



CAL POLY

Academic Plan: Cal Poly's Future Leadership Opportunities

Executive Summary, April 2016

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Cal Poly's Academic Plan focuses on Cal Poly's future leadership role as a premier, comprehensive polytechnic university. Elaborating on the values in the University's Vision 2022, the academic plan addresses the overall character of the University as an inclusive academic community, its Learn-by-Doing educational philosophy, the academic programs it offers, its commitment to student success, and its approach to scholarship and creative activity. The plan then lays out the implications for future enrollment, and teaching and learning space. The following paragraphs summarize the direction in the plan based on eighteen months of strategic thinking, discussion and analysis.

University Character and Academic Plan Themes

After studying trends in higher education and future forecasts, Cal Poly has identified two major themes:

- (1) ***Cal Poly's Identity as a Premier Undergraduate Learn-by-Doing Community***, and
- (2) ***Cal Poly's Visibility as a Leader in Higher Education***.

Strategic planning discussions throughout 2014-15 recognized that the first goal is central to Cal Poly's future – but not sufficient. As knowledge expands in many fields, a baccalaureate education will no longer suffice for even entry-level work, and there is already a demand for the kind and quality of education Cal Poly offers that extends well beyond the traditional professional undergraduate degree.

Cal Poly can remain predominantly undergraduate and residential, and still pursue innovative initiatives in post-baccalaureate and alternative programs that expand on the University's mission and expertise, particularly Learn-by-Doing and the Teacher-Scholar model. Indeed, such initiatives can build on the central identity of the University by recognizing areas of excellence and opportunities for experimentation that are more challenging to incorporate in traditional undergraduate programs governed by state regulations and regional accreditation requirements.

A key advantage of Cal Poly's continuing residential emphasis is that it contributes to a holistic, interdisciplinary educational experience with other students as well as faculty and staff mentors. At the same time, the University is taking significant steps to improve the overall campus climate for students, faculty and staff – particularly to support a more culturally and ethnically diverse community.

The Co-Curriculum, Residential Community and Student Success

Cal Poly's academic plan explicitly recognizes that "learning occurs everywhere." National research has demonstrated that undergraduate student success depends upon engagement with activities and support systems that complement and extend the formal curriculum. They include relatively traditional individual and group projects outside the classroom or lab as well as internships, service learning, field work and travel study. Faculty members actively sponsor many of these activities, some of which are discipline-specific and others interdisciplinary – for example, the Center for Innovation and Entrepreneurship is cross-disciplinary; and music, theatre and debate at Cal Poly involve students from all colleges. Traditional-age undergraduates also are involved in intercollegiate athletics, recreational sports, and student government.

In addition to these academic and co-curricular activities, Cal Poly has found that living on campus for at least the first two years is a major factor in student retention, and ultimate degree completion. Thus, the academic plan calls for enhancing the residential learning community as a central component of undergraduate education.

Research, Creative Activity and the Teacher-Scholar Model

In 2011 the Cal Poly Academic Senate adopted the Teacher-Scholar model with an eloquent discussion of the meaning of this model for Cal Poly (AS-725-11). During academic planning discussions in 2014-15, a number of faculty members explicitly noted that they see the Teacher-Scholar model and Learn-by-Doing (AS-727-11) as reinforcing one another. Both involve just the kind of applied research and scholarship that fits well with the Cal Poly mission.

Cal Poly faculty noted that the University has much to gain – indeed much to offer – by being at the forefront in addressing global and regional trends. In order for Cal Poly to take advantage of these research and development opportunities and to pursue emerging fields, Cal Poly will need to be able to encourage scholarship, professional development and creative activity in these areas.

Implications for Future Enrollment

The final portion of the academic plan addresses enrollment implications. Two key considerations are the future size of Cal Poly, and the future composition of the University – particularly which academic programs will meet future societal needs and serve changing student demographics. The following summary is derived from the work of the Provost's Task Force on Enrollment, which met intensively during the winter and spring terms of 2015.

Enrollment Scenarios

Potential future enrollment scenarios are both qualitative and quantitative, as follows.

(1) Academic Quality (independent of enrollment growth)

- Restore and enhance academic quality (faculty, staff, campus climate, student success, services, facilities, technology) – The task force members recommended that Cal Poly prepare a revenue enhancement plan that addresses both operating and capital budgets that can be implemented in advance of or along with any enrollment growth scenario.

(2) University Size (both the timing and extent of growth)

- Manage at steady state – In the short-run, the University should manage its enrollment very closely, especially before new student housing is available.
- Continue recent trends and adjust student mix (e.g., increase non-resident and post-baccalaureate enrollment) – For the purposes of the new physical master plan, a scenario extending recent trends leads to a future fall headcount of 25,000 students.

(3) Alternative Approaches to Enrollment Management (with or without growth)

- Accommodate alternative curriculum and scheduling strategies (e.g., Architecture fourth-year study away programs) – This scenario recognizes creative ways to expand and enhance student experience within the existing physical capacity of the campus.
- Explore integrated year-round operations (at a future time) – The task force identified a list of considerations that would need to be addressed in detail in order to meet the University’s goals, and recommended further study.

Academic Program Composition

The task force also recommended that any new program or existing program seeking to increase its enrollment be able to demonstrate that it meets basic University expectations and the following criteria:

- Vision – program content and pedagogy designed to meet future societal needs
- Mission – premier, comprehensive, polytechnic
- Collaboration across disciplines
- University Learning Objectives
- Excellence
- Student level and composition – diversity, very broadly defined
- Student success
- Demand
 - Applicant pool (size, quality, yield)
 - Future prospects for graduates
- Sufficient cohort size (critical mass)
- Faculty and institutional support
 - Resource requirements
 - Sustainable budget plan
 - Ability to attract and retain faculty and staff
 - Implications for University services beyond the unit offering the program
 - Facilities and technology
- Other administrative requirements

Cal Poly’s academic plan recognizes the complementary roles of the six colleges to the University mission. At the same time it recognizes the demand for the more traditional polytechnic programs, the quality of the applicant pool attracted to them, and the opportunities for their graduates. The following comments derived from each college’s academic planning narratives capture the aspirations of the fields they represent in a multi-disciplinary setting, with a modest recovery in graduate education.

Enrollment projections show that the College of Engineering will continue to be the largest college, particularly as its undergraduate majors and graduate programs keep developing to meet emergent, applied needs in technological fields.

The College of Agriculture, Food, and Environmental Science continues to transition from an emphasis on agricultural production to processing and marketing that still takes advantage of Cal Poly’s coastal location, ecological diversity, and historical industry support.

Disciplines in the College of Science and Mathematics are clearly foundational to students in the colleges that apply science, technology, engineering and mathematics in their professional fields. In its own right, Science and Math has provided pedagogical leadership in science education and pioneered faculty/student research partnerships.

The College of Liberal Arts will continue to serve a critical humanistic role in comprehensive polytechnic education at the same time as it focuses on excellence in the arts, humanities, communications and social sciences. Liberal Arts stresses the value of a holistic, interdisciplinary education to prepare graduates to address real-world problems in all their social, political and economic complexity.

The long-term vision of the Orfalea College of Business is to become the undisputed leader in experiential business education. Further, the Orfalea College sees itself as providing leadership for innovative and entrepreneurial activities that bridge the technical fields in the other colleges.

Architecture and Environmental Design will continue to serve a focused clientele with its highly ranked professional programs. This college sees a future that emphasizes more interdisciplinary study around emerging areas of critical national and international concern, such as sustainability and climate change.

Summary: College Headcount Totals (historical, state only; future, including self-support)

	History			Future Goal	
	Fall 2000	Fall 2015	Change	Fall 2035	Change
CAFES	3,568	4,002	12.2%	4,900	22.4%
CAED	1,622	1,884	16.2%	2,340	24.2%
CENG	4,187	6,043	44.3%	7,390	22.3%
CLA	2,496	3,227	29.3%	3,870	19.9%
CSM	2,115	2,859	35.2%	3,330	16.5%
Education	376	199	-47.1%	250	25.6%
OCOB	2,344	2,841	21.2%	3,130	10.2%
Other	169	83		-	
Total	16,877	21,138	25.2%	25,210	19.3%
On-Campus Sub-Total		21,027		25,000	
State-Support Sub-Total		20,944		24,840	
Self-Support Sub-total		194		370	
PB/Grad Student Sub-Total	1,047	988	-5.6%	1,595	61.4%



CAL POLY
2014-15 Academic Plan Report: Analysis of Cal Poly's Future Leadership
Opportunities and Preliminary Recommendations

Drafted by Linda C. Dalton, PhD, FAICP, Interim University Planning Officer
(Revised Fall 2015 after campus discussion)

Introduction

Cal Poly's Vision 2022, adopted in May 2014, set the framework for more focused planning to follow.¹ The Academic Plan establishes the direction for Cal Poly's future leadership as the premier, comprehensive polytechnic university. The new Master Plan will translate the academic and programmatic requirements into the physical design of the campus.

This report begins with a brief discussion of the strategic planning context at Cal Poly and describes the planning process during the 2014-15 academic year. The next section summarizes the analysis completed during fall and winter terms, primarily by the University's academic department heads and chairs. It examines the factors affecting higher education, demographic forecasts, and other global and regional forces as applied to Cal Poly. The report then explores what these trends mean for future careers, and the kinds of knowledge and skills future students will need. The next portion of the report addresses implications for teaching, learning, scholarship and creative activity – and future learning environments. The analysis concludes with the ramifications for faculty and the Teacher-Scholar model.

The final portion of this report identifies two major themes and two areas for enrollment analysis, drawing from the analysis from fall and winter and from the work of the Provost's Task Force on Enrollment that met during the winter and spring terms.

Themes

- Cal Poly's Identity as a Premier Undergraduate Learn-by-Doing Community of the 21st Century – recognizing the continuing demand for the kind and quality of Cal Poly's residential educational experience.
- Cal Poly's Opportunity for More Visibility as a Leader in Higher Education – broadening Cal Poly's influence as a premier comprehensive polytechnic university.

