teach-4Year blended majors and b) all other students enrolled in Cal Teach-4Year program after entering UC Irvine. *Data source:* Demographic data from UC Irvine Registrar's Office

(2) *Evaluate:* Comparison of reasons for selecting UC Irvine and a Cal Teach major for: a) freshmen applicants and admits to Cal Teach-4Year blended majors and b) all other students enrolled in Cal Teach-4Year program after entering UC Irvine. Data source: Yearly surveys of incoming freshmen and other new enrollees in Cal Teach-4Year program, administered by Cal Teach.
(3) *Evaluate:* Reasons prospective Cal Teach-4Year students enrolled in Cal Teach gateway courses and their level of interest in a teaching career. Data source: Surveys of students in gateway courses administered by Cal Teach.

Activity: Support and retain Cal Teach-4Year Program students in their respective degree programs.

(1) Evaluate: Numbers and characteristics of program leavers. Data source: Demographic data from UC Irvine Registrar's Office.
(2) Evaluate: For leavers - Cal Teach students' reasons for leaving the major/ leaving the program. Data source: Surveys of leavers administered by Cal Teach.
(3) Evaluate: For completers - Cal Teach students' satisfaction with program and with courses. Data source: Annual surveys of students' program satisfaction and annual interviews with Cal Teach student focus groups, administered by Cal Teach; quarterly course evaluations administered routinely by university

Activity: Make the Cal Teach-4Year program attractive for community college transfer students.

(1) Evaluate: Degree to which a new community college bridge program meets needs of community college partner institutions and attracts transfer students. Data source: Survey of community college representatives and sample of students, administered by Cal Teach and community college partners.
(2) Evaluate: Numbers and characteristics of community college transfer applicants and admits to a UC Irvine Cal Teach-4Year major. Data source: Demographic data from UC Irvine Registrar's Office.
(3) Evaluate: Cal Teach transfer students' reasons for selecting UC Irvine and a Cal Teach-4Year major. Data source: Annual surveys of incoming transfer students administered by Cal Teach.

Other

(1) Evaluate: Number and type of credentials awarded to Cal Teach-4Year program completers. Data source: Credential recommendation data from the UC Irvine School of Education.
(2) Evaluate: Number and type of credentials awarded to UC Irvine post-baccalaureate single subject math & science program completers. Data source: Credential recommendation data from the UC Irvine School of Education.
(3) Evaluate: Number of UC Irvine undergraduates who take gateway courses and earn credentials in a post-baccalaureate credential program. Data source: UC Irvine will rely on data collected by the UCOP Ed Partnership unit from the CTC and other sources.
(4) Evaluate: Graduates' retention in the teaching profession. Data source: Annual surveys of graduates regarding employment, administered by Cal Teach.

APPENDIX E

Program Cost and Savings Detail

General calculations

	Annual (quarter) Cost of UC[1] **Tuition**	Aid for UCI Low Income	Aid for UCI Median Income
Cost of UC Tuition	$18,060		
Contributions:			
CA State Fund:	$ 7,090		-
Av. UCI Cal Grant[2]:		$12,165	
Total CA Cost:		**$19,255 ($6,418)**	**$7090 ($2,363)**
UC:	$ 2,610		
Av. USAP/UC aid:		$ 0	$3,000
Total UC Cost:		**$2,610 ($870)**	**$5,610 ($1,870)**
Student/family:	$ 8,360		$ 0
Av. UCI Pell Grant:		$ 4,750	$ 0
Total Student Tuition Cost:		**$ 0 ($0)**	**$ 5,360 ($1,792)**

1. UCOP "University of California 2015-16 Budget for Current Operations." p 56.
2. Average grant amounts are from "UC Undergraduate Financial Aid Report Irvine – Academic Year 2013-14."

1. STEM-UPP

STEM-UPP freshmen modules. This program serves approximately 300 annually, with a mix of 60% low-income and 40% medium income students. Students pay $125 per module for 3 modules ($375) and by doing so, they prevent the necessity of repeating one STEM course (25% of one quarter).

