



Meeting of the Academic Senate
Tuesday, October 11, 2016
UU 220, 3:10 to 5:00 pm

I. **Minutes:** Approval of Academic Senate Retreat minutes September 16, 2016 (pp. 3-4).

II. **Communication(s) and Announcement(s):** none.

III. **Reports:**

- A. Academic Senate Chair: **Orientation for new senators**
- B. President's Office:
- C. Provost:
- D. Vice President for Student Affairs:
- E. Statewide Senate:
- F. CFA:
- G. ASI:

IV. **Consent Agenda:**

ITEMS TO BE CONSIDERED BY ACADEMIC SENATE			
Program Name or Course Number, Title	ASCC recommendation/ Other	Academic Senate	Provost
CRP 428 International Planning and Development (4), 4 lectures	Reviewed and conditionally recommended for approval 6/9/16, pending additional information from the department. Recommended for approval 6/22/16.	On 10/11/16 consent agenda.	
Entrepreneurship minor New Course Proposals: BUS 220 Basics of Business for Entrepreneurs (4), 4 lectures – recommended for approval 4/14/16. BUS 313 Customer Development (4), 4 lectures – recommended for approval 4/14/16. BUS 389 Introduction to Business Negotiation for Entrepreneurs (4), 4 lectures – recommended for approval 4/7/16. ENGR 234 Introduction to Design Thinking (4), 4 lectures – reviewed 5/12/16; additional information requested from department. Recommended for approval 6/2/16.	Minor reviewed 2/18/16; additional information requested from the college. Recommended for approval 6/2/16.	On 10/11/16 consent agenda.	
GSB 520 Data Management for Business Analytics (4), 4 lectures (existing course proposed to be offered online)	Reviewed and recommended for approval 6/9/16.	On 10/11/16 consent agenda.	

VI. **Special Reports:**

[TIME CERTAIN 4:00 p.m.] Revised Academic Probation and Disqualification Policy by Beth Merritt Miller, Assistant Vice Provost, University Advising (pp. 5-7).

[TIME CERTAIN 4:15 p.m.] Presentation on the Diversity Strategic Framework by Jean DeCosta, Interim Chief Diversity Officer and Denise Isom, Interim Associate Director of OUDI.

VII. **Business Item(s):**

A. **Resolution on Proposed New Degree Program for Master of Science in Packaging Value Chain:** Jay Singh, Professor and Packaging Program Director (pp. 8-18).

B. **Resolution on Scheduling Events During Final Examination Period:** Dustin Stegner, Chair Academic Senate Instruction Committee (p. 19).

C. **Resolution on Proposal to Establish the Packaging Value Chain Center:** Jay Singh, Professor and Packaging Program Director (pp. 20-39).

VIII. **Discussion Item(s):**

IX. **Adjournment:**



Academic Senate Retreat Minutes

Friday, September 16, 2016

UU 220, 1:30 to 5:00pm

- I. **Welcome (Laver):**
Gary Laver, Chair of the Academic Senate, welcomed the Senators and attendees, and laid out the agenda for the duration of the retreat.

- II. **President's Report (Armstrong):**
President Armstrong reported on aspects of the Campus Master Plan (which encompasses Vision 2022 and the Academic Plan for Enrollment) with emphasis on the strategic goal to increase the inflow of sustainable revenue. In terms of retention and graduation rates, President Armstrong highlighted national data that show students who live on-campus their freshmen and sophomore years are more likely to be successful in their junior year. The new housing under construction is estimated to add 1,450 beds for freshmen and will free up 1,100 beds for sophomores in the Poly Canyon Village and Cerro Vista Apartments. President Armstrong clarified that after all the other CSU campuses convert to semester system by 2018, data will be analyzed, and Cal Poly will discuss the possibility of converting. Lastly, President Armstrong addressed the importance of diversity at Cal Poly, how to better serve first-generation students, and filling the new position of Vice President and Chief Officer for Diversity and Inclusivity.

- III. **Provost's Report (Enz Finken):**
Provost Enz Finken reported on the push from the Chancellor's Office for Cal Poly to increase its four-year, five-year, six-year, and transfer graduation rates through phase two of the graduation initiative. The Governor approved of \$35 million one-time monies for the CSU to impact graduation rates, with Cal Poly acquiring \$800,000 for projects such as offering more summer classes, paying tuition for summer quarter, and hiring more advisors to support students who are close to graduation. Dean search committees for the Orfalea College of Business and the College of Science and Math will be formed in October.

- IV. **President & Provost Q&A (Armstrong/Enz Finken):**
President Armstrong and Provost Enz Finken took questions on topics such as on-campus housing for students, deferred maintenance, tenure-density, diversity, and investments in sustainability.

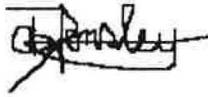
- V. **Discussion of Implementing Electronic Student Evaluations (Brown):**
Ken Brown, Chair of the Faculty Affairs Committee, reported on evaluation metrics and led the Senators and attendees through an activity generating feedback on the faculty evaluation timeline. The results of the activity are available at <http://content-calpoly-edu.s3.amazonaws.com/academicsenate/1/images/Activity%201%20Results%20%28Retreat%202016%29.pdf>.

VI. **Discussion of Prioritizing High Level Investments as Funds Become Available (Laver):**

Dr. Laver led the Senators and attendees through an activity asking them to prioritize the needs of the campus. Background data on students, staff, faculty, and facilities were obtained from Vice President of Student Affairs Keith Humphrey, CSUEU President Joan Kennedy, the President's Office, and Associate Vice President of Facilities Management and Development Juanita Holler, respectively. The results of the activity will be reported later in the Fall.

VII. **Adjournment:** 4:30 p.m.

Submitted by,



Denise Hensley
Academic Senate Student Assistant

Cal Poly Undergraduate Academic Probation and Disqualification

Core Values/Guiding Principles

Every student admitted to Cal Poly should have the maximum opportunity to earn a Cal Poly degree. As a university, we should be providing assistance and guidance wherever possible to achieve this goal. When students find themselves in academic difficulty, we should be creating pathways for success, preferably at Cal Poly. Our policies should reflect this premise as much as possible.

Definitions:

Academic Probation: The term grade point average (unadjusted for any subsequent grade forgiveness), Cal Poly cumulative grade point average, and/or higher education grade point average (GPA) drops below 2.000.

Academic Progress: The degree progress that students make by the end of each academic term by successfully completing units applicable to their declared major. Students' actual academic progress is displayed in the form of a "gauge" showing percent completed and is available on their student portal, in their Poly Profile under the Academic Progress section.

Academic Progress Level: At Cal Poly, students' academic degree progress is divided into four levels, denoting the progress that students are expected make by the end of each of the 4 years that it takes to complete their degree (5 year degree programs have five levels). For detailed information, please see the [Academic Standard](#) section of the Cal Poly Catalog.

Academic Progress Level GPA Limits: The minimum GPA that students must attain in order to remain eligible to enroll at Cal Poly. The Academic Progress Level GPA Limits correspond to the Academic Progress Levels as outlined in the policy under Section II. Academic Disqualification.

Academic Success Contract: A set of academic conditions that students who are either in academic probation or administrative-academic probation status, or academic disqualification or administrative-academic disqualification status have to meet in order to remain eligible to enroll at Cal Poly.

Term Grade Point Average (Term GPA): The grade point average based on all graded work for the term (quarter).

Cal Poly Cumulative Grade Point Average (CPSLO GPA): The grade point average based on all graded work completed only at Cal Poly.

Higher Education Cumulative Grade Point Average (Higher Ed GPA): Grade point average based on all graded work completed at all colleges and universities including Cal Poly.

Disqualification: Academic status that may lead to dismissal.

Dismissal: Administrative action that prevents students from enrolling at Cal Poly for any future quarters. Dismissal may result from academic disqualification or administrative-academic disqualification status, or from a disciplinary proceeding. Dismissed students may or may not be allowed to return to Cal Poly, depending on the reason for the dismissal.

Reinstatement: Administrative action that restores students' eligibility to enroll at Cal Poly. Reinstatement may result from the approval of an appeal of disqualification or the removal of a disciplinary sanction.

Cal Poly
Undergraduate Academic Probation and Disqualification Policy
September 2016

Academic performance is considered in determining students' eligibility to remain enrolled. Uniform standards for academic probation/disqualification and for administrative-academic probation/disqualification are in effect at all campuses of the California State University. When they do not meet these standards, undergraduate students may be placed on academic probation and later placed on academic disqualification status or be placed on administrative-academic probation and later placed on administrative-academic disqualification status. Once placed on any disqualification status, students will be dismissed if no action is taken on behalf of the student, or if an appeal for continued enrollment is not approved by the university.