Enrollment Implications

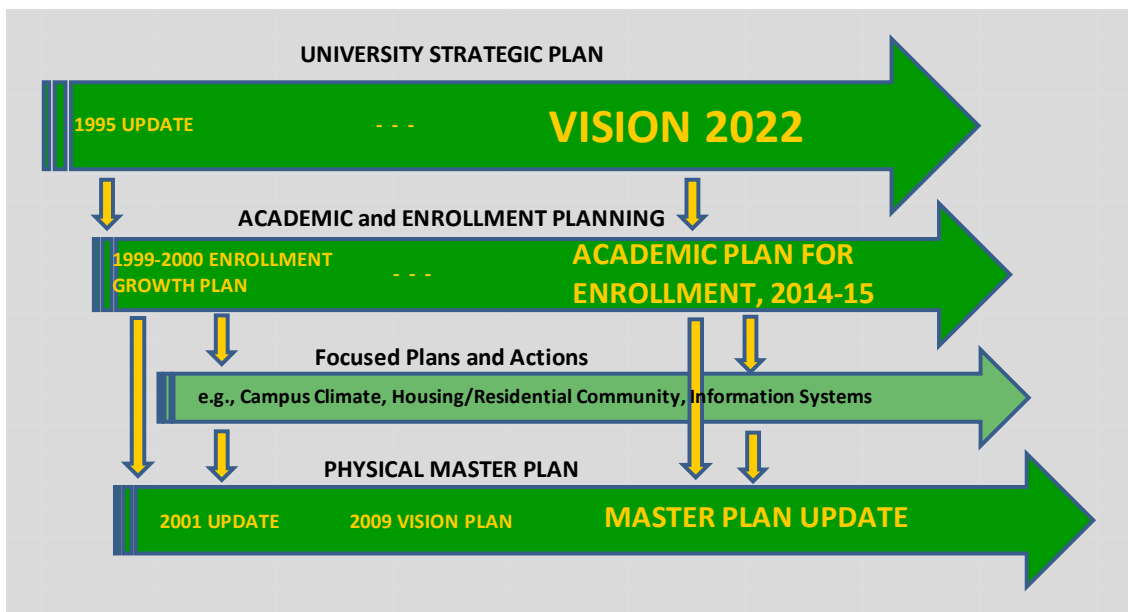
- Enrollment Scenarios – including quality restoration and enhancement, potential growth and options involving the student and/or program mix, and/or year-round operations.
- Future Academic Program Composition – applying a set of criteria for deciding which programs to add and/or expand based on the University's mission and vision for the future.

¹ <http://www.president.calpoly.edu/vision2022/>

The Planning Context at Cal Poly

The diagram below illustrates how each level of planning guides the level below as it both builds on the past and extends into the future. The University's strategic planning, shown at the top, dates back to the early 1980's under President Warren Baker, with a major innovation in 1995 when the first campus-based fee was introduced (known as the Cal Poly Plan). Additional updates occurred in the first decade of the new century, followed by the development of Vision 2022 under the leadership of President Jeffrey Armstrong.

In the late 1990's the University developed an Enrollment Growth Plan, which provided direction for the physical Master Plan adopted in 2001. Now, the new Academic Plan applies the principles in Vision 2022 and guides the next physical Master Plan.



Both academic planning and master planning extend beyond the year 2022 because the principles in the vision statement will carry forward well into the future just as they have built on Cal Poly's foundation. While some of the goals in Vision 2022 can and will be accomplished in a shorter period of time, academic planning must prepare for the next generation of students, faculty and staff; and physical planning takes time to implement. Thus, the present planning initiatives are expected to guide the University for the next twenty years and beyond.

Concurrent Academic and Master Planning – A Brief Chronology

Throughout 2014-15, and the following academic year, the academic and master planning processes have been running concurrently, so that the analysis and insights from each can inform the other.

During fall 2014, a series of academic planning workshops and department discussions explored future opportunities that build on the University's academic strengths. At the same time, the master plan process was exploring assumptions and constraints about the physical environment on and around the campus, and reaching out to engage the campus and broader community through presentations, open houses, and advisory committees. The President's Council of Advisers from the professions and industries that Cal Poly serves also weighed in with their thoughts about future forces affecting the University during their fall meeting; and the President held a leadership workshop in December to set high-level priorities. Associated Students, Inc. followed up with an open house in January.

During winter 2015, the academic colleges continued their work with a discussion of emerging approaches to teaching and learning, which they then translated into implications for effective learning environments. In addition, the academic and physical planning analysis were brought together during the winter and spring of 2015 under the guidance of the Provost's Task Force on Enrollment to inform the University and the community about the potential future capacity of the campus. This discussion will, in turn, guide future enrollment overall and by discipline, and the physical development needed to accommodate instruction, information systems, other academic activities, support programs, student housing, and the necessary infrastructure.

In 2015-16, the master plan process continued, as the specific elements are drafted, followed by a full review of impacts on and off campus, as required under the California Environmental Quality Act (CEQA). The University expects to complete the new master plan during 2016 for submittal to the California State University Board of Trustees for approval in 2017.

Analysis of Cal Poly’s Future Leadership Opportunities²

As a premier comprehensive polytechnic university, Cal Poly sees its future as one of opportunity – to anticipate – and even more to shape – development in existing and emerging fields and cross-disciplinary applications. With this in mind, the academic planning process conducted an environmental scan to bring the factors that could affect the University’s future to the forefront. As a framework for this analysis, Cal Poly adapted the concept of “Planning from the Future Backward” from Donald Norris and colleagues.³ Participants drew upon the general literature as well as information specific to their fields in thinking about future forces and the implications for Cal Poly. The work was organized in three tiers, as follows:

Tier 1 – Higher Education Today and in the Future

Tier 2 – Projections to 2030

- Demographic Trends and Student Expectations
- Global and Regional Trends
- Implications for Future Careers
- Future Knowledge and Skills
- Emerging Fields and Integrated Learning

Tier 3 – Implications for Curriculum, Pedagogy and Space

- Teaching, Learning and Scholarship
- Learning Environments

After an opening session in October 2014, Tier 1 and Tier 2 were completed during the Fall Quarter and Tier 3 during Winter Quarter 2015. The initial analysis for all three tiers occurred at the academic program level, aggregated by college, and then synthesized for the University. The discussion below represents the highlights – both of the common findings across the University, as well as examples of important distinctions at the college and/or program level.

Tier 1 – Higher Education Today and in the Future

The Cal Poly community easily identified the primary challenges affecting higher education that are highly likely to continue into the future:

² This effort was supported by the Office of Academic Programs and Planning. The Academic Planning website contains a full record of the work sessions, materials, and reports submitted during the 2014-15 academic year. See <http://guides.lib.calpoly.edu/planningresources>

³ Donald Norris *et al.* (2013), *Transforming in an Age of Disruptive Change: Part 2: Getting Started, Getting it Done, Planning for Higher Education*, 41:2, Figure 7.

- Declining public funds*⁴
- Increasing dependence on private sources of funding*
- Increasing public frustration with and political intrusion in higher education*
- Student debt

They also underscored how California State University system policies and practices often constrain Cal Poly; and noted that the legislature has now enabled community colleges to offer four-year degrees in selected fields. Faculty in the College of Science and Math and the College of Agriculture, Food, and Environmental Science also commented that reductions in federal grant funding affect their research opportunities. The faculty recognized the importance of increasing student debt in general, even though tuition and fees in the CSU remain modest compared with other public universities.

Implications for Cal Poly. During the discussions, faculty and other leaders thought a lot about the implications of the general trends in higher education, emphasizing the importance of differentiating Cal Poly. In particular, they stressed that Cal Poly provides a distinctive learning experience for students that will continue to have a market. They recognized that Learn-by-Doing is more expensive because it involves smaller classes and labs in hands-on learning activities. At the same time, they argued, these features are what make a Cal Poly education so effective, especially when coupled with a holistic residential experience.⁵

Tier 2 – Projections to 2030

a. Demographic Trends and Student Expectations

Major demographic trends and changes in the college-going population are likely to affect Cal Poly in different ways.

- Increasingly diverse population (broadly defined)*
- Expanding demand for student support services*
- Uneven preparation of students by the K-12 system*
- Changing expectations about how students learn*

⁴ During a retreat in December 2014, Cal Poly leadership considered the topics marked with an asterisk to be among the top ten factors in importance (and over which Cal Poly has relatively little influence).

⁵ While much of the popular literature conflates all aspects of higher education – criticizing tuition increases, student debt, poor graduation rates, limited learning and weak employment prospects – the more analytical studies stress that higher education is not a homogeneous commodity. Consequently, the future prospects differ significantly based on institutional mission and niche. See, for example, the highly cited book by Clayton M. Christensen and Henry J. Eyring, *The Innovative University: Changing the DNA of Higher Education from the Inside Out* (San Francisco: Jossey-Bass, 2011); as well as work such as Michael Barber, Katelyn Donnelly, and Saad Rizvi, *An avalanche is coming: Higher education and the revolution ahead* (London: Institute for Public Policy Research, 2013) and Tom Kenzie and Ilfryn Price, *Disruptive innovation and the higher education ecosystem post-2012* (London: Leadership foundation for Higher Education, 2012) – as compared with journalist Jeffrey J. Selinger, *College (Un)bound: The Future of Higher Education and What It Means for Students* (Las Vegas: Amazon, 2013).

- Decreasing birth rate and number of students graduating from high school

First, the University community is very aware of the changing population in California and beyond, and committed to increasing student, faculty and staff diversity – particularly in the STEM fields. In addition, Cal Poly may be serving more students who enter as junior transfers, as well as post-baccalaureate and international students. The campus recognizes that student success in the future may require a wider variety of services than in the past – starting with housing, financial aid and counselling, and potentially covering physical and mental health and wellness.

As stated at one workshop, Cal Poly sees “... a strong opportunity to become a site for preparing [a more diverse population] for the work force. It presents the increased opportunity for transfer and non-traditional student pipelines, 1st Gen services, and curriculum that connects to that population’s identity and harnesses their potential.”

At the same time, the University community is concerned about student preparation in the K-12 system. While there is hope that the Common Core and Next Generation Science Standards will improve students’ backgrounds in science and math, the campus recognizes that the ability to deliver on these standards varies significantly among school districts across the state. In addition, faculty in the College of Liberal Arts, in particular, are concerned that students are entering college with weaker critical thinking and writing skills than in the past.

The University is very interested in following research on how students learn – and the implications for how Cal Poly can personalize education and accommodate different learning styles. Future generations of students are likely to have become used to unfiltered access to information and to many digital devices, yet faculty and information technology staff question whether they will really be “tech literate” and able to handle digital distractions. And some university leaders think that the increasing use of technology may mean that students’ social and interpersonal skills may be less sophisticated.

Implications for Cal Poly. The final population trend listed above, decreasing birth rate, was not considered among the top ten for Cal Poly because of the University’s high demand and selective admissions. Nonetheless, the University community is aware that it is important to follow this trend as competition increases nationwide for highly qualified students.

b. Global and Regional Trends

Members of the community and industry advisers identified many global forces that will affect Cal Poly in the future. While some impose difficult challenges, the University’s response was optimistic, seeing significant opportunities to expand curricula and assume leadership in higher education.

- Globalization*
- Climate change and other environmental factors*
- Technology*

Cal Poly faculty felt that globalization will continue to expand markets for graduates in many fields, spurring innovation and product development. This underscored the need for more educational

opportunities for experience aboard, learning languages, and increasing facility for working with people from other cultures. At the same time, some faculty and industry advisers warned about political uncertainties and security risks – but even addressing them creates research and education opportunities for some Cal Poly fields.