Annual savings for 180 low-income students (.25 of 1 quarter):
Annual state saving: $6,418/4 X 180 = $288,810
Annual UC Saving: $870/4 X 180 = $39,150
Additional student cost: ($ 375 X 180= $67,500)
Annual student saving: $0
Annual subtotal saving: $327,960 - $67,500=$260,460

Annual savings for 120 median-income students (.25 of 1 quarter):
Annual state saving: $2,363/4 X 120 = $70,890
Annual UC Saving: $1,870/4 X 120 = $56,100
Additional student cost: ($375 X 120=$45,000)
Annual student saving: $1,792/4 X 120=$53,760
Annual subtotal saving: $180,750 - $45,000=$135,750

Annual total STEM-UPP Module saving: $396,210

STEM-UPP On-line courses serves approximately 50 transfer students per year with a mix of 60% low income and 40% median income. Students pay $1,400 for summer session course plus $300 for UCI on-line course (offered through CC) plus $125 for STEM UPP Module ($1,825 total). They save, on average, on quarter of UCI coursework.

Annual savings for 30 low-income students towards 1 quarter tuition:
Annual state saving: $6,418 X 30=$192,540
Annual UC saving: $870 X 30 = $26,100
Additional student cost: ($1,825 X 30=$54,750)
Annual student saving: $0
Annual subtotal saving: $218,640 - $54,750=$163,890

Annual savings for 20 median-income students towards 1 quarter tuition:
Annual state saving: $2,363 X 20=$47,260
Annual UC saving: $1,870 X 20 = $37,400
Additional student cost: ($1,825 X 20=$36,500)
Annual student saving: $1,792 X 20=$35,840
Annual subtotal saving: $120,500-$36,500=$84,000

Annual total STEP-UPP Transfer saving: $247,890

2. CALTEACH allows students to obtain a BA/BS and a teaching credential, which usually takes 5 years to complete, in 4 years, for a saving of one year's tuition. It graduates approximately 60 students per year (approximately 60% median income and 40% low-income students).

Savings for 24 low-income students towards 1 year's tuition:
State saving: $19,255 X 24=$462,120
UC saving: $2,610 X 24 = $62,640
Student cost: ($0)
Student saving: $0
Subtotal saving: $524,760

Savings for 36 median-income students towards 1 year's tuition:
State saving: $7,090 X 36=$255,240
UC saving: $5,610 X 36 = $201,960
Student cost: ($0)
Student saving: $5,360 X 36=$192,960
Subtotal saving: $650,160

CALTEACH Total cohort saving: $1,174,920
(This program aspires to expand to a cohort of 80 students per year. If it does so, the total cohort savings will be $1,562,643.)

3. DECADE PLUS pilot serves 30 students (with funding (application pending), seeks to serve 100 low income students. If this program reduces each participant's time to degree by one quarter, we will accomplish the following savings:

Annual state saving: 6,418 X 30=$192,540
Annual UC saving: $870 X 30 = $26,100
Student saving: ($0)

Annual total saving: $218,640 (This program aspires to serve 100 students per year. If it does so, annual savings will be $728,800.)

4. Student Success Collaborative. SSC puts information on student progression towards degree in the hands of local advisors who can make early interventions when students get off-track or seek to change majors. Advisors inform and support students in finding a major that matches their skills sooner in their academic careers. This should lessen time-to-degree, which reduces cost to earn the bachelor's degree. SSC estimates that UCI will retain an additional 2% of our students in each of the first two years.

Estimated improvement in time-to-degree: too early to estimate. ($21,865 ($19,255 is the state contribution) total savings for each low income and $18,060 ($7,090 is the state contribution) for each median income student for each year saved. Just considering the state's contribution, it would only take 33 low income students quickening time to degree by one quarter or 93 median income students quickening time to degree by one quarter to recoup the annual cost of the SSC platform.)
Estimated annual increase in degrees granted: 118
Annual cost of SSC: $217,647

APPENDIX F

Academic Senate/Faculty Standing Councils and Boards in Support of Student Success

Council on Educational Policy

Responsibilities:

1. Considers all matters related to academic policy, makes recommendations regarding curricula and programs and other educational matters, including general campus requirements and grading systems, issues recommendations on the establishment, substantive modifications or withdrawal of academic programs, and reviews and reports on the character of the educational programs on the Irvine campus. The Council is authorized to act for the Division in approving new or amended degree requirements, including new or amended minors, specializations, concentrations or emphasis, recommended to the Division by the several Faculties.
2. Acts as a screening committee for the general education options. It reviews courses submitted by the academic units, and approves or disapproves them according to the guidelines listed in Appendix V of the Divisional Senate Manual. The Council reviews all general education option courses at regular intervals and take appropriate action.
3. Advises on all educational policy matters pertaining to programs outside of the core campus undergraduate programs, including, but not limited to, matters relating to international education and continuing, part time, and summer session education. In matters pertaining to the establishment, substantive modification or withdrawal of programs that may impact core campus academic programs, the Council issues recommendations with the Graduate Council, as applicable.
4. Maintains liaisons with the Systemwide University Committees on Educational Policy (UCEP), Preparatory Education, and UC Education Abroad.

Membership: The Council on Educational Policy (Undergraduate) shall consist of two members from each Faculty offering an undergraduate degree. The Chairs of the Subcommittee on Courses and Continuing, Part-Time, and Summer Session Education, the Subcommittee on International Education, the Faculty Board for Undecided/Undeclared Students, the Registrar, the Dean of Undergraduate Education, and the Campus Writing Coordinator shall be ex officio members.

Council on Student Experience

Responsibilities: The Council shall promote learning and the quality of the student experience, and shall advise the Chancellor and the Division on issues in the areas of teaching, student life and welfare, and intramural and intercollegiate athletics.

1. Teaching
   - Consider policies and issues concerning the quality of teaching on campus, e.g., the improvement and evaluation of teaching and the role of teaching in academic advancement.
   - Advise administrators, faculty, and other Senate committees on matters affecting the quality of teaching on campus.
   - Make recommendations to the above and other appropriate bodies concerning such issues as the improvement of teaching, the evaluation of courses and teaching, and the assessment of teaching in the personnel process.
   - Act as overseer to the Teaching, Learning & Technology Center (TLTC). As overseer of TLTC the Committee shall: (a) review policies, programs, and procedures of TLTC with respect to their appropriateness, (b) advise the Dean of Undergraduate Education and the Advisory Board of TLTC concerning TLTC programs and procedures.
2. Student Affairs
   - Consider and review formally as needed those programs of the Office of Student Affairs and the Division of Undergraduate Education that affect the University experience of UC Irvine students. Such programs include, but are not limited to, the Learning and Academic Resource Center, Student Academic Advising Services, Undergraduate Research Opportunities Program,

University Studies Program, Career Center, Student Health Service, Counseling Center, Disability Services, Cross Cultural Center, and UC Irvine Bookstore.

- Advise the Chancellor on behalf of the Academic Senate regarding allocation of student registration fees.
- Appoint ad hoc Grievance Panels to hear student grievances which pertain to matters under the authority of the Academic Senate and, where such grievances are found to be justified, the Panel shall determine appropriate means of redress. Hearings by the Grievance Panel and related procedures are to be conducted in accordance with the statement entitled "Academic Grievance Procedures." (See IR A365 (B) and Appendix II.) Grievance Panels shall consist of three voting members of the Academic Senate, at least one of whom is a member of the Council on Student Experience; this member shall be chair of the Panel.

3. Intramural and Intercollegiate Athletics
   - Review and report to the Chancellor and the Division on issues of significance regarding the UC Irvine intramural and intercollegiate athletics program. CSE members also represent the Council at other Administrative and Senate meetings: Senate Committee on Graduate Student Housing and Special Senate Committee on Diversity.