Undergraduate students are placed on academic probation or on academic disqualification status under the conditions stated below. For minimum academic standards applicable to graduate and post-baccalaureate students, see the Graduate Programs section of the catalog.

I. Academic Probation

Undergraduate students are automatically placed on academic probation when the current term grade point average (unadjusted for any subsequent grade forgiveness), Cal Poly cumulative grade point average, and/or higher education grade point average (GPA) drops below 2.000 (i.e., the equivalent of an average grade of C). Students are notified promptly via campus email by the Office of the Registrar if placed on academic probation. Students are responsible for checking their campus email accounts regularly.

II. Academic Disqualification

Undergraduate students will be placed on academic disqualification status if their Cal Poly cumulative GPA (CPSLO GPA) or their higher education GPA (Higher Ed GPA) falls below the following academic progress level GPA limits based on the corresponding academic progress levels (degree applicable work completed):

Academic Progress Levels:

Academic Progress Level I (0%-20%):
Academic Progress Level II (20.1%-45%):
Academic Progress Level III (45.1%-75%):
Academic Progress Level IV (75.1%-100%):

Academic Progress Level GPA Limits:

1.500 Cal Poly Cumulative or Higher Ed GPA
1.700 Cal Poly Cumulative or Higher Ed GPA
1.850 Cal Poly Cumulative or Higher Ed GPA
1.950 Cal Poly Cumulative or Higher Ed GPA

New Student Success Clause: To allow for an adjustment period, first-time freshmen and new transfer students will not be placed on academic disqualification status until the end of the first academic year even if their GPA falls below the designated academic progress level GPA limits.

5-year programs: Although the academic progress levels for the 5-year programs at Cal Poly differs from those of the 4-year programs, for the purposes of the academic disqualification policy, students in the 5-year programs are held to the same corresponding GPA levels as described above.

III. Notice of Academic Disqualification

Students who fall into academic disqualification status will be notified via email from the Office of the Registrar before the beginning of the next quarter. Their academic status will also show on their student portal, in their Poly Profile. Failure to notify students does not create the right to continue enrollment.

Students will not be dismissed due to academic disqualification status at the end of the winter quarter.

Those students who fall into academic disqualification status at the end of winter quarter will be placed on an academic success contract that, if successfully met, may result in permission to continue beyond spring

quarter. However, students who are placed on an academic success contract at the end of fall quarter and who fail to meet the conditions of their contract will be dismissed at the end of winter quarter.

IV. Appeal for Reinstatement

Students who are in academic disqualification status may appeal for reinstatement. The appeal form is available at (URL). If reinstated, students will be placed on an academic success contract. Students who do not appeal for reinstatement or whose appeal is not approved will be dismissed from the university.

V. Administrative-Academic Probation

Undergraduate students may be placed on administrative-academic probation by action of the dean of the college in which the students' declared major resides for any of the following reasons:

- A. Withdrawal from all or a substantial portion of courses in two successive terms or in any three terms. (Note: students who are on an approved leave of absence is not subject to administrative-academic probation for such withdrawal.)
- B. Repeated failure to make Expected Academic Progress (as defined in the Academic Standards section of the Cal Poly Catalog) toward the stated degree or program objective when such failure appears to be due to circumstances within the control of the student.
- C. Failure to comply, after due notice, with an academic requirement or regulation which is routine for all students or a defined group of students (for example, failure to complete a required CSU or campus examination, failure to complete a required practicum, failure to comply with professional standards appropriate to the field of study, failure to complete a specified number of units as a condition for receiving student financial aid or making satisfactory progress in the academic program).

When such action is taken, students are notified via campus email and are provided with the conditions for removal from probation and the circumstances that would lead to disqualification, should probation not be removed.

VI. Administrative-Academic Disqualification

Undergraduate students have been placed on administrative-academic probation may be placed on disqualification status by action of the dean of the college in which the students are enrolled for any of the following reasons:

- A. The conditions for removal of administrative-academic probation are not met within the period specified.
- B. The student goes on academic probation while on administrative-academic probation.
- C. The student is subject to administrative-academic probation for the same or similar reason for which the student has been placed on administrative-academic probation previously, although not currently in such status.

When such action is taken, the student is notified via campus email including an explanation of the basis for the action.

Adopted:

**ACADEMIC SENATE
Of
CALIFORNIA POLYTECHNIC STATE UNIVERSITY
San Luis Obispo, CA**

AS-__-16

**RESOLUTION ON PROPOSED NEW DEGREE PROGRAM FOR MASTER OF
SCIENCE IN PACKAGING VALUE CHAIN**

- 1 WHEREAS, Strategically considered, packaging incorporates procurement, R&D,
2 marketing, sales, sustainability, and plays a role in defining margins
3 and profitability; and
4
- 5 WHEREAS, There is an emerging emphasis on packaging value chain projected to
6 substantially impact current and future global supply chains; and
7
- 8 WHEREAS, The Industrial Technology Area has taught undergraduate
9 coursework in packaging technology for over twenty-eight years and
10 is considered amongst the top packaging programs in North America;
11 and
12
- 13 WHEREAS, The Industrial Technology Area is proposing a pilot online Master of
14 Science degree in Packaging Value Chain that exemplifies Cal Poly's
15 Learn by Doing philosophy and culminates in scholarly research
16 projects; and
17
- 18 WHEREAS, The Orfalea College of Business' Graduate Program Committee and the
19 Academic Senate Curriculum Committee have carefully evaluated this
20 proposal and recommend its approval; therefore be it
21
- 22 RESOLVED: That the Academic Senate of Cal Poly approve the proposal for the
23 Master of Science in Packaging Value Chain and that the proposal be
24 sent to the CSU Chancellor's Office for final approval.

Proposed by: Jay Singh, Professor and Packaging
Program Director

Date: August 10, 2016

2016 Academic Plan – New Degree Summary Statement
(2015-16 AY)

Title of Proposed Program	Master of Science in Packaging Value Chain (Pilot Degree Program)
College	Orfalea College of Business
Department	Industrial Technology
Contact name(s) and email(s)	Dr. Jay Singh, jasingh@calpoly.edu

1. **Delivery Mode of program:** Fully Face-to-Face Hybrid Fully Online

2. **A brief summary of the purpose (i. e., mission and goals) and distinctive characteristics of the proposed degree program.**

The proposed MS in Packaging Value Chain (MS PVC) pilot program is devoted to the *advancement of knowledge and to motivate and co-create holistic, efficient and effective solutions in the realm of packaging and its impact across the global value chains*. The focus of the program is to elaborate on the role of packaging towards creating value addition and includes courses that build on each other towards a holistic understanding of the global packaging diaspora. Towards this goal, the interdisciplinary MS PVC program incorporates packaging science/technology, data analytics, design, marketing, finance, supply chain, operations and statistics. The MS PVC program also intends to offer five certificates that have been carefully designed to accommodate individual needs of professionals looking to advance their knowledge without the need for a graduate degree.

Each course in this fully online program has been developed to engage students in the latest developments in the relevant topics through collaborative online discussions involving case studies, solving real-life problems, and interacting with professionals from the industry. Students will participate in practical exercises related to topics for each of the courses. Online delivery of the courses also offers the professional students flexibility to engage in course content and activities while maintaining a work schedule in their home communities.

Through standardized process and consistency in the delivery of content, student competencies (e.g. engagement in problem solving, creativity, collaboration, research, etc.) will be enhanced in comparison to knowledge and skills typically associated with standard achievement tests or two-hour instructor lectures. Technology tools and lesson plans used in this course will also facilitate students' collaborative learning with peers from varied geographical, personal and professional backgrounds. The courses will follow CSU's Quality Online Learning & Teaching (QOLT) rubrics with students engaged in course content, instructors, and their community of inquiry in a well-designed and consistently delivered series of courses. Students will be given accessible and varied content that addresses a variety of learning styles as opposed to a more passive, lecture style of learning. Coursework will match the rigor and expectations of a face to face delivery model as students will use the same software and course materials as a fully on-site student might use. Modules of online learning and course progression in the online environment allow students to work at their own pace with deadlines set well in advance for their personal planning.

3. **The program's fit with the campus mission, strategic plan, and commitment to Learn by Doing.**

Our Mission: Cal Poly fosters teaching, scholarship, and service in a Learn by Doing environment in which students, staff, and faculty are partners in discovery. As a polytechnic university, Cal Poly promotes the application of theory to practice. As a comprehensive institution, Cal Poly provides a balanced education in the arts, sciences, and technology, while encouraging cross-disciplinary and co-curricular experiences. As an academic community, Cal Poly values free inquiry, cultural and intellectual diversity, mutual respect, civic engagement, and social and environmental responsibility.