Implications for Cal Poly. Environmental factors also generate both issues and opportunities. Resource limitations (e.g., water) and natural hazards (e.g., earthquakes) directly affect university operations and the lives of students, faculty, and staff. They also lend themselves to academic study and development of professional best practices in several Cal Poly colleges and for cross-disciplinary work. Similarly, faculty members recognize that technological change can be a source of consternation when one is trying to stay abreast of new developments. Yet, Cal Poly faculty, students and graduates often work at the forefront in inventing these very same technologies.

c. Future Careers

The analysis of institutional, demographic, and global forces leads directly to thinking about what the future careers of Cal Poly graduates will be like. Cal Poly faculty, staff, industry advisers, and students tend to agree with more general futurist thinking about how career trajectories are changing – e.g., multiple, sequential careers with different organizations and/or independent work.⁶ Most importantly, Cal Poly graduates will help meet the demand for a highly-educated workforce that is adaptable to new opportunities (or, indeed, creates such opportunities as leaders).

d. Future Knowledge and Skills

Cal Poly's discussions of the kinds of knowledge and skills future graduates will need were very consistent with what employers seek in terms of general competencies: oral and written communication, working with others, ethical judgment, critical thinking, ability to apply knowledge to real-world settings, addressing complex problems, working with multiple information sources, being innovative and creative, and possessing global awareness and cultural competence, etc.⁷

Implications for Cal Poly. Cal Poly faculty went further, though, and added specific attributes to some of these competencies. For example, they expected students to acquire competency in graphic or visual communication, sensitivity about social equity and justice, leadership skills, and the ability to handle uncertainty and ambiguity and manage change. Cal Poly faculty also stressed the importance of what they term "life skills" – reflection, self-direction, work-life balance, work ethic, professional conduct, accountability for personal behavior, and responsiveness to clients/customers, employers and community.

⁶ See, for example, annual forecasts from the World Future Society – www.wfs.org

⁷ Hart Research Associates, *Falling Short? College Learning and Career Success: Selected Findings from Online Surveys of Employers and College Students* (Conducted on behalf of the Association of American Colleges & Universities, January 20, 2015).

Then, for each college, faculty stressed areas of mastery for each discipline – building on foundational theory and rigorous training to apply their emerging knowledge and skills to contemporary situations in their respective fields. For example, Architecture and Environmental Design spoke to life cycle design; Agriculture, Food and Environmental Science recognized the transition from production to service in their industries; Engineering stressed the importance of application to whole industries; Liberal Arts emphasized how its fields must continue to value the human condition as we encounter new situations; Science and Math underscored the significance of discovery; and the Orfalea College of Business highlighted entrepreneurship and risk management.

Faculty in all six colleges anticipated that the baccalaureate degree will be supplanted by the master's and/or additional post-baccalaureate certification as the minimum qualification for professional success. Thus, offering more advanced degrees and credentials is an opportunity for program development.

e. Emerging Fields and Integrated Learning

The discussion of emerging fields elicited some of the most far-reaching thinking, with faculty from all colleges seeing significant opportunities for research and applications that cut across traditional disciplines. For example:

- Business and industry
- Data analytics, data management, data science – “big data”
- Entrepreneurship
- Environment and sustainability
- Health and well-being
- Product design
- Science, technology and society

One comment suggested that integrated learning beyond traditional disciplines “could be the General Education of tomorrow.” While faculty identified many challenges to achieving true cross-disciplinary work, they also proposed a number of creative forms, consistent with Cal Poly's tradition – such as interdisciplinary senior projects or other collaborative applied projects.

Tier 3 – Learning, Pedagogy, and Space

During the Winter Quarter 2015, the academic programs focused on two questions: (a) emerging approaches to teaching and learning (including ramifications for the teacher-scholar model), and (b) implications for learning environments. Concurrently, the master plan advisory committee on academic and instructional space explored the same topics.

The following general themes about student learning emerged:

- Learning occurs everywhere, both within and outside structured learning environments.
- Learning engages faculty and students beyond the classroom.
- Learning involves social and collaborative interaction.

- Learning and creativity require individual reflection and thought.
- Learning is active and experiential (Learn-by-Doing, problem/project-based).
- Learning happens when students are empowered.
- Learning crosses disciplines.⁸

Following these themes, implications emerged for spaces and facilities that can accommodate informal learning as well as more formal, structured teaching.

Formal, structured learning continues to occur in the classroom and laboratory, even as pedagogical techniques have changed to increase engagement and empowerment. Examples include multi-mode and hybrid instruction and “flipped” classes for a wide range of topics, and problem-based/ project-based, Learn-by-Doing laboratories. Structured and engaged learning is very familiar for the professional colleges, particularly CAED with the studio tradition in design, CAFES with experiential courses, and CENG with vertically-integrated projects. The College of Science and Math introduced “studio labs” during the 1990s to integrate lecture and lab seamlessly in courses involving students actively in science experiments. Disciplines in the College of Liberal Arts highlight sensitivity to the social/cultural context their projects, and the Orfalea College of Business aspires to be “the undisputed leader in experiential business education.” While some disciplines require specialized equipment and fixed configurations, most seek flexible, adaptable space and furniture, so that the instructor can deploy different teaching methods across the term and sometimes even within a single class session.

Informal, structured learning takes place in experiential and co-curricular settings outside the classroom in which the learning outcomes and experience are managed by an instructor, coach, or adviser; and sometimes leads to regular academic course credit. Examples range from internships, service-learning, field work and travel study that are directly connected with a student’s major to formally organized co-curricular activities such as athletics, recreational sports and student government. Some discipline-specific and inter-disciplinary examples include enterprise projects in agriculture; competitions in architecture and engineering; music, theatre, and debate activities organized through the College of Liberal Arts that engage students across the University; and activities sponsored by the Center for Innovation and Entrepreneurship. Specific facility needs vary significantly based on the specific activity – e.g., “messy” project space for engineering, interior and exterior demonstration areas for architectural projects, research and performance facilities for music and theatre – yet all share a common need for flexible collaboration space.

Informal, less-structured learning also happens when students work on campus, participate in clubs and organizations, and study together. The Teacher-Scholar model also offers opportunities for students to learn alongside faculty conducting research and participating in projects through informal mentoring, role modeling, conference participation, and other serendipitous activities. All colleges sponsor disciplinary and/or theme-based clubs – and typically encounter challenges finding appropriate (dedicated) space for ongoing activities. Similarly, faculty members in all colleges involve students in research projects and need informal space for small group interaction – as well as specific facility

⁸ Cal Poly Master Plan Advisory Committee on Academic and Instructional Space, major themes (March 2015).

requirements depending upon the nature of the research activity. In many instances, faculty and students use teaching labs during the summer to conduct research.

All forms of learning – formal and informal, structured and less-structured – depend on ubiquitous connectivity, indoors and outside, throughout the campus and with off-campus locations in San Luis Obispo and beyond. Most equipment has an information technology component. Obsolescence and costs are universal challenges.

Another cross-cutting theme is balancing access with security and safety. Faculty members want students to be exposed to challenging problems, explore new ideas and techniques, and take risks, but these experiences need to be “calculated” – that is, conducted within learning environments where experimentation can be managed, and faculty and students can assess and reflect on the consequences of failure. Some faculty members feel that risk-averse institutional policies over-protect students and consequently limit learning opportunities.

Ramifications for Faculty and the Teacher-Scholar Model

In 2011 the Cal Poly Academic Senate adopted a resolution adopting the Teacher-Scholar model with an eloquent discussion of the meaning of this model for Cal Poly (AS-725-11). While the academic planning discussion above has focused on student learning, it is laced with references to the work of faculty, particularly in their role as teachers. This section reverses that emphasis on faculty as teachers to concentrate on faculty involvement in scholarship and creative activity. The Academic Senate resolution and a number of the departmental narratives in fall 2014 and winter 2015 referred to the need to remove impediments as well as provide resources to support the Teacher-Scholar model.

Tier 1 – Higher Education Today and in the Future: Funding uncertainties directly affect faculty as compensation has not kept pace with competitive salaries in many disciplines and the cost of living in the San Luis Obispo area. This affects the ability of the University to recruit and retain faculty of the caliber demanded by a premier comprehensive polytechnic university – and in the fields most likely to develop and expand in the future. Further, as already noted above, reductions in federal grant funding affect research support, particularly problematic at a time when more research and analysis is needed in emerging fields. Funding limitations also affect the University’s ability to adjust faculty workloads to balance teaching with scholarly and creative activities.

Faculty members in Agriculture, Food and Environmental Science, Engineering, and Science and Math see the potential for private funding to support research and development – particularly when partnerships between Cal Poly and the sponsoring organization can be formed to benefit both. On the other hand, faculty members in a number of fields expressed concern about intellectual property as well as what avenues of research are supported by corporate and private non-profit sponsors.

Tier 2 – Projections to 2030: Cal Poly faculty noted that the University has much to gain – indeed much to offer – by being at the forefront in addressing global and regional trends. In order for Cal Poly to take advantage of these research and development opportunities and to pursue emerging fields, Cal Poly will

need to be able to encourage the scholarships of “discovery, application, and integration” in these areas.⁹ This implies providing support for professional development as appropriate to each field – including, but not limited to, visiting positions at Cal Poly, exchanges with employers, and team research and demonstration projects with professionals elsewhere as well as traditional research, fieldwork, publication, creative activity, conference participation and sabbatical study.

Tier 3 – Learning, Pedagogy, and Space: Faculty members in several colleges explicitly noted that they see the Teacher-Scholar model and Learn-by-Doing as reinforcing one another. Indeed, both involve just the kind of applied research and scholarship that fits well with the Cal Poly (and California State University) mission. Further, this close relationship brings to bear Boyer’s fourth form of scholarship – the scholarship of pedagogy – which encompasses an understanding of how students learn.

A number of the departmental narratives noted implications of the Teacher-Scholar model for facilities. Dedicated space *per se* for research and creative activity is required first and foremost (as appropriate to the discipline), and visiting scholars or professionals require office as well as research accommodation. Further, consistent with Cal Poly’s emphasis on student engagement, faculty members seek space to collaborate – with students and with one another in their scholarship and creative activity.

Most faculty offices accommodate only one or two guests. While projections emphasize that the work space of the future may de-emphasize individual offices and enclosed work areas, faculty and students need privacy for mentoring. Moreover, much research still requires fixed facilities or consistent locations. Faculty in the College of Science and Math, for example, commented on the value of long-term research projects that involve successive generations of students (and sometimes faculty) in studying a phenomenon or succession of events.

⁹ Ernest L. Boyer, *Scholarship Reconsidered: Priorities of the Professoriate* (Princeton, NJ: The Carnegie Foundation for the Advancement of Teaching, 1990).

Major Themes and Implications for Enrollment Analysis

Two major themes emerge from the academic planning process to date. Both address the continuing nature of Cal Poly itself, drawing from the analysis and reflections that occurred throughout the 2014-15 academic year. These two themes then lead to the need for additional analysis, focused directly on enrollment – both the size of the University and the future composition of academic programs.

Themes

- I. Cal Poly's Identity as a Premier Undergraduate Learn-by-Doing Community of the 21st Century

The research regarding higher education and the deliberations of Cal Poly's department heads, chairs and other leadership during the 2014-15 year suggest, first, that the University needs to underscore its distinctive role in higher education as a premier, comprehensive polytechnic university. A baccalaureate degree from Cal Poly is special; a Cal Poly graduate is better prepared for the future – even though state requirements and accreditation standards ensure some degree of consistency at the baccalaureate level across institutions.