Membership: The Council on Student Experience shall consist of twelve members of the Division, with at least one member from each Faculty offering an undergraduate degree and at least one member from a Faculty not offering an undergraduate degree. The chair of the Board on Undergraduate Scholarships, Honors, and Financial Aids; the chair of the Campuswide Honors Program Board; the Dean of Undergraduate Education; and the Vice Chancellor of Student Affairs shall be ex officio members of the committee. Subcommittees: Board on Undergraduate Scholarships, Honors, and Financial Aids and Campuswide Honors Program Board.
Subcommittees: Board on Undergraduate Scholarships, Honors, and Financial Aids and Campuswide Honors Program Board

Council on Undergraduate Admissions and Relations with Schools
Responsibilities:

1. Make recommendations regarding policies on admissions, enrollments, and outreach activities to the administration and to the Academic Senate, and provide faculty coordination for outreach activities.
2. Monitor outreach programs directed toward academic enrichment of the campus through a diverse student body, and advise the campus administration on the disbursement of any funds designated for such programs.
3. Maintain liaison with the systemwide Board of Admissions and Relations with Schools (BOARS) in overseeing all matters relating to the admissions of undergraduate students.

Membership: The Council on Undergraduate Admissions and Relations with Schools and Colleges shall consist of one (1) member from each Faculty offering an undergraduate degree, along with the Director of the Office of Admissions and Relations with Schools, and Ex-Officio.
Subcommittee: Board of Admissions & Relations with Schools (BOARS) – regulates the policies and practices used in the admissions process that directly relates to the educational mission of the University and the welfare of students. The committee also recommends and directs efforts to improve the admissions process.

Campuswide Honors Program Board
Responsibilities:

1. Determine admission to the Program and the policies of admission, within adopted guidelines;
2. Certify graduation from the Program and determine policies relating to graduation;
3. Approve courses and instructors for lower- and upper-division courses in the Campuswide Honors Program curriculum, and determine the policies for same, within adopted guidelines

4. Advise the chief administrator of the Campuswide Honors Program concerning the academic advising of students in the Program or enrolled in its courses, recruitment of such students, extracurricular opportunities and academic prerequisites (such as housing and library privileges) for Campuswide Honors Program students.

Membership: The Campuswide Honors Program Board shall consist of one member appointed from each of the Faculties with undergraduate degree programs, and the Dean of Undergraduate Education and the Director of the Campuswide

Faculty Board for Undecided/Undeclared Students

Responsibilities**:** Advise the Council on Educational Policy on policies on the academic advising of first year undecided/undeclared students. The Board or its designated agents shall act as advisors to first year undecided/undeclared students, and shall supervise these students in matters relating to probation and disqualification, exception to enrollment limitations, and other matters as specified in the Irvine Regulations. Advise the Dean of Undergraduate Education concerning first year undecided/undeclared students.

Membership**:** The Faculty Board for Undecided/Undeclared Students shall consist of at least one Division member from each Faculty offering an undergraduate degree to be appointed by the Committee on Committees. The Dean of Undergraduate Education shall be an ex officio member of the Board.