Packaging continues to grow beyond merely being a *support function* that puts products in some type of container into a *strategic business function aimed at creating value*. The MS PVC program is an interdisciplinary degree program that encompasses packaging science, design, marketing, finance, supply chain, operations and statistics. *The program is designed to develop competencies in the substantive packaging and related business acumen and to promote transference of learning to the workplace for professionals*. The intent of the program is to provide professionals and full time students with opportunities to assume leadership roles and advance their careers.

See letter of support from the Dean of Orfalea College of Business at the end of this document.

4. **Support Mode:** State-Support Self-Support/Extended Education

5. **Anticipated student demand.** Please provide projections in the table below and identify the evidence you have used to make these projections (e.g., US Bureau of Labor Statistics).

Enrollment Projections		Year 1	Year 3	Year 5
Number of Students	MS Degree	15	25	35
	Certificates	34	50	70
Number of Graduates (Cumulative, assuming ~90% graduation rate)	MS Degree	0	32	81
	Certificates	0	67	166

Evidence:

- a. The 1-year *MS in Industrial & Technology Studies* (MS ITS) degree offered by the Industrial Technology Area in OCOB graduated over 30 students each year until 2004. Subsequently until its suspension in 2008, MS ITS was modified to a 2-year degree program and graduated an average of 13 students per year. The MS ITS degree had a substantial packaging emphasis in the curriculum and thesis requirement. A survey to Cal Poly undergraduate students who could have potential interest in the MS PVC degree program was undertaken from May 2-9, 2016. Despite the absence of information sessions and limited response period provided, 113 undergraduate students responded from Industrial Technology, Consumer Packaging Solutions Concentration (OCOB), Food Science & Nutrition, Graphic Communication and Packaging Minor. Based on a response of “extremely interested” and “interested”, the survey concluded that 24 Cal Poly undergraduate students could potentially enroll in MS PVC degree program in Fall 2017. An additional 48 students indicated “moderate” and “slight” interest in the program.

- b. Through promotions at the other undergraduate Packaging degree programs in the US, we conservatively project an additional 5-7 students enrolling in the 1-year degree program. With approximately 500 students graduating per year with undergraduate packaging degrees in the US¹, we foresee our unique *packaging value chain* emphasis to a graduate degree being preferable to traditional MBA or related degrees to these professionals.
 - c. A graduate degree as well as relevant certificates in packaging or related field provides professionals with substantial opportunities to assume leadership roles and advance their careers in the packaging industry². Numerous support letters from potential employers supporting the MS PVC degree and certificate offerings have been provided in the full proposal. A sample list of over 70 open career opportunities (until May, 2016) that either 'required' or 'preferred' a graduate degree in packaging or related fields is also provided in the full proposal.
 - d. The Dean of Orfalea College of Business has budgeted \$75,000 for marketing the program by Fall quarter of 2016.
 - e. The consultant report provided in the full proposal offers workforce demand projections for the MS PVC students. Given the primary focus on working professionals, online dissemination of courses, global demand and the right positioning, we foresee robust demand and enrollment at and after the initial launch of the MS in Packaging Value Chain program in Fall 2017.
6. **Workforce demands and employment opportunities for graduates.** Please describe the demands and opportunities and identify the evidence you have used to draw these conclusions.

Expert reports forecast an annual growth for the global packaging industry of 3.5% per year to 2020, with sales to reach \$997 billion by 2020³. In a definitive study of the North American packaging industry, currently valued at \$169.1 billion, experts project its growth to \$186 billion by 2017⁴. Per the consultant report provided in the full proposal, the expectations from potential recruiters of graduates from the MS PVC program includes: *skilled work force (technology, business, communication skills, consumer knowledgeable, global understanding); promotable, versatile, adaptable; strong personal values; strategic/tactical thinkers; critical thinkers; big thinkers and "doers"; resourceful and agile; creative and innovative; program must be collaborative; program must be highly recognized; and looking for highly effective leaders, fast...collaborative, data driven, less hierarchical.*

In response to "where would the MS PVC graduates fit in the industry", the corporations responded: *product manufacturers, brands, packaging manufacturers, 3PLs, transportation companies, military – civilian jobs, military contractors, contract manufacturing, management consulting and design firms.*

In terms of MS PVC graduates' fit in their organizations, the corporations stated:

- *Operating Supply Chain Leader* for specific product or category
- Think *line management* that could have a role in *strategically directing packaging* to differentiate the company
- Likely be *Packaging Department* – savings in handling equip, etc.,

¹ Survey of major North American Packaging Programs conducted by Dr. Jay Singh, January-March 2015

² IoPP, 2015 Salary Survey. http://www.iopp.org/files/2015_salary_survey_report_091.pdf

³ Smithers Pira, The Future of Global Packaging to 2020. Research Report published December 14, 2015

⁴ Smithers Pira, The Future of Packaging in North America to 2017. Research Report published November 23, 2012

- *Manufacturing engineering or operations*
- Could reside in *Procurement*. Likely in *Package Design* or *Package Design evaluation*
- Retail – comes from *Distribution* – replenishment, planning, etc.
- *Cross functional leadership roles* – look at who will hire (*Project Launch Manager*)
- *Packaging supervisors, plant packaging managers, engineering, maintenance prep engineers, marketing and packaging group*, every dept. needs a process engineer...very transferable

These comments and observations were invaluable in developing the MS PVC program as well as in collating the current rationale on leading corporations' needs related to packaging value chain, particularly when hiring university graduates.

7. Other relevant societal needs.

The term *packaging value chain* refers to the network of interconnected businesses and their value creation processes, covering all stages of suppliers - from the point of origin of a packaging solution and all tiers of customers; out to the point of consumption of the product and the ultimate end-of-life options for the packaging. As the power of business customers grows with the increasing technology development, information ubiquity and globalization of markets, delivering customer value is becoming increasingly critical. From packaging being regarded merely as a logistical or materials issue, there has been a shift in the value-creating logic of the packaging industry.

Packaging continues to grow beyond being a support function that puts products in some type of container to a strategic business function aimed at creating value. As a business function, packaging spans the entire range of a packaged goods company's activities and brings the holistic agenda to the table. In doing so, it becomes the strategic enabler that helps other functions deliver benefits to the consumer. Strategically considered, packaging incorporates procurement, R&D, marketing, sales, sustainability and plays a role in defining margins and profitability. Some future trends and drivers for development of packaging supply chain models are: global growth of the middle class; network optimization; packaging technologies – materials and design; modeling and simulation, product, package and supply chain; sustainability; and transparency and risk mitigation. The implication of these trends and drivers is big shifts in the production system that will demand 'more and different' from packaging across the value chain.

- 8. Provide an assessment of the required resources and the campus commitment to allocating those resources.** Provide a narrative description and an itemized list in the table below of the resources that currently exist to support the new program, as well as the additional resources that would be needed to added at initiation, after 3 years, and after 5 years.

2016 Academic Plan – New Degree Summary Statement
(2015-16 AY)

	Existing resources	At initiation- new resources	New resources to be added after 3 years	New resources to be added after 5 years
Faculty	9	1	0	1-2
Student allocations	0	0	0	0
Support staff	1	0	1	0
Facilities	None	None	None	None
Equipment	None	None	None	None
Information resources	Student/faculty access to PolyLearn and Zoom, electronic library and learning resources	None	None	None

Narrative:

Faculty: All faculty currently participating in the MS PVC program are full time faculty with expertise in the courses led by them. OCOB has approved a new tenure-track position in the primary area of Packaging Science and Technology with a start date of September 7, 2017. This faculty member will be immediately engaged in the MS PVC program. We expect the same course offering, listed in section 10, for the first 3 years of program implementation. As the program grows, we will take market needs into account to create new electives. This may necessitate recruitment of additional 1-2 faculty after 5 years. The self-support program is expected to generate sufficient revenue to fund these positions.

Student allocations: Student assistants are not required for this fully online program

Support staff: An additional staff member may be required with administration responsibilities related to the program after 3 years. The self-support program is expected to generate sufficient revenue to fund these position.

Facilities & Equipment: The MS PVC program will be offered fully online and no Cal Poly lecture and/or laboratory equipment/space will be required

Information resources: At launch we anticipate the software requirements to primarily be related to student/faculty access to PolyLearn (Moodle LMS) and Zoom (video-conferencing). Access to and support for both of these are provided by Cal Poly's Information Technology Services. With regards to the instructional support (electronic library and learning resources), support is available through Kennedy Library. As the software/support needs of the program evolve, the OCOB has a team of support staff who can provide support when campus-wide resources are unable to.