Despite popular journalism and commentary to the contrary, students, their families, and employers (as well as colleagues at other universities) know that higher education is not homogeneous – institutions have particular missions and serve different student and societal needs. There are very few polytechnic universities; and Cal Poly is one of very few public polytechnic universities in the United States. As a result, Cal Poly's education is more affordable than that provided by sister polytechnics that are private.

Cal Poly must continue to hone what this means. Vision 2022 emphasizes the importance of excellence, student success, and inclusivity. These are vital, but not sufficient to distinguish Cal Poly and secure the University's financial future. Learn-by-Doing, of course, is at the core.

The University's master planning process to date has renewed the campus community's understanding of the importance of location and the quality of physical space. While the University recognizes that learning can occur anywhere, it is not equally effective everywhere. For example, seating arrangements, lighting, air quality, and acoustics affect learning in the classroom and lab as well as in more informal settings. Data show that students who live on campus in our residential communities for a minimum of two years are more successful than those who move off campus for their second year.

The Cal Poly community understands that some Learn-by-Doing activities can, and should, occur virtually and digitally – for example, experimentation with risky chemicals or accessing huge, international data bases. Yet, a synonym for Learn-by-Doing at Cal Poly is “hands on learning” – there is nothing like working on a solar car, studying how a crop matures, analyzing ocean currents, simulating a new built environment, learning a spoken language, or practicing music together in real time.

In sum, the research conducted as part of the academic planning process shows that Cal Poly needs to demonstrate how the Learn-by-Doing campus of the future builds on the University's rich and successful

history and can extend these benefits to the next generations of students and graduates who will serve the State of California and beyond.

For example,

- Residential students can focus on their education – whereas in the past this tended to detach them from urban and global concerns, technology can now keep students in touch with the world outside.
- Faculty who teach in a rural setting tended to be isolated from their colleagues, but are now part of their global scholarly communities.
- Staff development was limited to opportunities nearby, or occasional training scheduled away from campus, while now a much broader range of resources can be accessed online.
- Learn-by-Doing used to be constrained by the land, facilities and equipment at hand. Now it can take advantage of concurrent work and draw upon comparative data collected elsewhere.
- Formerly, students in small towns were separated from their families and cultural communities, limiting student diversity; now they can stay connected with their support systems.
- Students and faculty depended on conferences, field trips, travel study, and internships to expand their horizons. While these remain important direct experiences, they can be supplemented by virtual means.
- The residential campus of the past sent students home or to work for the summer. Now the University has the flexibility to explore educational and internship opportunities year-round because students (and faculty) who are away at any time can remain connected as well.

In other words, the premier comprehensive polytechnic university uses 21st century technologies to expand on its effective learning tradition. The University community expects the demand for a Cal Poly education to continue to grow – because students and their families understand what they will be able to learn by attending and because employers appreciate the kind of preparation Cal Poly provides for life, leadership, and careers.

II. Cal Poly's Opportunity for More Visibility as a Leader in Higher Education

The first theme addresses Cal Poly's traditional strength in higher education and focuses on its transformation in the 21st century. The strategic planning discussions throughout 2014-15 recognized that this is central to Cal Poly's future – but not sufficient. Thus, a second theme emerged around opportunities for Cal Poly to lead in areas of education beyond the traditional undergraduate degree. For example, department heads and chairs in all colleges noted that many fields are starting to require education beyond the baccalaureate degree because of the expanding (often multi-disciplinary) knowledge and skills involved – even for entry-level work. Professional development, particularly in rapidly-changing areas, is also critical to meeting future workforce expectations. These needs for post-baccalaureate education can be met by offering certificates and other kinds of credentials as well as full graduate degrees.

Cal Poly already has many areas of excellence and pockets of experimentation – in its academic departments, in research centers and institutes (such as the Irrigation Training and Research Center), in International, Graduate and Extended Education, in the Active Learning Lab in the Kennedy Library, in the Center for Innovation and Entrepreneurship, and in the Technology Park. Yet they tend to be overshadowed by state-supported undergraduate education. The University needs to elevate these activities to a higher level of importance and visibility for four reasons:

- Cal Poly’s faculty and staff have extensive expertise that can contribute to meeting societal needs beyond undergraduate education.
- Innovative programs can deliver education in multiple ways, reaching out to the University’s own graduates as well as other professionals.
- Research, professional development and extended learning activities can generate and experiment with knowledge, techniques, and educational practices that can feed back into undergraduate education in the future, as well as continue to serve industry and the professions which value Cal Poly’s practice-based approach to both research and education.¹⁰
- Non-traditional activities can be designed to share expenses and generate revenues that can support residential, Learn-by-Doing education.

Cal Poly can remain predominantly undergraduate and residential, and still pursue these kinds of initiatives because they build on the University’s mission, particularly Learn-by-Doing and the Teacher-Scholar model – and reinforce it by providing opportunities for experimentation and innovation that are more challenging to incorporate in traditional undergraduate programs governed by state regulations and regional accreditation requirements.

In sum, the second theme of the academic plan can calls for Cal Poly to more visibly define and reinforce its special niche in higher education.

¹⁰ During campus discussions, faculty members were adamant that Cal Poly should continue to expand on its strengths, and stressed that they did not see the second theme as suggesting that Cal Poly change is focus from applied to basic research.

Enrollment Implications

Alternative Enrollment Scenarios

During Winter Quarter 2015, the Provost's Task Force on Enrollment¹¹ focused initially on the future size of Cal Poly and potential revenues and costs associated with current enrollment or future growth. To do so, the task force gathered input from university and community constituencies, primarily through the academic and master planning processes already underway, regarding the topics that should be considered.¹²

The task force identified the following range of scenarios or options. As they are not mutually exclusive, the task force anticipated that elements of several could be incorporated eventually in an enrollment plan for the future.¹³

- A. Enhancement of Academic Quality and enrollment changes characterized by an increase in diversity and measures of student success (such as better retention rates), made possible by increased in support and funding.
- B. University Size
 - Current Situation – Steady state (no growth in enrollment or revenues; no changes other than continued aging of all resources).
 - Recent Trends – Changes in enrollment and revenues based on continuation of recent trends, including marginal additions to enrollment driven by CSU funding, with no other additional revenues.
 - Student and/or Program Composition – Changes in the number or proportion of students by geographical origin and/or level as well as changes in the academic program mix.
- C. Enrollment Management Approaches
 - Curriculum and Scheduling Strategies – Designing curricula with planned study abroad/study away terms, which both enhances the student learning experience and allows for operational efficiencies in facility scheduling (such as the fourth year in Architecture)

¹¹ Members: from Academic Affairs: Linda Dalton (convener). Annie Holmes, Kimi Ikeda, Johanna Madjedi, Jim Maraviglia, Mary Pedersen; Deans: Scott Dawson (associate dean Kevin Lertwachara), Douglas Epperson, Debra Larson; Graduate Programs: Richard Savage; Administration and Finance: Victor Brancart, Joel Neel, Julie Moloney; Student Affairs: Keith Humphrey, Preston Allen; University Advancement (communications): Chris Murphy; Constituencies: Joan Kennedy (staff), Gary Laver (Academic Senate), Jacob Rogers (ASI student government).

¹² Deliberations were also guided by remarks made by Provost Kathleen Enz Finken's to "Good Morning, SLO" on January 22, 2015 and by President Jeffrey Armstrong to the Cabinet local economic development committee, master plan advisory committees, faculty and student leadership, and other community and campus constituents on February 13, 2015.

¹³ The text that follows has reorganized the task force's summary of enrollment scenarios.

- Integrated Year-Round Operations – Enrollment changes and potential operational flexibility and efficiency driven by incorporating summer quarter as an integral aspect of a Cal Poly education.

The first scenario (A) expresses the importance of enhancing quality in order to achieve the University's goals and values as expressed in Vision 2022, particularly those that the President and Provost have emphasized as 'inextricably linked' – student success, diversity, and financial security. The first two scenarios that address University size (B), Current Situation and Recent Trends, represent no, or very little, change. The third University size scenario introduces some changes in student mix. The final scenarios (C) offer several means to educate more students through operational changes that reduce the need for physical facilities.

The task force's initial findings led to the following implications and recommendations.

- Most importantly, Cal Poly cannot sustain its competitive advantage and vision as the premier comprehensive polytechnic university in the country unless the University can do something different. Specifically, a revenue enhancement plan that addresses both operating and capital budgets needs to be implemented in advance of or along with any enrollment growth scenario.
- Analysis of the current situation and recent trends illustrates that the status quo is not tenable. If current conditions persist, Cal Poly will continue to lack sufficient operating and capital resources to support quality education. If not addressed, this dilemma would continue with no change or even a reduction in enrollment because costs exceed regular revenues and the annual budget is balanced from one-time funding sources.
- The summary of quality factors that need to be addressed independent of any potential change in enrollment includes (1) cumulative effects of deferred maintenance and inequities in compensation (in a high cost-of-living area), as well as (2) investment in the future in order to meet the University's goals and expectations.
- The analysis of scenarios that might alter student or program composition, or how the curriculum is delivered, was limited by the lack of detailed information about the true costs of instruction and total costs of educating Cal Poly students. For example, the task force was aware that the total cost of serving an international or domestic non-resident student may differ from a California resident, depending upon individual circumstances, and that with changing demographics nationwide, the future market needs further analysis. Nonetheless, the task force had sufficient data to confirm that non-resident student tuition already helps to cover educational costs for all students. Thus, a modest increase in the proportion of domestic non-resident students is a logical component of enrollment growth.
- In its initial consideration of potentially integrating year round operations, the task force identified a list of considerations that would need to be addressed in greater detail in order to meet the University's goals, and recommended extensive further study.¹⁴

¹⁴ The task force members stressed that the potential for year-round operations would require additional study by the Cal Poly community in the future.

Future Academic Program Composition – What to Add or Expand

During spring 2015, continuing to build on the academic planning discussions earlier in the academic year, the Provost's Task Force on Enrollment suggested that future deliberations about academic programs consider the following attributes of leadership as a premier comprehensive polytechnic university.

For the purposes of its report, the task force defined an academic program as any intentional set of courses or curriculum approved by the faculty with specific learning outcomes. Completion of a program may lead to a traditional baccalaureate or post-baccalaureate degree; other programs are designed as minors, certificates, teaching credentials or other modules. An academic program may be offered through a variety of funding mechanisms (state or self-support), delivered by a range of instructional modes, and offered to various student audiences according to a published calendar.