APPENDIX H

Supplemental Data Related to Target Outcomes for Student Success

Table 12.5: Target Number of Units Completed Per Year

	14-15	15-16	16-17	17-18	18-19	14-15	15-16	16-17	17-18	18-19
Average # of units completed during 1st year	Freshmen					Transfers				
Female	43.9	44.2	44.4	44.7	45.0	42.8	43.4	44.1	44.8	45.0
Male	43.7	44.0	44.2	44.5	44.8	42.1	42.7	43.4	44.0	44.7
Not Under-Represented Minority	44.6	44.8	45.0	45.0	45.0	42.4	43.0	43.7	44.3	45.0
Under-Represented Minority	41.6	42.2	42.9	43.5	44.2	42.3	42.9	43.6	44.2	44.9
Not 1st Generation	45.2	45.0	45.0	45.0	45.0	43.1	43.7	44.4	45.0	45.0
1st Generation	42.7	43.3	44.0	44.7	45.0	41.8	42.4	43.1	43.7	44.4
Not Low Income	44.8	45.0	45.0	45.0	45.0	42.8	43.4	44.1	44.8	45.0
Low Income	42.3	42.9	43.6	44.2	44.9	41.3	41.9	42.5	43.2	43.8
Not in other special populations*	43.8	44.1	44.4	44.7	45.0	42.4	43.0	43.7	44.3	45.0
In other special populations*	42.6	43.2	43.9	44.5	45.0	42.7	43.3	44.0	44.7	45.0
Average # of units completed during 2nd year	Freshmen					Transfers				
Female	42.7	43.3	44.0	44.7	45.0	40.3	41.5	42.8	44.0	45.0
Male	42	42.8	43.5	44.1	44.8	39.0	40.2	41.4	42.6	43.9
Not Under-Represented Minority	42.9	43.4	43.9	44.5	45.0	39.9	41.1	42.3	43.6	44.9
Under-Represented Minority	41.1	41.9	42.8	43.6	44.5	38.9	40.1	41.3	42.5	43.8
Not 1st Generation	43.4	43.9	44.4	44.8	45.0	39.8	41.0	42.2	43.5	44.8
1st Generation	41.6	42.4	43.3	44.1	45.0	39.6	40.8	42.0	43.3	44.6
Not Low Income	43	43.5	44.0	44.6	45.0	39.8	41.0	42.2	43.5	44.8
Low Income	41.6	42.4	43.3	44.1	45.0	39.4	40.6	41.8	43.1	44.3
Not in other special populations*	43.6	44.1	44.6	45.0	45.0	39.7	40.9	42.1	43.4	44.7
In other special populations*	41	41.8	42.7	43.5	44.4	38.7	39.9	41.1	42.3	43.6
Avg # of units for 3rd and 4th years (freshmen)	3rd year					4th year				
Female	42.4	43.2	44.1	45.0	45.0	42.0	42.8	43.7	44.6	45.0
Male	42.1	42.9	43.8	44.7	45.0	41.6	42.4	43.3	44.1	45.0
Not Under-Represented Minority	42.6	43.2	43.9	44.5	45.0	42.0	42.8	43.7	44.6	45.0
Under-Represented Minority	41.5	42.3	43.2	44.0	44.9	41.0	42.0	43.1	44.2	45.0
Not 1st Generation	42.6	43.2	43.9	44.5	45.0	42.2	43.0	43.9	44.8	45.0
1st Generation	42.0	42.8	43.7	44.4	45.0	41.3	42.3	43.4	44.5	45.0
Not Low Income	42.6	43.2	43.9	44.5	45.0	42.3	43.1	44.0	44.9	45.0
Low Income	41.8	42.6	43.5	44.4	45.0	40.6	41.6	42.7	43.7	44.8
Not in other special populations*	42.9	43.5	44.2	44.9	45.0	42.2	43.0	43.9	44.8	45.0
In other special populations*	41.4	42.2	43.1	43.9	44.8	38.7	39.9	41.1	42.3	43.6

**The "other special populations" characteristic includes students with disabilities, foster youth, active military status, and veterans.*

Table 12.6: Target Grade Point Averages

	Freshmen (3rd year cumulative GPA)					Transfers (first year cumulative GPA)				
	14-15	15-16	16-17	17-18	18-19	14-15	15-16	16-17	17-18	18-19
Female	3.08	3.08	3.08	3.08	3.08	3.09	3.09	3.09	3.09	3.09
Male	3.03	3.04	3.05	3.06	3.07	3.04	3.05	3.06	3.07	3.08
Not Under-Represented Minority	3.13	3.13	3.13	3.13	3.13	3.06	3.06	3.06	3.06	3.06
Under-Represented Minority	2.87	2.90	2.93	2.97	3.00	3.07	3.07	3.07	3.07	3.07
Not 1st Generation	3.15	3.15	3.15	3.15	3.15	3.07	3.07	3.07	3.07	3.07
1st Generation	2.97	2.99	3.01	3.03	3.05	3.04	3.05	3.06	3.07	3.07
Not Low Income	3.12	3.12	3.12	3.12	3.12	3.02	3.02	3.02	3.02	3.02
Low Income	2.94	2.96	2.99	3.01	3.04	2.93	2.95	2.98	3.00	3.02
Not in other special populations*	3.06	3.06	3.06	3.06	3.06	2.99	3.00	3.01	3.02	3.03
In other special populations*	2.91	2.93	2.96	2.98	3.00	3.00	3.01	3.02	3.03	3.03

**The "other special populations" characteristic includes students with disabilities, foster youth, active military status, and veterans.*