Note: The Dean's and Provost's signatures below represent the campus commitment to allocating these resources.

9. And, as applicable:

- a. **If the projection is a pilot program, please list the academic years during which the program will operate in pilot status.**

2017-18 to 2021-22 (5 years)

- b. **For new degree programs that are not already offered in the CSU, please provide a compelling rationale explaining how the proposed subject areas constitutes a coherent, integrated degree program that has potential value to students and meets CSU requirements for an academic program at the undergraduate or graduate level.**

In academia Packaging, as an interdisciplinary field, involves business, design, technology, science, engineering, and the environmental disciplines. Packaging science and technology has become, more than ever, a key to business success because of dramatic economic and technological changes across a range of industrial sectors, particularly the globalization and outsourcing of some portion of nearly all value-added products. Additionally, the public policy environment, both domestic and international, is placing new demands on the packaging industry to improve its environmental footprint, reduce energy consumption, enhance recycling and contribute positively to global sustainability.

There are less than a dozen 4-year degree programs in or related to Packaging in North America. Cal Poly's Packaging Program has developed a national reputation as a significant source of packaging research and education. An increasing number of companies support packaging specific recruitment as well as research & development projects at Cal Poly, resulting in a growing portfolio of returning/new employers as well as larger research projects funded by government and other third-party organizations. The Cal Poly Packaging Program, by most assessments, is considered among the top university-based programs in the United States in Packaging Science and Technology. Located at the Orfalea College of Business, the program is offered as a Major (Industrial Technology), a Concentration (Consumer Packaging Solutions) and a Minor.

The CSU system currently offers no graduate degree programs specifically devoted to the packaging value chain. San Jose State University offers a BS degree in Nutritional Science with a Concentration in Packaging but no standalone packaging specific graduate degree. There are no graduate programs at Cal Poly that offer any curricula related to the proposed MS Packaging Value Chain program.

10. Provide the Learning Objectives for the Program and the curricular requirements.

The proposed MS PVC program aims as serving as an exemplar for Cal Poly's learn-by-doing philosophy through graduating students that will be able to:

- a. Specify holistic, efficient and effective solutions in the realm of packaging and its impact across the global value chains
- b. Develop analytical and critical thinking skills towards assessing the value addition proposition of packaging
- c. Analyze and explain local, national, and global ethical issues related to the packaging value chains
- d. Infer the present and anticipated future packaging needs of the global society

- e. Effectively compose written and oral texts for a variety of scholarly, professional, and creative purposes

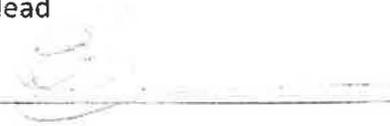
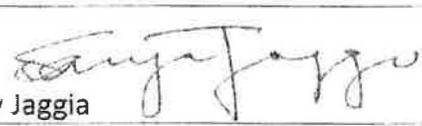
The table below identifies the core and approved elective course requirement towards the MS PVC degree.

Core Courses		
Course Number	Course Title	Units
GSP 530	Packaging Value Chain	2
GSP 532	Packaging Materials	4
GSP 533	Advanced Packaging Laws & Regulations	3
GSP 535	Packaging Value in Logistics and Supply Chain Management	3
GSP 536	Packaging Design	4
GSP 539	Marketing & Sales for Packaged Product	4
GSP 540	Quantitative Analysis for Packaging	4
GSP 591	Applied Industry Project	5
Core Subtotal		29
Approved Electives		
<i>Select any four</i>		
Course Number	Course Title	Units
GSB 520	Data Management for Business Analytics	4
GSP 541	Corporate Finance for Packaging	4
GSB 534	Lean Operations Management	4
GSB 563	International Business Tour	4
GSP 537	Distribution Packaging for Business Managers	4
GSP 538	Quality Evaluation of Packaged Products	4
Electives Subtotal		16
TOTAL UNITS		45

Specific to the requirements of Section 40510 of Title 5 of the California Code of Regulations, MS PVC students are required to take 5 units of GSP 591 (Applied Industry Project). The purpose of this core course is to engage in an interdisciplinary research activity, allowing for an opportunity to apply knowledge, skills, and competencies to address a significant issue in the field of packaging value chain, preferably in connection with the student's employment.

11. Signatures

We confirm that the proposed new program fits with the mission and the strategic plan for the college. Additionally, there is a commitment to allocating the resources required by the proposed new program, both in the initiation phase and the future development of the program.

Department Chair/Head	Date
Dr. Eric Olsen 	8/15/16
Dean	Date
Dr. Sanjiv Jaggia 	8/15/16

We confirm that the proposed new program fits with the mission and the strategic plan for the campus.

Academic Program Consultative Committee	Date
Provost	Date

CAL POLY

OFFICE OF THE DEAN

ORFALEA COLLEGE OF BUSINESS

February 8, 2016

To Whom It May Concern,

The new MS Packaging Value Chain program will contribute to the mission of the Orfalea College of Business to produce career ready graduates. Packaging is a strong differential advantage for the College, and is one of two areas that we have identified for global distinction. Delivering the MS Packaging Value Chain program online allows us to reach working professionals across the United States, and potentially the world, thereby building the reputation and reach of the Orfalea College of Business.

In order to ensure the success of MS Packaging Value Chain program, we hired a consultant to collect input about the skills employers desire from graduates, to identify other programs in the market, and to verify the differential advantage we have because of our existing faculty, our packaging labs, our learn by doing ethos, and the polytechnic nature of the University. The new MS builds on a strong undergraduate program and the guidance of an advisory board of leaders from firms such as Pepsi, Walmart, Amgen, and Nestle. This board provided input on the MS curriculum, and will contribute to the program's success by recruiting students from their firms to enroll in the program and hiring graduates. The Deans Advisory Council from OCOB, which includes senior executives from firms such as Apple, Google, Cisco, and NetApp, enthusiastically endorsed the MS Packaging Value Chain program during its May 2015 meeting. In short, we have verified the need for the MS in Packaging Value Chain, and designed the program to meet well defined needs by methodically engaging with industry.

OCOB faculty are uniquely equipped to deliver the MS in Packaging Value Chain, which will be offered as a self-support program and will not interfere with the delivery or success of any other existing program in the College, or in any other academic unit at Cal Poly. In fact, experience from delivering this program online will provide an example to other faculty in the College that teaching online can yield important benefits. We will be adding to our cadre of packaging faculty by hiring additional faculty to deliver the program.

We will designate a Director of the MS Packaging Value Chain program to ensure that someone has clear responsibility for recruiting, admitting, advising, and placing graduates. The Orfalea endowment is helping to underwrite the costs of launching this program and ensuring its success.

The current facilities for OCOB have the capacity to house the administration and delivery of the MS in Packaging Value Chain. No new facilities are required.

I am very excited and confident about the future of the new MS in Packaging Value Chain. Please let me know if you have any questions or concerns.

A handwritten signature in black ink, appearing to read "Scott Dawson", with a long horizontal flourish extending to the right.

Scott Dawson

Dean

Adopted:

**ACADEMIC SENATE
Of
CALIFORNIA POLYTECHNIC STATE UNIVERSITY
San Luis Obispo, CA**

AS-__-16

RESOLUTION ON SCHEDULING EVENTS DURING FINAL EXAMINATION PERIOD

- 1 WHEREAS, In the 2015-16 academic year, several departments, programs, and a
2 college attempted to schedule events, such as banquets, award
3 ceremonies, or official end-of-term gatherings, during the final
4 examination period because of space issues during commencement
5 weekend; and
6
- 7 WHEREAS, Events sponsored by departments, programs, and colleges could
8 create a conflict for students between their academic performance
9 and their wish to participate fully in such events; and
10
- 11 WHEREAS, Cultural commencement ceremonies, which are sponsored by clubs
12 rather than departments, programs, or colleges, have historically
13 occurred during the final examination period, but are separate from
14 students' academic majors; therefore be it
15
- 16 RESOLVED: That departments, programs, and colleges shall not request University
17 Scheduling in the Office of the Registrar to schedule such end-of-term
18 events during the final examination period, and be it further
19
- 20 RESOLVED: That departments, programs, and colleges shall not schedule such
21 end-of-term events on or off campus during the final examination
22 period.

Proposed by: Academic Senate Instruction
Committee

Date: July 1, 2016

Adopted:

**ACADEMIC SENATE
Of
CALIFORNIA POLYTECHNIC STATE UNIVERSITY
San Luis Obispo, CA**

AS-__-16

**RESOLUTION ON PROPOSAL TO ESTABLISH
THE PACKAGING VALUE CHAIN CENTER**

1 RESOLVED: That the Academic Senate of Cal Poly endorse the attached proposal
2 for the establishment of the Packaging Value Chain Center.