First, the task force assumed that any new program or existing program seeking to increase its enrollment would demonstrate that it meets basic University expectations. In addition, when considering the balance among programs, the task force recommended considering the following criteria:¹⁵

- Vision
 - Cal Poly's emerging academic plan emphasizes Cal Poly's leadership in offering program content and using pedagogy designed to meet future societal needs, so new or expanding programs that demonstrate their ability to achieve this vision should be given priority.
- Mission
 - As a comprehensive polytechnic university, Cal Poly recognizes that one of its hallmarks is the intersection between building comprehensive knowledge and skills for life and applying specialized knowledge and skills to professions. As a premier, comprehensive, polytechnic university, it is essential that all colleges contribute to an applied emphasis on addressing real-world problems, pairing technological innovation with contextual understanding of relevant behavioral, cultural, ethical, and social nuances and parameters.
 - The University's Learn-by-Doing philosophy applies across these academic domains as well so plans for adding or expanding a program need to show how the program can accommodate applied learning in formal classroom or lab settings and/or in broader co-curricular activities that are central to the particular discipline.
- Collaboration across Disciplines
 - Cal Poly's emerging academic plan emphasizes the value of inter- and multi-disciplinary learning. To expand such opportunities, new programs that meet the other criteria and integrate understanding and application of knowledge and skills across traditional

¹⁵ The suggested criteria regarding future academic program composition have been reorganized from the task force's final report.

disciplines should be given priority, and supported by appropriate administrative infrastructure.

- The "wicked" problems¹⁶ we confront require such an interdisciplinary approach, and Cal Poly's leadership position will depend on how well it can accomplish this. Cal Poly cannot afford to seek preeminence in technical fields only. Instead, Cal Poly must continue to be a leader in disciplinary expertise, in contemporary and emerging technical fields, AND must become a leader in integrating the liberal arts and basic sciences (the comprehensive anchors of the university) with professional (polytechnic), business and entrepreneurial programs into interdisciplinary problem-solving efforts.
- University Learning Objectives
 - Cal Poly recognizes that it is neither necessary nor appropriate for each individual academic program to address all of the University's Learning Objectives equally. Thus, as programs are added or expanded, an overall balance needs to be maintained so as to ensure that all graduates can achieve all ULOs.
- Excellence (existing program) or potential for excellence (new program)
- Student Level and Composition
 - Cal Poly seeks actively to increase ethnic, racial, and socio-economic diversity overall (and gender diversity in certain fields). Programs at all levels earmarked for growth and new programs must be able to demonstrate their ability to attract and successfully educate a more diverse student population.
 - Cal Poly expects that its academic programs will continue to focus primarily on traditional-age undergraduate students who are admitted through a selective process and live on campus or nearby in a residential learning environment for at least their first year or so.
 - Post-baccalaureate and graduate programs as well as non-degree programs should complement programs serving undergraduates, consistent with the University mission. During the academic planning process, all six colleges anticipated that the baccalaureate degree will be supplanted by the master's and/or additional post-baccalaureate certification as the minimum qualification for professional success. Thus, offering more advanced degrees and credentials is an opportunity for program development.
 - As a public institution in California, most of Cal Poly's students will continue to be California residents. Nonetheless, domestic non-resident and international students increase geographic and cultural diversity, which are important attributes of higher education.

¹⁶ Horst Rittel and Melvin Webber. "Dilemmas in a General Theory of Planning." *Policy Sciences*, 1973: 155-169. See also, Jon Kolko, *Wicked Problems: Problems Worth Solving* (Austin Center for Design, 2012): "A wicked problem is a social or cultural problem that is difficult or impossible to solve for as many as four reasons: incomplete or contradictory knowledge, the number of people and opinions involved, the large economic burden, and the interconnected nature of these problems with *other* problems."

- Student Success
 - Persistence (retention and graduation) by students in their academic program of choice.
 - The University needs to identify and provide for services appropriate for a more varied student population, including, for example, advising for veterans, housing during breaks for students from afar, dining options for different ethnic and cultural groups, faculty and staff training for serving international students, etc.
 - Most undergraduate programs at Cal Poly are currently designed to enroll students as freshmen. Programs that admit community college transfer students and/or accept students who change major should be designed so that students who enter as juniors can complete their degrees in a timely manner.¹⁷

- Demand
 - A strong applicant pool, with trend data showing that the size and quality of the pool is sufficient and sustainable for the proposed enrollment in the program.
 - High yield – or proportion of admitted students who enroll, reflecting student preference for Cal Poly.
 - Appropriate future prospects for graduates, e.g., in the work force or for more advanced study.

- Cohort Size
 - Critical mass of students and faculty to ensure that required courses can be offered frequently enough for students to stay on track toward degree completion;

- Faculty and Institutional Support

- Resource Requirements
 - A new or expanded program needs to include a sustainable budget plan, showing explicitly where it might generate revenues beyond tuition and fees associated with enrollment (if appropriate) as well as where it may need to be subsidized, so that the overall balance among programs can be weighed. Capital as well as operating costs need to be addressed – to account for facilities, equipment, technology, and any other factors particular to the discipline, curriculum, mode of delivery, or student clientele.
 - Ability to attract and retain faculty and staff required to support the program at the proposed enrollment level.

¹⁷ The task force members understand that parallel discussions in Academic Affairs are addressing the internal change of major policy.

- In its interim report in March 2015, the task force stated that “a revenue enhancement plan that addresses both operating and capital budgets needs to be implemented in advance of or along with any enrollment growth scenario” and that this plan needs to address quality recovery as well as enhancement. The task force recognizes that many services and costs are shared across the University and thus difficult to attribute to a particular program.
- Administrative Requirements
 - The University also needs to weigh the administrative infrastructure needed to support new or expanded programs, and ensure that appropriate systems and processes are in place prior to implementing a program. For example, the University might favor expanding or adding programs that can be supported by common policies and automated practices, and modify or limit the number and/or size of programs that require special handling until administrative routines are in place to support them.



CAL POLY

Future Enrollment Growth for Cal Poly's Academic Programs

Linda C. Dalton, Interim University Planning Officer
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Jim Maraviglia, Associate Vice Provost, Marketing and Enrollment Development
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March 2016
Recommendations Adopted by the Deans' Council, April 11, 2016

The summary table below summarizes the enrollment history, trends, and recommendations to 2035 for the new master plan.

- The columns on the left show historical data, adjusted for the move of Liberal Studies and Education to the College of Science and Math in 2009.
- The committee recommended (and deans approved) the numbers in the columns on the right.
- To develop its recommendations, the committee met with the leadership of each college in January and February 2016, re-read the college and department narratives from the Academic Plan process, and took into account the criteria set out by the Provost's enrollment task force last spring and endorsed by the deans.

Highlights:

- The 'bottom line' is 25,000 fall headcount, shown in red numerals toward the lower right in the recommended column. This is an 'on campus' number for the master plan; the total just above includes self-support students not on campus during the fall term.
- Undergraduate Headcount:
 - Per Academic Plan discussions, undergraduate education remains dominant for Cal Poly.
 - The headcounts proposed by CAFES and CAED were more ambitious than likely applicant pools and future markets would support.
 - The CENG, CLA and OCOB proposals were supported by the applicant pools, markets and other evidence provided by these colleges.
 - The proposal from Science and Math was too modest given the strength of the applicant pool.
- Graduate and Post-Baccalaureate Headcount:
 - Most college proposals were very ambitious and not realistic given Cal Poly's overall support for graduate education. Nonetheless, the committee sees the potential for

- graduate level enrollment to grow to about 1600 students (counting self-support) or over 6 percent of the University total.
- CENG has the most graduate students currently, and has a likely demand for growth, but to a lesser extent than the College proposed.
 - The future for the School of Education - both credential and master's degree programs - is uncertain. While the enrollment has been much higher in the past, reorganization and leadership turnover make it challenging to assess future enrollment prospects, despite a documented need for qualified teachers.
- Self-Support Enrollments in Degree-Programs:
 - CAED, CLA and OCOB gave serious attention to self-support programs - yet in different ways.
 - CAED expects to expand the Architecture program of having students study 'away' during their fourth year (when they enroll through self-support).
 - CLA sees future potential for its graduate program in printed electronics and structural imaging.
 - OCOB has a clear strategy for increasing graduate enrollment in self-support programs.
 - College Totals and Shares:
 - CENG's share continues to climb - to about 29 percent - but more slowly than during the past fifteen years. Improved persistence will contribute to CENG's increasing size.
 - With program growth in key areas, the plan reverses CAFES's recent decline in share and stabilizes the College at just under 20 percent of the University total.
 - CAED's share stabilizes at about 9 percent, with some growth in both new and continuing programs.
 - CLA's share continues at about 15 percent, with growth roughly commensurate with the University as a whole.
 - Science and Math maintains a 14 percent share, with less growth than in the past fifteen years.
 - OCOB's share declines slightly to below 13 percent, based on the College's enrollment strategy.

Supporting Comments from the Academic Plan Process

Cal Poly's academic plan recognizes the complementary roles of the six colleges to the University mission. At the same time it recognizes the demand for the more traditional polytechnic programs, the quality of the applicant pool attracted to them, and the opportunities for their graduates. The following excerpts from each college's academic planning narratives capture the aspirations of the fields they represent in an increasingly multi-disciplinary setting.

Enrollment projections for the future show that the College of Engineering will continue to be the largest college, particularly as its majors keep developing to meet emergent, applied needs in technological fields.

"Engineers create the technologies that propel societal changes, while also serving to advance solutions to the world's challenges. ... We have worked hard to sustain an educational environment

that yields technically-competent graduates serving on the front lines of their professions with courage and a spirit of can-do.”

The College of Agriculture, Food, and Environmental Science has perhaps experienced the most change over Cal Poly’s lifetime, transitioning from an emphasis on agricultural production to processing and marketing that still takes advantage of Cal Poly’s coastal location, ecological diversity, and historical industry support. The College’s 2015 strategic plan reflects the aspiration to “be the intellectual and experiential hot house, cultivating and nurturing people who creatively solve problems in agriculture, food, health and the environment.”

Disciplines in the College of Science and Mathematics are clearly foundational to students in the colleges that apply science, technology, engineering and mathematics in their professional fields. In its own right, Science and Math has provided pedagogical leadership in science education and pioneered faculty/student research partnerships.

The College of Liberal Arts will continue to serve a critical humanistic role in comprehensive polytechnic education at the same time as it focuses on excellence in the arts, humanities, communications and social sciences. Liberal Arts stresses that the “knowledge and skills of the liberal arts combined with a holistic, interdisciplinary experience” will continue to prepare its graduates to address real-world problems in all their social, political and economic complexity.

“The long-term vision of the Orfalea College of Business is to become the undisputed leader in experiential business education.” Further, the Orfalea College sees itself as providing leadership for innovative and entrepreneurial activities that bridge the technical fields in the other colleges.

Finally, Architecture and Environmental Design will continue to serve a focused clientele with its highly ranked professional programs. This college sees a future that emphasizes more interdisciplinary study around emerging areas of critical national and international concern, such as sustainability and climate change.

Final Comments

The committee sees these enrollment projections as representing a realistic, yet conservative view of how Cal Poly might develop in the future. This is very consistent with the first theme of the Academic Plan - reinforcing Cal Poly’s identity as a premier undergraduate, learn-by-doing community. In other discussions on campus, it is clear that faculty generally support this theme.