Proposed by: Jay Singh, Professor and Packaging
Program Director

Date: August 2, 2016



CAL POLY
Packaging Program

Proposal to Establish the Packaging Value Chain Center

**California Polytechnic State University
San Luis Obispo, CA**

Submitted by: Jay Singh, Professor and Packaging Program Director
Industrial Technology Area
Orfalea College of Business

Date: April 13, 2016 (Revised August 17, 2016)

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This proposal is for the establishment of a Packaging Value Chain Center at Cal Poly. The primary intent of the proposed Center is to broaden the current fortes in packaging research at Cal Poly through a broader *process view* of the global packaging industry. The proposed *value chain* based approach will signify comprehensive research opportunities involving all activities performed by organizations in the packaging industry aimed at delivering a valuable product to the market.

BACKGROUND

A. *The Discipline of Packaging Technology*

Packaging is the technology that includes the process of design, evaluation, production of packages and subsequently enclosing or protecting products for distribution, storage, sale, and use. It can be described as a coordinated system of preparing goods for transport, warehousing, logistics, sale, and end use. Packaging contains, protects, preserves, transports, informs, and sells. In many countries it is fully integrated into government, business, institutional, industrial, and personal use¹.

In academia, *Packaging* as an interdisciplinary field involves business, design, technology, science, engineering, and the environmental disciplines. Packaging science and technology has become, more than ever, a key to business success because of dramatic economic and technological changes across a range of industrial sectors, particularly the globalization and outsourcing of some portion of nearly all value-added products. Additionally, the public policy environment, both domestic and international, is placing new demands on the packaging industry to improve its environmental footprint, reduce energy consumption, enhance recycling and contribute positively to global sustainability. Global packaging sales rose by 3% in real terms to \$797 billion in 2013 and are projected to grow at an annual rate of 4% to 2018 and reach \$975 billion.

B. *Packaging Technology at Cal Poly*



The Cal Poly Packaging Program has developed a national reputation as a significant source of packaging research and education. An increasing number of companies support packaging related research and development projects at Cal Poly, resulting in a growing portfolio of larger research projects funded by government and other third-party organizations. The Cal Poly Packaging Program, by most assessments, is considered among the top five university-based programs in the United States in Packaging Science and Technology. Located at the Orfalea College of Business, the program is offered as a Major (Industrial Technology with Packaging emphasis), a Concentration (Consumer Packaging Solutions) and a Minor. The program is also currently developing a MS in Packaging Value Chain (PVC) degree (and certificates) aimed at professionals with a targeted launch date of Fall 2017.

¹ Soroka (2009) *Fundamentals of Packaging Technology*, Institute of Packaging Professionals

C. Packaging Value Chain

The term packaging value chain refers to the network of interconnected businesses and their value creation processes, covering all stages of suppliers - from the point of origin of a packaging solution and all tiers of customers out to the point of consumption of the product and the ultimate end-of-life of the packaging. As the power of business customers grows with the increasing technology development, information ubiquity and globalization of markets, delivering customer *value* is becoming increasingly critical. From packaging being regarded merely as a logistical or materials issue, there has been a shift in the value-creating logic of the packaging industry.



Packaging continues to grow beyond being a support function that puts products in some type of container to a strategic business function aimed at creating value. As a business function, packaging spans the entire range of a packaged goods company's activities and brings the holistic agenda to the table. In doing so, it becomes the strategic enabler that helps other functions deliver benefits to the consumer. Strategically considered, packaging incorporates procurement, R&D, marketing, sales, sustainability and plays a role in defining margins and profitability. Following are some future trends and drivers for development of packaging supply chain models:

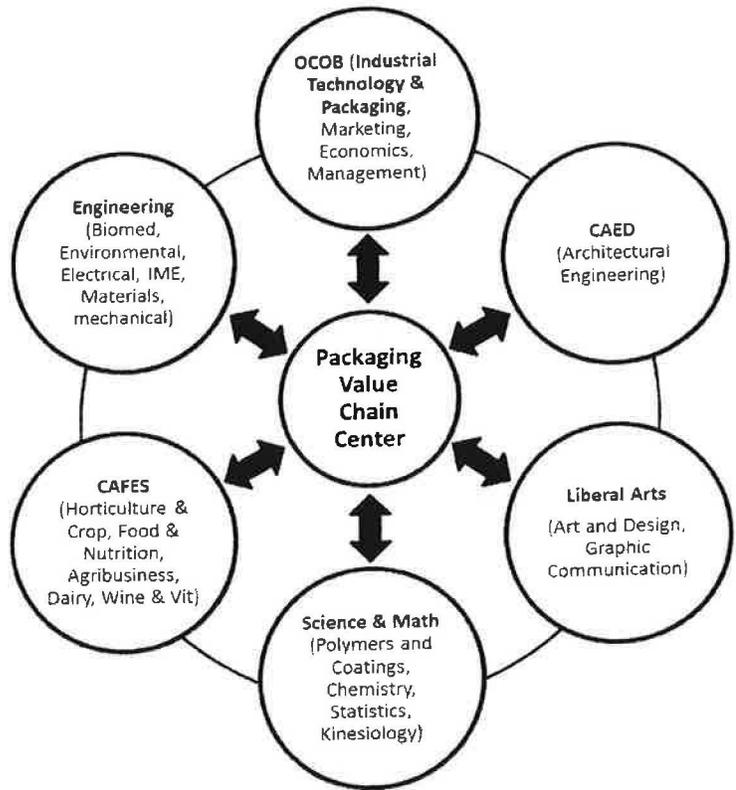
- Global growth of the middle class
- Network optimization
- Packaging Technologies – Materials and Design
- Modeling and simulation, product, package and supply chain
- Sustainability
- Transparency and risk mitigation

Shifting Production Systems	
Current	Future
■ Linear	■ Circular
■ Global	■ "Glocal"
■ Mass	■ Niche & Custom
■ Big Batch	■ Small Batch
■ Big box	■ E-tail
■ Regional Brands	■ Global Brands
■ Global Brands	■ Regional Brands
■ Extractive	■ Biological
■ Brown	■ Green

The implication of the above mentioned trends and drivers is big shifts in the production system that will demand 'more and different' from packaging across the value chain.

D. Packaging Value Chain Center Background

Considering the importance of packaging to the international economy and the enhanced reputation of the Cal Poly Packaging Program, the Orfalea College of Business seeks to form a *Cal Poly Packaging Value Chain Center* that will further enhance professional development opportunities for Cal Poly faculty, build links with industry and the community, provide an identifiable campus entity for practitioners, foster interdisciplinary work (figure on right), aid in obtaining external support and complement the instructional program. The Center will also provide a venue to interlink multiple departments, colleges, and centers within Cal Poly. Moreover, the Center will perform an important coordinating and clearinghouse role among students, faculty and staff who are involved in this interdisciplinary field and interested in practicing their academic disciplines.



Dr. Jay Singh, Director of the Packaging Program, developed this proposal through discussions with Dean Scott Dawson of the Orfalea College of Business, Dr. Eric Olsen, Chair of Industrial Technology Area, and Mary Kelting, Associate Dean of Advancement in the Orfalea College of Business. These discussions focused on the most effective utilization and expansion of Cal Poly's *learn-by-doing* philosophy in a business/technology-oriented education supported by faculty intellectual contributions in applied, discipline-based and pedagogical research.

This proposal has the full support from the Packaging Advisory Board and the OCOB Dean's Advisory Council.

VISION AND MISSION

The vision of the Cal Poly Packaging Value Chain Center is *to create a nationally recognized education and research Center in the realm of interdisciplinary packaging related themes. Its mission will be to enhance interdisciplinary research and development opportunities among Cal Poly faculty and students and the packaging industry through collaborative research-based projects addressing real-world issues.*

Both the vision and mission of the Packaging Value Chain Center comport with the Cal Poly Strategic Plan to integrate, connect and interlink Cal Poly disciplines, faculty, staff and students, all as partners in teaching, learning, scholarship and service to provide a comprehensive polytechnic educational experience and common polytechnic identity.

PURPOSE

A. OBJECTIVE

Drawing on the expertise of numerous Cal Poly faculty, representing nationally recognized programs across all six colleges, the Cal Poly Packaging Value Chain Center will advance packaging innovation and improve the prospects for successful outcomes. The Center will provide a forum that:

1. Attracts packaging related decision makers from across industries and across corporate functions
2. Promotes idea sharing and idea generation
3. Supports programmatic multi-disciplinary research efforts that draw on the combined expertise of Cal Poly faculty and provide value to industry partners.

Following is a representative list of researchers with *potential* of interdisciplinary packaging-focused research at Cal Poly.

- *Architecture*: Clare Olsen
- *Graphic Design*: Mary LaPorte and Enrica Lovaglio Costello
- *Economics*: Sanjiv Jaggia and Steve Hamilton
- *Electrical Engineering*: Dean Arakaki
- *Finance*: Pratish Patel and Cyrus Ramezani
- *Food Science & Nutrition*: Amy Lammert, Amanda Lathrop, Samir Amin and Gour Choudhury
- *Geotechnical & Geoenvironmental Engineering*: Jim Hanson and Nazli Yesiller
- *Graphic Communication & Printing*: Malcolm Keif and Colleen Twomey
- *Industrial & Manufacturing Engineering*: Tali Freed
- *Industrial Technology*: Jay Singh, Eric Olsen, Ahmed Deif, Koushik Saha, Javier de la Fuente and Ajay Kathuria
- *Management*: Kevin Lertwachara and Rami Shani
- *Marketing*: Jeff Hess, Lynn Metcalf and Joan Lindsey-Mullikin
- *Polymers & Coatings*: Philip Costanzo, Ray Fernando and Chad Immoos
- *Statistics*: Soma Roy and Gary Hughes

B. RESEARCH FACILITIES

The currently existing teaching and research lab facilities in the Packaging Program include the following:

- i. *Distribution Testing*: This facility is well equipped to simulate the physical distribution environment packages typically experience in real life. It is International Safe Transit Association (ISTA) certified and is equipped with physical and ambient environmental simulation equipment.
- ii. *Package Design*: This facility is equipped for designing and prototyping paper-based packaging such as boxes, folding cartons, and displays.
- iii. *Rapid Prototyping*: This lab is equipped with a 3D printer
- iv. *Materials and Analytical Testing*: This lab is equipped with the most commonly used material testing equipment for paper, plastic and glass substrates towards application in packaging
- v. *Polymer Processing*: This facility has a majority of processing equipment at different scales for converting plastic resin into films and forms.

With the approval of this proposal, the facilities and related research capabilities that will be developed/expanded are:

- i. *Healthcare Packaging*: Expansion that will consist of most commonly used testing and measuring equipment for pharmaceutical and medical device packaging applications. (~144 sq. ft. expansion)
- ii. *Consumer Evaluation*: This facility will consist of a simulated retail environment to carry out consumer studies and a flexible area to be used for focus groups and usability studies. (~1100 sq. ft. expansion)
- iii. *Package Design*: The expansion will consist on new equipment for printing/plotting blanks for packages, laminating on corrugated and paperboard, and for prototyping packages from printed blanks. (~225 sq. ft. expansion)
- iv. *Rapid Prototyping*: New small 3D printers for student use and a 3D printer with capabilities to produce parts and tooling on a variety of materials (rubber-like, clear, flexible, etc.). (~225 sq. ft. expansion)
- v. *Analytical Testing*: This lab will be equipped with characterization instruments to evaluate mechanical, thermal, thermo-mechanical, permeability, chromatography and rheological studies of the polymeric materials. (~225 sq. ft. expansion)

C. CURRENT PACKAGING RESEARCH VENUES

- i. *The Cooperative Research Consortium in Packaging Science and Technology*

The Cal Poly Cooperative Research Consortium in Packaging Science and Technology was established in 2008. The Consortium is in its eighth



year of successful operation with the consistent support of ten or more organizations annually and the Cal Poly Office of Research and Economic Development. This Consortium represents a partnership among Cal Poly Industrial Technology faculty and researchers from several other departments/colleges, and companies either producing or utilizing packaging to sell their products. Following is a selective list of research projects undertaken:

- Evaluation of Sustainable Recycled and Biodegradable Substrates in Packaging
- Characterization of Single and Multi-Layer Films for Modified Atmospheric Packaging
- Life Cycle Inventory (LCI) as a Tool for Packaging Sustainability
- Radio Frequency Identification (RFID) Tag Embedded-Distribution Packaging Solutions
- Global Database for Packaging Life Cycle Assessment (LCA) Studies
- “First Mile” Distribution Analysis for Fresh Produce Packaging Systems
- Validation of post-consumer recycled and bio-based, biodegradable substrate composition, American Society for Testing and Materials (ASTM) label claims for sustainability, food safety, performance and regulatory compliance
- Migration of low-molecular weight compounds from polymeric substrates

ii. Cal Pack Labs



Cal Pack Labs, a fee-for-service initiative the Packaging Program established in 2003, has been successfully assisting the industry through development/improvement of packages/package systems as related primarily to the distribution environment. Dozens of fee-for-service or contract-service projects are successfully undertaken each year. A central mission of Cal Pack Labs is to provide education, research and testing services to the packaging industry. This initiative puts into practice Cal Poly’s desire to engage faculty in research in their field of expertise. At Cal Pack Labs, faculty is engaged in research, testing and consulting services in a packaging environment to solve current industry issues. Faculty has the opportunity to obtain experience from these activities through the application of research methods and individual consultation, leading to future research opportunities, and ultimately apply the relevance of their results in classroom situations.

iii. Expanding Packaging Program

The Packaging Value Chain Center is a great opportunity for Cal Poly to position itself as a leading research institution in the ever-evolving field of packaging. The establishment of the proposed Packaging Value Chain Center will draw from the present success of the packaging research initiatives and help broaden the scope to:

- Provide cross-discipline/cross-campus opportunities for the professional development of faculty through basic and applied research and development activities through industry consultations and faculty exchanges in the area of packaging science.
- Foster and facilitate interdisciplinary efforts among departments and across colleges.

- Provide a clearinghouse for information of interest to practitioners in the packaging industry and to conduct executive training workshops and conferences for their continuing education.
- Enhance the packaging curriculum being covered in various Cal Poly units such as Food Science and Graphic Communication by facilitating and supplementing academic learning.
- Develop opportunities for undergraduate and graduate students to practice their academic disciplines by providing learn-by-doing research opportunities in the field of packaging science and technology.
- Provide supplementary educational support by acquiring gifts, general-purpose grants and equipment donations for all educational units across campus.

The Cal Poly Packaging Value Chain Center will have the capacity to pursue a range of research not typically possible at a single organization. It will provide a venue for cross-company collaboration and provide opportunities for learning and the exchange of ideas amongst the Cal Poly researchers and the industry.

D. Environmental Factors Favoring Establishment of the of Packaging Value Chain Center

The Packaging Value Chain Center will leverage by way of illustration rather than limitation, the following synergistic efforts and circumstances:

- Current interdisciplinary collaborations will provide a larger platform to promote interlinked cross-campus, faculty-student engagement, increased fundraising opportunities, as well as increased exposure for each college among industry leaders
- Packaging technology has undergone a fast and significant development in recent decades; however the smartest developments are yet to arrive. Today's modern society depends to a large extent on the availability and use of modern packaging technology, comprising a vast variety of modern materials, high tech applications and smart operations. Modern packaging technology aims to meet a vast range of requirements ranging from providing food safety, via low cost storage and distribution, self-selling marketing, convenient consumer use, and responsible waste management practices
- The existing efforts in the area of packaging-related research have been significant over the past decade. A small core team with assistance from several other Cal Poly units has championed these efforts and *brought in millions of dollars in external funding.*
- The core packaging team includes four tenured/tenure track faculty members from very diverse qualifications within the Industrial Technology area. Numerous other experts currently exist in various other departments/colleges such as Food Science and Graphic Communications
- This proposal represents several significant activities across Cal Poly and seeks to enhance the same by providing a venue to foster and facilitate interdisciplinary efforts and cooperation among departments and colleges
- The Packaging Program at Cal Poly presently enjoys the reputation of being the premier educational and research program west of the Mississippi river and as such provides a tremendous opportunity to invite trendsetting and leading research to the campus

- Preliminary discussions with several Cal Poly departments and colleges indicate a high level of interest and involvement in packaging-related interdisciplinary research
- OCOB has identified Packaging as an area of global distinction and is completely supportive of its near and long term undertakings including the proposed Center
- The MS PVC program, geared towards professionals and targeted to be launched in Fall 2016, will also accommodate increased collaboration opportunities with the industry
- The Packaging Advisory Board, consistent of 29 leaders from the industry, and the OCOB Dean's Advisory Council are fully supportive and willing to be the ambassadors of the Center in terms of participation, promotion and recruiting
- The Cal Poly Packaging Program enjoys a global reputation as a leading packaging education and research venue. This was demonstrated at the World Packaging Conference hosted at Cal Poly in 2012. Approximately 150 attendees from 23 countries participated in 90 plus presentations over the 4 day event

PACKAGING VALUE CHAIN CENTER ACTIVITIES

The Packaging Value Chain Center proposes a multi-part structure which will offer flexibility to participating industry members and researchers from various colleges and departments to tailor their research initiatives and undertakings. This customizable approach will allow the sponsoring participants to meet the challenges of cutting edge science and technology in a diverse research environment.