The committee saw less evidence of substantial support for the second Academic Plan theme - expanding the University’s leadership role - including openness to other markets and ways to deliver education. While faculty, chairs/heads, and deans who are innovative are likely to continue in this vein, the college proposals (except for OCOB) do not pick them up as major factors that will dramatically change the enrollment picture for the University.

With respect to diversity and student success, the balance of growth among undergraduate programs should enable the University to attract and graduate more women and students from under-represented populations.

The college size discussion did not distinguish California residents from domestic and international non-resident students because the difference is not relevant for master planning purposes. Other enrollment planning and management discussions on campus have suggested that highly-qualified non-resident undergraduate students add geographic diversity and can be accommodated above California resident student targets. Non-resident undergraduate students should be distributed across the University, although demand tends to be strongest in the same academic programs that attract California residents. The pattern may be different at the graduate level, for example, where particular programs might be designed to attract international students.

Summary: College Headcount Totals - historical, state only; future, including self-support

	History			Recommended	
	Fall 2000	Fall 2015	Change	Fall 2035	Change
CAFES	3,568	4,002	12.2%	4,900	22.4%
CAED	1,622	1,884	16.2%	2,340	24.2%
CENG	4,187	6,043	44.3%	7,390	22.3%
CLA	2,496	3,227	29.3%	3,870	19.9%
CSM	2,115	2,859	35.2%	3,330	16.5%
Education	376	199	-47.1%	250	25.6%
OCOB	2,344	2,841	21.2%	3,130	10.2%
Other	169	83		-	
Total	16,877	21,138	25.2%	25,210	19.3%
On-Campus Sub-Total		21,027		25,000	
State-Support Sub-Total		20,944		24,840	
Self-Support Sub-total		194		370	
PB/Grad Student Sub-Total	1,047	988	-5.6%	1,595	61.4%
PB/Grad Share of Total Student Headcount	6.5%	4.7%		6.3%	

Analysis of Enrollment Growth Potential for Cal Poly's Academic Programs

Linda C. Dalton, Interim University Planning Officer
Revised and Expanded, March 2016

Cal Poly is preparing a new physical master plan designed to accommodate a fall headcount of 25,000 students. The data and information below and attached are intended to inform discussions about appropriate ***enrollment growth*** for the new master plan at both the undergraduate and graduate/post-baccalaureate levels. Background information includes historical trend data as well as enrollment proposals and narratives provided by the academic departments during 2014 and 2015. Sentences in ***Bold Italics*** note topics for confirmation and/or further discussion.

In May 2015 the Provost's Task Force on Enrollment recommended the following preconditions and additional considerations for the expansion of existing programs and the addition of new academic programs. Criteria marked with an asterisk can be assessed quantitatively using existing data from regular Institutional Research reports. I sometimes cite the most recent (Fall 2015) numbers, but used three-year averages to make generalizations about selectivity, yields, persistence, and diversity representation to moderate any one-year 'bumps' in the data.

Preconditions:

- Faculty support
- Excellence
- Availability of appropriate faculty and staff
- Sufficient cohort size to offer program*
- Size and quality of applicant pool*
- Future prospects for graduates

Additional Considerations:

- Relationship to future vision
- Reinforcement of mission, especially cross-disciplinary study
- Contribution to University Learning Outcomes
- Contribution to diversity*
- Student success*
- Resource requirements (quantifiable, but not with data readily available to me)

Some general comments on each of the quantitative criteria follow, focusing at the undergraduate level where more data and analysis are available.¹

¹ Data for this analysis can be found on the Cal Poly Institutional Research website and portal; and earlier analysis from the 2015-15 academic planning process at <http://guides.lib.calpoly.edu/friendly.php?s=planningresources>

- Cohort Size – Undergraduate programs with fewer than 100 undergraduates (25 per level if they were spread out evenly over four years) might lack sufficient students to offer a full array of courses regularly unless their curriculum is closely linked with other majors. A much smaller number should be viable for post-baccalaureate and graduate programs designed to be completed in one or two academic years.
- Applicant Pool – Selectivity and yield represent demand; and test scores and entering grade point averages indicate the quality of the pool. Selectivity and yield tend to have an inverse relationship. This may be, in part, because selectivity and quality are directly related, and highly-qualified applicants have more choices about where to attend college. The only undergraduate programs that are both selective and have high yields are Recreation in CAFES, Architecture in CAED, Software Engineering in CENG, Art and Design and Music in CLA, with none in OCOB or CSM.

New freshmen for Fall 2015 had an average high school grade point average of 3.92. Selected freshman applicants for CENG and CSM have the highest high school grade point averages and test scores. Selected transfer applicants for OCOB and CENG have the highest entering grade point averages from community colleges.

- Student Success – Note: To date Cal Poly has not analyzed persistence in graduate and post-baccalaureate programs at the same level of detail as for undergraduate programs.

I chose persistence after the third year for freshmen because relatively few students leave the university or change major at that point; and it allows us to use more current data than 6 or even 4 year graduation rates. I noted ‘exports’ and ‘imports’ as well because, together, the number of students who leave or enter a program later than their freshman year affect how the curriculum is offered and overall persistence. Programs with a high percentage of exports tend also to have low persistence (although not universally); in contrast, programs that import students tend to have at least moderate persistence. Note that persistence is calculated based on what the IR office calls the adjusted cohort for a major, starting with all student initially enrolled in the major, then adding student imports, but moving exports to their new major. Some transfer entrants change major within their college, but relatively few move to other colleges, so change of major policy primarily affects freshman entrants.

More than 80 percent of the freshmen in all colleges persist after the third year. The Orfalea College of Business has the highest persistence after three years with 83.1 percent for the 2012 entering freshman cohort still enrolled and 6.1 percent who graduated within three years. Specific undergraduate programs in other colleges with 85 percent persistence after three years (or higher) include Recreation in CAFES, Child Development, Graphic Communications and Sociology in CLA, and Microbiology in CSM.

About 75 percent of students who enter as transfer students graduate in three years, and another 10 percent overall are still enrolled. College patterns are similar as for freshmen entrants, with OCOB and CLA having the highest persistence and graduation rates. CAED and CENG have the highest proportions of transfer students still enrolled after three years,

likely reflecting the highly structured programs in these colleges. (Note: Small numbers of transfer students in many programs make detailed persistence analysis challenging.)

Diversity – Note: Small numbers of women and under-represented minority students in many programs make persistence analysis challenging at the program level. Patterns are quite different by gender and ethnic origin. In Fall 2015, 57 percent of Cal Poly students identified as white, nearly 16 percent as Latino, and 12 percent as Asian-American.

Women comprise over half of the undergraduate and graduate enrollment in three colleges: CAFES, CLA and CSM. While CENG is still low, the percentage of women students has grown steadily to nearly 23 percent in Fall 2015. Women applicants compete well in the admission process, with a higher proportion offered admission (except in CAFES); however, yields for admitted women undergraduates tend to be lower than for male students (except for CSM freshmen). Undergraduate programs with more than half women students tended to have higher persistence for women students, whereas persistence for women was lower in programs with smaller proportions of women. At the graduate level women do not appear to be as competitive for admission, with a lower proportion being selected; yet they yield higher than men in all colleges except CAED and CENG.

Less than 20 percent of the students at Cal Poly are identified as under-represented minorities.²³ At both the undergraduate and graduate levels, students in CAED, CLA and CSM are relatively more diverse than in the other colleges, with the largest proportion of under-represented minority students at the graduate level in CLA. CAFES, CENG and OCOB are lower overall, with a smaller proportion of under-represented minority students at the graduate level than among undergraduates. Under-represented minority freshmen students generally have lower acceptance rates, lower yields, and lower persistence except in a few programs. Under-represented minority transfer students are more competitive in admissions (except in CAED and CENG) and have higher yields than freshmen (except in CAFES and CLA). At the graduate level, competitiveness varies widely, with a much lower proportion of CAFES and OCOB under-represented applicants offered admission; however, yields for these students are strong (except in CSM).

In the following pages, the discussion begins with undergraduate programs in each college; then turns to graduate and post-baccalaureate programs in a later section. It should be noted that virtually all undergraduate enrollment occurs in state-supported programs while some graduate and post-baccalaureate programs are offered in self-support. Data for the latter, which are just beginning to emerge as important academic offerings at Cal Poly, is not as consistently available.

² This discussion of diversity emphasizes student composition because the entire report is focused on enrollment growth potential. Thus, faculty composition is not addressed here, nor curriculum content, nor campus climate more generally – all of which are also important factors when considering diversity at Cal Poly.

³ The CSU defines under-represented minority students as those who self-identify as African-American, Latino, Native American and Pacific Islander.

UNDERGRADUATE PROGRAMS

College of Agriculture, Food, and Environmental Sciences – Undergraduate Programs

- CAFES overview – CAFES has proposed to increase undergraduate enrollment overall during the next twenty years – *this growth would be higher than growth rates over the past fifteen years*. In the 2014 and 2015 narratives, the academic departments stressed a strong continuing demand for their job-ready graduates. In addition, CAFES leadership sees growth potential in large programs like Animal Science, Environmental Management, Nutrition, and Agricultural Business as well as in a number of other majors.
- Recent reorganizations make it difficult to track some program data, particularly potential program size. As new programs supplant those being phased out, the patterns should become clear over time. Overall, CAFES programs tend to be low on selectivity, accepting applicants with relatively lower entering grade point averages and test scores than other colleges. At the same time CAFES is high on yield – in part because there are not many other agriculture colleges. Over half of CAFES undergraduates are women. However, CAFES programs are generally weak on persistence and weak on ethnic diversity. Although the Latino percentage is similar to Cal Poly as a whole, the percentages of Asian-American and under-represented minority students are lower. Nearly 13 percent of CAFES freshman entrants and nearly 9 percent of transfer entrants change their major within the college. Another 11 percent of the freshman entrants move (primarily) to CLA or CSM. CAFES attracts a smaller number of students who change their major from other colleges (mostly from CLA and CSM).
- CAFES strengths - Persistence is strong in the three large programs that are also selective - Animal Science, Nutrition, and Recreation. These programs also enroll relatively high proportions of women. Four other programs with more than 200 students – Agricultural and Environmental Plant Sciences, Agribusiness, Environmental Management and Protection, and Wine and Viticulture are not selective, yet have moderate persistence. Agricultural Communications, Agricultural Systems Management and Food Science are medium-sized with strong persistence, although participation and persistence by women students is low in Agricultural Systems Management. Agricultural Communications has the strongest participation of minority students. Dairy Science has moderate persistence and Environmental Earth Sciences has strong persistence and relatively high participation by minority students.
- CAFES other – Environmental Soil Sciences is relatively new and still small. The three remaining programs, Agriculture Science, Bioresource and Agriculture Engineering, and Forestry and Natural Resources enroll over 100 students, but have low persistence and relatively high exports. Ag Science has good participation by women and both Ag Science and BRAE have reasonable minority enrollment for the college. Forestry and Natural Resources has very low involvement of both women and minority students.