Following are some of the key components of the proposed Packaging Value Chain Center. The design is modeled after the successful Center for UMass/Industry Research on Polymers at the University of Massachusetts.

A. Research Consortia

The Packaging Value Chain Center will continue to use the NSF-I/UCRC format used by the existing Packaging Consortium, in which the research costs and results will be shared with other members in a focused, team-oriented approach. New research consortia targeted towards specific research areas, such as the current focus on fresh produce, will allow small team dynamics between industry sponsors and Cal Poly faculty and students. Benefits to the sponsoring organizations include exclusive reports that they can access one to two years prior to any publications by researchers; meetings, symposia and workshops on the topics of interest; a nonexclusive, royalty-free, nontransferable right and license to access and use materials (software, documentation, manuals, reports, papers and other information licensed or otherwise furnished or made accessible) during their term of membership provided they satisfy all responsibilities and obligations under the consortium agreement.

B. Sponsored Research Projects

The Packaging Value Chain Center will also carry our traditional sponsored research projects through which individual organizations can support research on their topic of interest with individual or teams of faculty. The organization and research teams will collaboratively design the program to meet the sponsor's unique needs. The sponsors of this stream of research will be provided an option to join any of the research consortia in the Packaging Value Chain Center.

C. Unrestricted Research Grants (Gifts for Research)

Philanthropic donations will allow for creative and unrestricted use of funds by the Cal Poly researchers. Packaging Value Chain Center-based research professorships, internships and funding of industrial lectureships will be possible.

D. Short-Duration, Idea-Development Research Projects

This option will provide the participants a venue to scope out potential programs through idea development and concept feasibility in short-duration and focused research studies. The preliminary results will be useful to determine whether a longer-term research undertaking is warranted and will also assist in providing research direction for any future work. This program will be available on a limited basis with agreement of the individual (or a team of) faculty members(s) and the Packaging Value Chain Center Director. This will be accomplished through Cal Pack Lab Research, Testing and Consulting Services (Cal Pack Lab), an existing fee-for-service University mechanism.

E. Outreach and Education

Workshops, seminar series and summer workshops will also be organized resulting from research conducted at the Cal Poly Packaging Value Chain to provide an opportunity for students, faculty, and industry to contribute, learn and discuss the research topics undertaken. The Packaging program has been hosting a successful annual freshPACKmoves Seminar in Monterey for the past two years focusing on focus on packaging innovation; food safety and traceability; sustainable packaging solutions; and cold chain logistics for fresh perishables.

FINANCIAL RESOURCES

The table below, provides an itemized budget with estimated revenues and expenses of the Center for an initial period of five years. Start-up funds raised through the *Center Founders' Circle* and *Corporate* memberships as well as the current momentum of research activities (external grants and consortium revenues) will initially support the hiring of a part time Administrative Director and a Technical Director who will coordinate Center activities and operations. *The OCOB will provide an amount of up to \$50,000 as backstop funding loan to the Center in case of need during the first two years of operation.* In the third year, a combination of additional personal and corporate memberships, consortium revenue, initial return of external funds from grant related activity, workshop/seminar/conference revenues and gifts will support the

Administrative Director full time, the Technical Director part time as well as the post doc and student assistants along with any external resources to organize the events affiliated with the Center.

Start-up Funds: These funds will be raised through a Center Founders' Circle and Corporate membership campaign. This will be done through the support of the OCOB Dean's office and the Cal Poly Packaging Alumni group.

Private Gifts for Research: These unrestricted research grants will be solicited from individuals and private foundations interested in supporting the packaging related research efforts of Cal Poly and the Orfalea College of Business

External Funds: The Cal Poly Packaging Value Chain Center will be a focal point for significant grant writing activity by affiliated faculty and staff. Grant proposals will be submitted to both private foundations with an interest in packaging related research as well as government funding sources.

Earned Income – Conferences, Seminars and Executive Training programs: The Center will present a series of events and conferences starting in year 1 or 2, including boot camps, executive sessions, and a major annual symposium - *freshPACKmoves* (focused on providing the fresh produce industry a critical edge in the competitive arenas of packaging innovation, food safety & traceability, sustainable packaging solutions, and cold chain logistics for fresh perishables).

Endowment Income: The Center will raise an endowment based upon naming and other support opportunities. The income from this endowment will support the mission of the Center.

Intellectual Property: It is assumed that the research activity of the Center will occasionally result in intellectual property. The Cal Poly Intellectual Property Policy as placed by the Research and Economic Development division at <http://www.research.calpoly.edu/policyip> will be consulted upon with regards to ownership and other interest, administrative procedures, income allocations and implementation. With regards to any IP arising from Consortium activities, a Cal Poly sanctioned agreement on intellectual property that includes both non-exclusive licenses for member companies, as well as exclusive agreements when in the interest of consortium members will be considered.

Note: *The Packaging research team from the OCOB has received over \$3,730,000 in external funding since 2003 through competitive grants for research from state and federal agencies as well as proprietary research for packaging organizations. These projects have been undertaken with investigators from several units at Cal Poly as well as other universities.*

1. The Cooperative Research consortium in Packaging Science and Technology,
~\$1,400,000
2. Cal Pack Lab, ~\$126,000

3. External Grants, \$2,200,000

EXPENSES & REVENUES

The table below provides an overview of the estimated expenses and revenues for the first 5 years of the Cal Poly Packaging Value Chain Center.

Expenses	Year 1 ^a	Year 2 ^b	Year 3 ^b	Year 4 ^b	Year 5 ^b
Administrative Director*	\$162,000	\$170,100	\$178,605	\$187,535	\$196,912
Technical Director**	-	-	-	-	-
Interns	-	\$10,000	\$20,000	\$20,000	\$20,000
Consortium/Sponsored research	\$229,500	\$365,000	\$475,000	\$597,000	\$733,400
Fee-for-service	\$25,000	\$35,000	\$45,000	\$55,000	\$65,000
Scholarship for MS PVC students	-	\$20,000	\$30,000	\$40,000	\$50,000
Professional seminars/training	\$20,000	\$20,000	\$30,000	\$40,000	\$50,000
Rent	-	\$96,000	\$96,000	\$96,000	\$96,000
Center Operations	\$10,000	\$20,000	\$25,000	\$30,000	\$35,000
Travel Expense	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
TOTAL EXPENSES	\$456,500	\$746,100	\$909,605	\$1,075,535	\$1,256,312

Revenue	Year 1 ^{**}	Year 2 ^{***}	Year 3 ^{***}	Year 4 ^{***}	Year 5 ^{***}
Consortium	\$214,500	\$300,000	\$360,000	\$432,000	\$518,400
Sponsored research	\$50,000	\$100,000	\$150,000	\$200,000	\$250,000
Fee-for-service	\$30,000	\$40,000	\$50,000	\$60,000	\$70,000
Center Founders' Circle Membership	\$150,000	\$200,000	\$200,000	\$200,000	\$200,000
Corporate contribution/donation	\$25,000	\$100,000	\$200,000	\$250,000	\$300,000
Professional seminars/training	\$20,000	\$50,000	\$60,000	\$70,000	\$80,000
TOTAL REVENUE	\$489,500	\$790,000	\$1,020,000	\$1,212,000	\$1,418,400

*includes ~60% towards benefits package and 5% annual raises

**OCOB will compensate the Packaging Program Director for undergraduate/graduate programs and the technical director roles

**A majority of Year 1 expense and revenue numbers are accurate and any projections included are conservative

***Year 2-5 projections are estimated

A. EXPENSES

a. Administrative Director: It is proposed that a person from the packaging or related industry be brought in to serve as the Administrative Director. This person will report to the Dean of OCOB. Specific responsibilities of the Administrative Director include:

- Coordination of Center-supported research projects
- Coordinate the selection and launching of research projects based on recommendations of the Center's Executive Committee (EC) and Advisory Board (AB). The organizational Chart is provided later in this document.
- Interaction with industry participants through the EC and AB as well as other formal and informal mechanisms
- Interaction with college and university leadership
- Promotion of the research and technology transfer missions of the Center
- Seeking new members for the Center activities
- Making the necessary policy decisions with regard to operation of the Center and implementation of Center-related university policies
- Leading and managing the outreach and executive education activities
- Developing the annual reports and coordinating meetings supportive of the mission of the Center

A salary, consisting ~60% benefit package, of \$162,000 and an annual salary increase of ~5% are planned in the budget.

b. Technical Director: The Director of the Packaging Program in OCOB will be the Technical Director of the Consortium and will report to the Dean of OCOB. Specific responsibilities of the Technical Director include:

- Consult with the Administrative Director on Center supported research initiative selection and launch
- Assist the Administrative Director in preparation of research project budgets
- Assist with defining the strategy with the research teams of each project
- Assist the Administrative Director in tracking and measuring each project's progress
- Supervise the operation, maintenance and procurement of any Center based research related software, supplies and equipment in the Cal Poly Packaging Program labs

OCOB will provide a compensation package to the Technical Director that will also include leadership roles in the undergraduate and graduate programs.

c. Interns: Cal Poly students (undergraduates and graduates) will be provided paid internship opportunities towards assistance with the various administrative activities for the Center.