College of Architecture and Environmental Design – Undergraduate Programs

- CAED overview – The CAED case for significant growth is based in part on the quality and uniqueness of its programs. However, undergraduate enrollment has been uneven over the past thirty years, with a short-term peak between 2005 and 2010. The 2014-15 narratives call for new interdisciplinary undergraduate programs to broaden the college's programs and expand enrollment. *At this time, however, the size of the demand for these new programs is yet to be demonstrated.*
- CAED - Only Architecture is very selective; but all programs have high yields (like CAFES, in part due to relatively few other choices for these students). Test scores and grade point averages are below the Cal Poly average. Persistence is above the Cal Poly average in Architecture, Construction Management and City and Regional Planning. Participation and persistence by women is strong in Architecture, City and Regional Planning and Landscape Architecture. Construction Management has relatively few women, but those enrolled persist very well. Asian-American and under-represented minority student proportions are higher than the Cal Poly average and do relatively well (except in ARCE). About 7 percent of CAED's freshman entrants and 5 percent of transfer entrants change major within the college. Other freshmen (about 11 percent) leave, primarily to CLA and CENG. A few students change into CAED from CENG, and even fewer from other colleges.

College of Engineering – Undergraduate Programs

- CENG overview – In the 2014-15 narratives, CENG recognized the college's strong potential, but expressed concern about having the resources to accommodate its students and sustain a quality education. The College sees potential for modestly increasing the proportion of transfer students as compared to new freshman. CENG is also engaged in efforts to increase persistence. *Thus, CENG has continued growth potential at the undergraduate level.*
- As a college, CENG programs are selective or very selective, accepting students with strong grade point averages and test scores, but yield is only moderate. Asian-American students are a higher proportion of CENG undergraduates than in other colleges. Women and under-represented minority applicants are not as competitive as men and don't yield well. Persistence is moderate and students tend to take longer to graduate. CENG has efforts underway to improve persistence. The college's efforts are complicated by internal changes of major – approximately 17 percent of freshman entrants and 11 percent of transfer entrants change within CENG. Some students also change their major to other colleges (typically to OCOB and CSM); and a few move in (from CSM).
- CENG strengths – CENG programs with the best persistence after three years are Environmental, Industrial and Mechanical Engineering; followed by Aerospace and Civil Engineering. Women are best represented in Biomedical and Environmental Engineering,

followed by General Engineering, Industrial Engineering, and Civil Engineering. Of the larger programs Civil Engineering has the highest proportion of minority students.

- CENG other – Computer Science and Computer Engineering have low persistence in general, and low enrollment and persistence for women students. Women are also less than 18 percent of Aerospace, Electrical, Materials, Mechanical, and Software Engineering undergraduates. In contrast, Aero, CPE, and EE attract relatively more minority students. Manufacturing Engineering is small, not selective, with low persistence, high exports, and relatively few women.

College of Liberal Arts – Undergraduate Programs

- CLA overview – The number of Liberal Arts majors is relatively stable, and *the College proposed proportionate growth in the future, although not evenly among programs within the college*. In the 2014-15 narratives CLA stressed its importance in interdisciplinary education, in part through offering minors in Science, Technology and Society.
- Liberal Arts programs range in selectivity and tend to be moderate or low in yield. Particularly in the larger programs, persistence is strong. Women constitute a strong majority in almost all programs, and women persist well. Asian-American students are not as well represented in CLA as in most other colleges. Under-represented minority student proportions vary; they don't yield well, yet they tend to persist best where their proportions are higher. About 12 percent of CLA freshman entrants and 4 percent of transfer entrants change major within the college, and nearly 10 percent of the freshmen move to other colleges (particularly CSM and CAFES). CLA takes relatively more imports than others (except OCOB), attracting students particularly from CAFES and CSM.
- CLA strengths – Child Development, Graphic Communications, and Sociology have very high persistence rates. Sociology imports as well as exports students, retaining those who change into the program. Anthropology and Geography, Communications, Political Science, and Psychology also have high persistence with relatively high numbers of exports and imports. Most other CLA programs with over 200 students have strong persistence rates. Several CLA programs enroll a relatively high proportion of students from under-represented groups – particularly Comparative Ethnic Studies and Sociology – and these students tend to persist well in programs like Comparative Ethnic Studies.
- CLA other – While Philosophy has grown recently, this major has relatively low persistence overall, and weak participation by women. Modern Languages and Literature is not selective, has a low yield, low persistence, and relatively few minority students. Music is selective, with a high yield, but low persistence (although participation by women and minorities is better than average). Theatre has a low yield, only moderate persistence, and very weak involvement of minority students.

While enrollment may be relatively low in some CLA programs, the number of majors understates their importance to the University. Many of these academic departments contribute to the Cal Poly general education program and provide support courses and electives for students in other majors.

College of Science and Mathematics – Undergraduate Programs

- CSM overview – The number of majors in the College of Science and Math has grown very rapidly in the past fifteen years (even when considering the reorganization in 2009 that added the Liberal Studies program and the School of Education to the college). ***The College projects less growth at the undergraduate level in the future than in the recent pasts.*** In addition, the College expects new programs, like Marine Science, to account for an increasing share of student majors.
- About half of the programs in the College of Science and Mathematics are selective, yet nearly all have low yields – with the lowest yield average for the university. Persistence of students who stay or join CSM majors is good, even though significant numbers change major. Participation by women and under-represented minorities are both above the Cal Poly average. Nearly 10 percent of CSM freshman entrants and nearly 7 percent of transfer entrants change major within the college. Others go to CLA, CAFES and CENG. CSM also attracts some students from the same colleges.
- CSM strengths – Microbiology, Liberal Studies, Statistics, and Kinesiology have high student persistence. Most Liberal Studies students are women, and the other three high persistence majors as well as Biology all enroll more women than men students. Mathematics, with a moderate level of student persistence has the highest proportion of minority students in the college.
- CSM other – Biochemistry, Chemistry, Mathematics and Physics have the lowest persistence rates in the college – and along with Microbiology a relatively high number of exports. Physics is also weak on involvement of under-represented minority students, and enrolls relatively few women and minority students.

Orfalea College of Business – Undergraduate Programs

- OCOB Overview – ***OCOB has sustained relatively stable undergraduate enrollment over the past fifteen years and projects less growth for the future.*** The availability of faculty and meeting accreditation standards serve as constraints on program expansion despite student demand.
- Business programs are selective (except for Industrial Technology) with very high persistence. IT imports a very high proportion of its students and they persist extremely well. On the other hand, less than a quarter of the Economics and IT students are women. Asian-American students are a higher percentage than any other college except CENG.

Under-represented minority student participation is relatively stronger in IT, but lower than the Cal Poly average in Business and Economics. OCOB has the lowest proportion of freshman and transfer entrants who change major, either within the college or to another. At the same time, though OCOB attracts students from all five other colleges.

GRADUATE and POST-BACCALAUREATE PROGRAMS

Cal Poly has been predominately an undergraduate institution, with post-baccalaureate and graduate education constituting less than 10 percent (and more recently barely 5 percent) of enrollment. Graduate programs include the MA, MS and various professional degrees. Post-baccalaureate programs are non-degree programs, primarily teaching credentials offered by the School of Education. While most graduate and post-baccalaureate programs are offered through state-support, an increasing number is being initiated through self-support, which is more flexible. In Fall 2015 self-support graduate enrollment was under 100 students, compared with about 750 graduate students and 135 post-baccalaureate students on state-support.

As noted earlier, the University has not undertaken the same level of data analysis for graduate and post-baccalaureate programs as it has for undergraduate programs. Most of the discussion that follows focuses on graduate students (master's degree programs), rather than post-baccalaureate students (most of whom are in teaching credential programs). Also, less data is consistently available for programs offered through self-support. Nonetheless, some patterns are emerging.

College of Agriculture, Food and Environmental Sciences – Graduate Programs

- CAFES overview – Graduate enrollments in CAFES have fluctuated significantly over the past fifteen years, with a recent decline. Most graduate students are in the generic MS in Agriculture program. Women are a significant majority of graduate students, but less than 13 percent are under-represented minorities and less than 6 percent are Asian-Americans. In 2014 CAFES proposed to increase graduate enrollment to 250 students, more than triple current levels. In the 2014-15 narratives, several CAFES departments noted the importance of graduate degrees for their students, but often in fields that complement their undergraduate education. Animal Science, Bioresource and Agricultural Engineering, and Recreation, Parks and Tourism Administration noted a potential for graduate education. *Otherwise, it is not clear from the narratives where CAFES would promote as much growth in graduate education as the college has proposed.*

College of Architecture and Environmental Design – Graduate Programs

- CAED overview – The Master of City and Regional Planning program accounts for about two-thirds of the graduate students in the college, with some recent growth. The MS in Architecture has consistently been enrolling 25-30 students with some potential for growth. The bachelor's degree has been the traditional entry-level degree for the professions represented in CAED, except for City and Regional Planning, for which the master's is the norm nationally. About one-quarter of CAED graduate students are under-represented minorities (especially Latinos), while the proportion of Asian-American graduate students is half the Cal Poly average. Master's degrees in the other fields may either be advanced study for those with a baccalaureate, or new career degrees for students coming from other undergraduate fields. *CAED has proposed additional graduate enrollment in interdisciplinary programs and/or in CM and LA that have not yet been developed.*

College of Engineering – Graduate Programs

- CENG overview – Most CENG departments offer the MS degree, some in the BMS format where a student continues directly from undergraduate to graduate level and writes one thesis to complete both degrees. *The College now accounts for about half of the graduate students at Cal Poly and sees significant growth potential.* Asian-American students comprise over 15 percent of CENG graduate students. However, percentages of women and under-represented minorities are low. In the 2014-15 narratives CENG academic departments noted the increasing importance of education beyond the bachelor's degree, in some cases as entry-level and in others for career advancement. Industry professionals support this need, whether as advanced credentials or full master's degrees. Cal Poly could fulfill some of this demand.

College of Liberal Arts – Graduate Programs

- CLA Overview – Liberal Arts offers four master's degrees, with very consistent enrollment over the past fifteen years. A relatively high proportion of under-represented minority students are attracted to CLA graduate programs, particularly Latinos. However, the percentage of Asian-American graduate students is well below the Cal Poly average. Graduate education is a common next step for CLA undergraduates, but not necessarily at Cal Poly. *In 2014-15 the College proposed growth in these programs in the future without greater specificity. More recent discussion focus on the potential for interdisciplinary graduate programs that link science and technology with risk analysis, ethics, and public policy.*

College of Science and Mathematics – Graduate and Post-Baccalaureate Programs

- CSM Overview – In addition to offering master of science degree programs, the College of Science and Math offers the Master of Education and teaching credentials in the School of

Education. *The enrollment in MS degrees has grown in the past decade and the College sees that trend continuing.* While the Ph.D. will continue to be the appropriate degree for advanced study and teaching, the master's has become valuable for applied work in the sciences. Women comprise about two-thirds of CSM graduate students, and participation by under-represented minorities is above the Cal Poly average. On the other hand, the percentage of Asian-American graduate students is below.