No interns are planned to be hired during the first year of operation of the proposed Center.

- d. Consortium/Sponsored Research: Cal Poly students (undergraduates and graduates) will be provided paid research assistant positions towards assistance with the various administrative activities for the Center. With the intent of building a reserve towards future promotion or research needs, a portion of the funding received via the research consortia and other sponsored research activities will be annually added into a related account.

It is anticipated that approximately \$229,500 from such research activities will be expended towards salaries, materials/equipment and travel for participating researchers during the first year of operation of the Center. This is based on a revenue of \$214,500 received for the consortium as well as other projected sponsored research revenue of \$50,000 this year.

- e. Fee-for-service: The Packaging Program, through its fee-for-service Cal Poly Corporation account, takes on testing/research projects from the industry. These are based on research capabilities and available equipment. Till-date, no internal or external promotion of such capabilities has been done. We anticipate that this venue will draw a significant amount of revenue through the promotion of the Center.

The projected expenses (salaries, materials, equipment maintenance, etc.) for the first year of operation of the Center for the fee-for-service activities is \$25,000

- f. Scholarships for MS PVC students: As previously mentioned, the Packaging Program is planning on launching an MS degree in Packaging Value Chain by Fall 2017. The on-campus students that enroll in this program will be financially assisted through scholarships towards their tuition and research.

No scholarships are planned to be disseminated during the first year of operation of the proposed Center.

- g. Professional Seminars/Training: The associated expenses represent the cost of marketing, organizing and hosting these events. The Packaging Program is hosting the third installment of freshPACKmoves Seminar in Monterey, California (May 16-18th, 2016). The seminar is designed to expand participants' knowledge base with access to first-hand intelligence, data-driven research, and top-notch speakers.

It is anticipated that the freshPACKmoves Seminar related expenses will be approximately \$20,000

- h. Rent: Upon the formal approval of the proposed Center, it is expected that on- or off-campus space will be sought towards administrative and meeting purposes.

No expenses are anticipated towards the Center office during the first year.

- i. Center Operations: These expenses will be primarily geared towards management of administrative and marketing undertakings.

It is anticipated that the related expenses will be approximately \$10,000 during the first year of operation

- j. Travel Expense: This expense is to reimburse primarily the Directors for travel related to the proposed Center activities.

It is anticipated that the related expenses will be approximately \$10,000 each year of operation

B. REVENUE

- a. Consortium: As previously discussed, the Cal Poly Packaging Research Consortium is currently in its 8th year of operation. While increasing the enrollment for the current consortium, the Center would allow for several other Consortia to be launched on other industry segments and or the packaging industries' collective research needs.

With 13 members this year, the membership dues amount to \$214,500

- b. Sponsored research: The Packaging Program has a great track record of attracting sponsored research aside from the Consortium. It is close to securing its second funded grant of approximately \$30,000 from the USDA's National Mango Board.

A conservative revenue of \$50,000 is anticipated for the first year of operation of the proposed Center

- c. Fee-for-Service: The Packaging Program has been successful in providing contract packaging research and testing to the industry through the Cal Pack Labs (Sponsored Programs) since 2003.

A conservative revenue of \$30,000 is anticipated for the first year of operation of the proposed Center

- d. Center Founders' Circle Membership: This involves \$25,000 pledge over 5 years from individuals. We are currently actively cultivating more than 20 individuals to support the center as a founders' circle member.

The solicitation for donations has started with the Packaging Advisory Board (PAB) members and \$40,000 has already been received. With an additional \$60,000 contribution to the Center by the OCOB Dean, we comfortably anticipate meeting the target of \$150,000 for the first year.

- e. Corporate: Corporate sponsorship levels being proposed are \$10,000, \$25,000 and \$50,000 annually. We anticipate that we would have as many as 10 corporations that are currently involved in our packaging program that are ready to be asked for sponsorship.

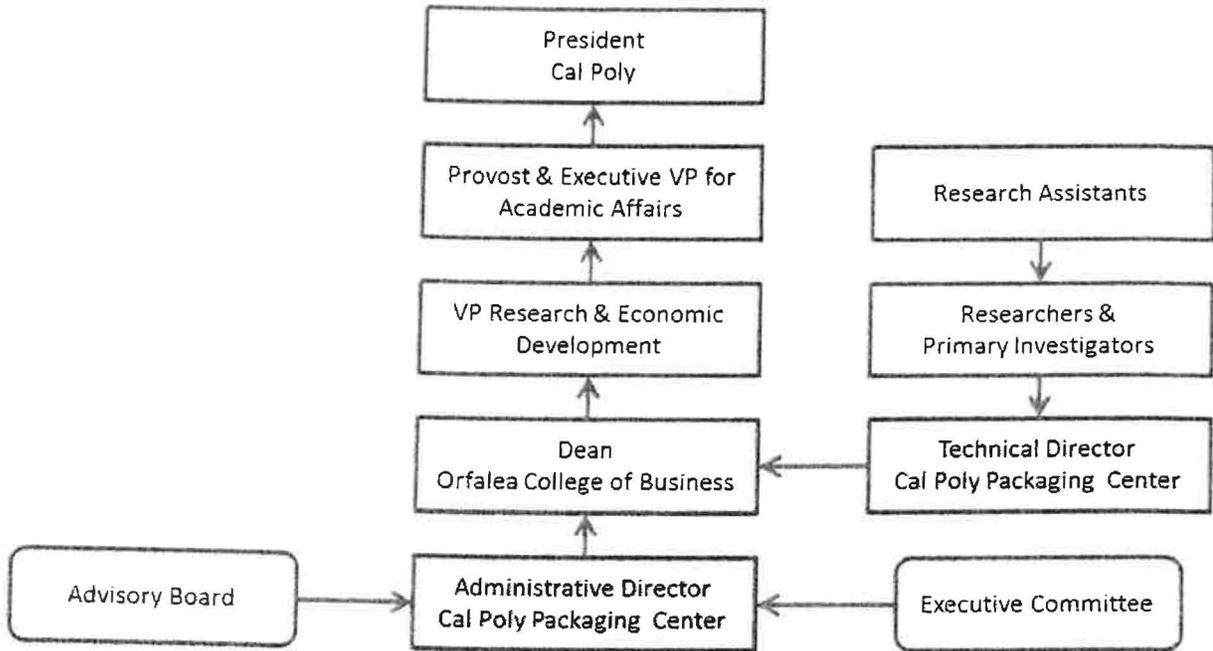
The PAB members will be discussing strategies towards seeking corporate donations at the April 22nd, 2016 meeting. We are conservatively including a \$25,000 solicitation for the first year of operation of the proposed Center.

- f. Professional Seminars/Training: This represents income from various outreach and education events hosted through the Center.

We are anticipating a revenue of \$20,000 from the upcoming freshPACKmoves Seminar

PROPOSED ORGANIZATIONAL CHART

The organizational chart below shows the reporting structure proposed.



The *Executive Committee* shall consist of the Directors plus three to five active faculty participants in the Center. The Directors will make recommendations to the Dean of the Orfalea College of Business for the appointment of faculty members to the Executive Committee. The Executive Committee shall be responsible for a) recommending candidates for Center participation; b) recommending members of the External Advisory Board; c) recommending Center programs and activities; d) recommending operating guidelines to implement Center programs and activities. Members of the Executive Committee will be appointed for two-year terms on a rotating basis. At a minimum, three members of the Executive Committee will be from colleges other than the Orfalea College of Business.

The *External Advisory Board* shall be composed of a minimum of five and a maximum of twenty members representing a spectrum of expertise and background associated with packaging science and technology. Initial appointments of between one and three years may be used to stagger Board membership terms. Thereafter, terms will be three years. The Board shall provide advice and comment on Center programs, shall engage in public relations and support activities for Center programs, and shall provide overall guidance and direction to the Center, working in consort with the Directors