- *The School of Education would like to reverse the recent decline in credential students, seeing a future demand for teachers based on an analysis of demographic trends.*

Orfalea College of Business – Graduate Programs

- Graduate enrollment in OCOB in the state-supported Master of Business Administration program has declined over recent years. Participation by women and under-represented minorities is weak, although a significant percentage of OCOB graduate students identify as multi-racial. At the same time OCOB has increased enrollment in its self-support graduate program in Accounting. *OCOB projects a significant increase in graduate enrollment, all in self-support programs, as prospects for the MBA are uncertain.*

CAL POLY ENROLLMENT TRENDS and PROPOSALS by COLLEGE

	A	B	C	D	E	F	G	H	I	J	K
1			HISTORICAL DATA						ANALYSIS		
2											
3											
4											
5	Undergraduate Headcount (State-Support)		Undergraduate Headcount						15-Year Change		
6			Fall 1990	Fall 1995	Fall 2000	Fall 2005	Fall 2010	Fall 2015	Change	Percent	
7	CAFES		4,031	3,225	3,473	3,613	3,670	3,925	452	13.0%	
8	CAED		1,622	1,369	1,575	1,932	1,587	1,723	148	9.4%	
9	CENG		4,086	3,809	4,034	4,589	4,861	5,692	1,658	41.1%	
10	CLA		2,508	2,350	2,406	2,560	2,612	3,121	715	29.7%	
11	CSM		2,163	2,000	2,019	2,141	2,335	2,767	748	37.0%	
12	OCOB		2,094	2,074	2,226	2,550	2,210	2,744	518	23.3%	
13	Other		26	116	134	103	57	77			
14	Total		16,530	14,943	15,867	17,488	17,332	20,049	4,182	26.4%	
15											
16	PB/Graduate Headcount (State-Support)		Post-Baccalaureate/Graduate Headcount						15-Year Change		
17			Fall 1990	Fall 1995	Fall 2000	Fall 2005	Fall 2010	Fall 2015	Change	Percent	
18	Graduate Headcount by College										
19	CAFES		75	72	85	120	100	71	(14)	-16.5%	
20	CAED		47	98	46	50	78	60	14	30.4%	
21	CENG		179	197	134	242	359	332	198	147.8%	
22	CLA		103	138	83	108	153	100	17	20.5%	
23	CSM (MS)		73	71	93	73	88	92	(1)	-1.1%	
24	OCOB		153	90	118	74	52	35	(83)	-70.3%	
25	Other										
26	Graduate Student Sub-Total (w Education)		630	666	683	790	908	760	131	19.2%	
27	Post-Baccalaureate Sub-Total (w Education)		102	50	311	197	120	135	(176)	-56.6%	
28	Education (Masters)				124	123	78	70	(54)	-43.5%	
29	Education (Credential - Post-Baccalaureate)				204	152	120	129	(75)	-36.8%	
30	Education (Masters and PB)		456	331	376	275	198	199	(177)	-47.1%	
31	Total		1,188	1,047	994	987	1,028	895	(99)	-10.0%	
32	PB/Grad Share of State-Support		6.7%	6.5%	5.9%	5.3%	5.6%	4.2%			
33											
34	Headcount by College (Self-Support)										
35	CAFES (GD)							6			
36	CAED (UG and GD) (off campus)							101			
37	CENG (GD)						2	19			
38	CLA (GD)							6			
39	CSM (GD)										
40	OCOB (GD) (MSPVC hybrid/online)						10	62			
41	Other										
42	Self-Support Sub-Total (UG and GD)						12	194			
43											
44	College Headcount Totals - historical, state only;		College Headcount Totals						15-Year Change		
45	future, including self-support		Fall 1990	Fall 1995	Fall 2000	Fall 2005	Fall 2010	Fall 2015	Change	Percent	
46											
47	CAFES		4,140	3,315	3,568	3,738	3,770	4,002	434	12.2%	
48	CAED		1,684	1,474	1,622	1,989	1,665	1,884	262	16.2%	
49	CENG		4,302	4,020	4,187	4,835	5,222	6,043	1,856	44.3%	
50	CLA		2,617	2,495	2,496	2,669	2,765	3,227	731	29.3%	
51	CSM		2,246	2,075	2,115	2,217	2,423	2,859	744	35.2%	
52	Education		456	331	376	275	198	199	(177)	-47.1%	
53	OCOB		2,247	2,164	2,344	2,625	2,272	2,841	497	21.2%	
54	Other		26	116	169	127	57	83			
55	Total		17,718	15,990	16,877	18,475	18,372	21,138	4,261	25.2%	
56	On-Campus Sub-Total							21,027			
57	State-Support Sub-Total						18,360	20,944			
58	Self-Support Sub-total						12	194			
59	PB/Grad Student Sub-Total (w Education)						1,040	988			
60	PB/Grad Share of Total Student Headcount						5.7%	4.7%			
61											
62	College Headcount Shares		Fall 1990	Fall 1995	Fall 2000	Fall 2005	Fall 2010	Fall 2015			
63			% of total	% of total	% of total	% of total	% of total	% of total			
64	CAFES		23.4%	20.7%	21.1%	20.2%	20.5%	18.9%	-2.2%		
65	CAED		9.5%	9.2%	9.6%	10.8%	9.1%	8.9%	-0.7%		
66	CENG		24.3%	25.1%	24.8%	26.2%	28.4%	28.6%	3.8%		
67	CLA		14.8%	15.6%	14.8%	14.4%	15.1%	15.3%	0.5%		
68	CSM		15.3%	15.0%	14.8%	13.5%	14.3%	14.5%	-0.3%		
69	OCOB		12.7%	13.5%	13.9%	14.2%	12.4%	13.4%	-0.4%		
70	Other		0.1%	0.7%	1.0%	0.7%	0.3%	0.4%			
71											

Note: Data adjusted to 1990 for move of Liberal Studies and Education to Science and Math

	A	B	M	N	O	T	U	VW	AA	AB
1									Discussion DRAFT	
2			College Proposals 2014			COLLEGE PROPOSALS (2016)			Recommended	
3										
4										
5	Undergraduate Headcount (State-Support)		<i>Undergrad Headcount to Fall 2034</i>	<i>19-year Change 2015 to 2034</i>		<i>Undergrad Headcount Fall 2035</i>	<i>20-year Change from 2015</i>		<i>Undergrad Headcount 2035</i>	<i>20-year Change from 2015</i>
6										
7	CAFES		4,510	14.9%		5,005	27.5%		4,800	22.3%
8	CAED		2,640	53.2%		2,340	35.8%		2,100	21.9%
9	CENG		6,090	7.0%		6,749	18.6%		6,750	18.6%
10	CLA		3,540	13.4%		3,700	18.6%		3,700	18.6%
11	CSM		3,010	8.8%		3,010	8.8%		3,200	15.6%
12	OCOB		2,895	5.5%		2,895	5.5%		2,895	5.5%
13	Other									
14	Total		22,685	13.1%		23,699	18.2%		23,445	16.9%
15										
16	PB/Graduate Headcount (State-Support)		<i>Graduate Headcount to Fall 2034</i>	<i>19-year Change 2015 to 2034</i>		<i>Graduate Headcount Fall 2035</i>	<i>20-year Change from 2015</i>		<i>PB/Grad Headcount 2035</i>	<i>20-year Change from 2015</i>
17										
18	Graduate Headcount by College									
19	CAFES		250	252.1%		250	252.1%		100	40.8%
20	CAED		135	125.0%		140	133.3%		90	50.0%
21	CENG		610	83.7%		1315	296.1%		640	92.8%
22	CLA		173	73.0%		152	52.0%		150	50.0%
23	CSM (MS)		222	141.3%		130	41.3%		130	41.3%
24	OCOB		240	585.7%		35	0.0%		35	0.0%
25	Other									
26	Graduate Student Sub-Total (w Education)		1,630	114.5%		2,132	180.5%		1,245	63.8%
27	Post-Baccalaureate Sub-Total (w Education)		385	185.2%		250	85.2%		150	11.1%
28	Education (Masters)					110	57.1%		100	42.9%
29	Education (Credential - Post-Baccalaureate)					250	93.8%		150	16.3%
30	Education (Masters and PB)		385	93.5%		360	80.9%		250	25.6%
31	Total		2,015	125.1%		2,382	166.1%		1,395	55.9%
32	PB/Grad Share of State-Support		8.0%			9.0%			5.5%	
33										
34	Headcount by College (Self-Support)					Self-Support			Self-Support	
35	CAFES (GD)									
36	CAED (UG and GD) (off campus)					280	177.2%		150	
37	CENG (GD)									
38	CLA (GD)					20	233.3%		20	
39	CSM (GD)									
40	OCOB (GD) (MSPVC hybrid/online)					200	222.6%		200	
41	Other									
42	Self-Support Sub-Total (UG and GD)					500	157.7%		370	
43										
44	College Headcount Totals - historical, state only; future, including self-support		<i>Total Headcount to Fall 2034</i>	<i>19-year Change 2015 to 2034</i>		<i>Total Headcount Fall 2035</i>	<i>20-year Change from 2015</i>		<i>Total Headcount 2035</i>	<i>20-year Change from 2015</i>
45										
46										
47	CAFES		4,760	18.9%		5,255	31.3%		4,900	22.4%
48	CAED		2,775	47.3%		2,760	46.5%		2,340	24.2%
49	CENG		6,700	10.9%		8,064	33.4%		7,390	22.3%
50	CLA		3,713	15.1%		3,872	20.0%		3,870	19.9%
51	CSM		3,617	26.5%		3,140	9.8%		3,330	16.5%
52	Education		385	93.5%		360	80.9%		250	25.6%
53	OCOB		3,135	10.3%		3,130	10.2%		3,130	10.2%
54	Other								-	
55	Total		25,085	18.7%		26,581	25.7%		25,210	19.3%
56	On-Campus Sub-Total					26,241	24.8%		25,000	18.9%
57	State-Support Sub-Total					26,081	24.5%		24,840	18.6%
58	Self-Support Sub-total					500	157.7%		370	
59	PB/Grad Student Sub-Total (w Education)					2,602	163.4%		1,595	61.4%
60	PB/Grad Share of Total Student Headcount					9.8%	5.1%		6.3%	
61										
62	College Headcount Shares		<i>Fall 2034 % of total</i>			<i>Fall 2035 % of total</i>			<i>Future Shares</i>	
63										
64	CAFES		19.0%	0.0%		19.8%	0.8%		19.4%	0.5%
65	CAED		11.1%	2.1%		10.4%	1.5%		9.3%	0.4%
66	CENG		26.7%	-1.9%		30.3%	1.7%		29.3%	0.7%
67	CLA		14.8%	-0.5%		14.6%	-0.7%		15.4%	0.1%
68	CSM		16.0%	1.5%		13.2%	-1.3%		14.2%	-0.3%
69	OCOB		12.5%	-0.9%		11.8%	-1.7%		12.4%	-1.0%
70	Other								0.0%	
71										